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Worker Reciprocity and the Returns to Training: Evidence from a Field Experiment

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ABSTRACT

Worker Reciprocity and the Returns to Training: Evidence from a Field Experiment[*]

Workers' reciprocal behavior is one argument used to explain why firms invest in employee human capital. We explore the relation between firm-sponsored training and reciprocity by providing evidence that workers reciprocate employer training investments by making greater effort. Using a field experiment with random assignment to a training program, we show that reciprocal workers have significantly higher performance than their non-reciprocal peers after participation in the training course. This result suggests that reciprocal workers exert greater effort in response to the firm's investment.

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1 Introduction

Standard human capital theory predicts that firms do not invest in general training because they anticipate that workers bargain for higher wages at the current firm or take the acquired knowledge to outside firms (Becker 1962). More recent contributions to human capital theory posit that market imperfections, such as compressed wage structures, can explain why firms do invest in general human capital (Acemoglu and Pischke 1999). An alternative argument to explain these investments is based on reciprocity. This trait, which can be defined as individuals' response to friendly actions, even in the absence of expecting material gains (Fehr and Gächter 2000), is shown to be important in labor market settings (e.g. Rabin 1993, Falk and Fischbacher 2006, Rotemberg 2006, Dohmen et al. 2009). If workers perceive firm-sponsored training courses as a kind action, workers might reciprocate the training, e.g., by staying with the firm, by making greater effort, or by reducing wage demands (Leuven et al. 2005). These behavioral effects of training go beyond the returns to human capital acquisition from training and may be substantial for firms' investments in training. Indeed, Leuven et al. (2005) find that reciprocal workers receive more firm-sponsored training courses.

There is no conclusive evidence, however, showing through which mechanism workers reciprocate training. This paper explores one mechanism, namely whether reciprocal workers exert greater effort after participation in firm-sponsored training, resulting in higher returns to training. This mechanism is tested using data containing direct measures of worker performance, collected in an in-house call center of a multinational mobile network operator in the Netherlands (cf. De Grip and Sauermann 2012). In this firm, we exploit a field experiment with random training participation and survey evidence on reciprocal attitudes. We find that reciprocal individuals have significantly higher returns to training, compared to non-reciprocal individuals. This finding suggests that individuals with reciprocal attitudes return training investments via greater effort provision after training.

Reciprocal inclinations have been shown to be important in various labor market settings. The underlying idea is that the interaction between employer and employee can be seen as a gift-exchange where one party provides a gift, which is then rewarded by the other party (Akerlof 1982, Rabin 1993, Fehr and Falk 2002, Dufwenberg and Kirchsteiger 2004). A large number of studies using laboratory and field experiments providing evidence that gifts from the employer can induce workers to make greater effort than they would without the gift (e.g. Fehr et al. 1997, Charness 2004, Gneezy and List 2006, Hennig-Schmidt et al. 2010, Kube et al. 2012, Becker et al. 2013, Cohn et al. 2015). While most of these studies analyze the effects of gifts on effort provision, a few studies analyze how firm- and worker-level outcomes are related to measures of reciprocal attitudes. Barr and Serneels (2009) link experimentally derived measures of employees' reciprocal attitudes to firm performance, and find that firms with a more reciprocal workforce are more productive than firms with a less reciprocal work force. Using representative survey data for Germany, Dohmen et al. (2009) find that reciprocal attitudes are linked to higher wages, and to working harder.

In line with these findings, workers may be willing to respond reciprocally if they perceive training as a kind action. Several non-experimental studies analyzing reciprocal reactions to firm training investments provide evidence for possible mechanisms through which workers reward training investments. By comparing pre- and post-training measures of organizational support for a military organization, Mullen et al. (2006) find that trainees react positively to training participation. Although merely comparing outcomes before and after participation in training, they find that organizational support increases with training participation. For a large multinational company based in Germany, Kampkötter and Marggraf (2015) find that participation in on-the-job training is related to lower turnover and lower absenteeism, suggesting that this could be one possible mechanism through which workers 'reward' the firm for the investment. Using representative survey data for the Dutch public sector, Montizaan et al. (2015b) show that firms' training investments are positively correlated with postponed entry to retirement and find

that this effect is driven by individuals with (positive) reciprocal attitudes. While these are all potential mechanisms, this study explores a different link, namely whether reciprocal individuals make greater effort and thus show higher performance after participation in training. Random assignment to training courses allows causal identification of the interaction effect between treatment and workers' reciprocal inclination. The finding that reciprocal workers provide greater effort after training participation provides additional evidence for an alternative rationale for the investment in training: Workers' reciprocal reactions to training can make these investments beneficial, even if the effect on human capital is limited. This result contributes to explaining the positive correlation between training incidence and reciprocal attitudes (Leuven et al. 2005), but also to the general understanding of gift-exchange in firms.

This paper is structured as follows. Section 2 provides details on the data, the field experiment, and the measures of reciprocity. The main results as well as robustness checks are presented and discussed in Section 3. Section 4 summarizes and concludes.

2   Data and setting

2.1   Workplace, tasks, and performance measurement

We use personnel data from an in-house call center of a multinational mobile network operator in the Netherlands from week 45/2008 to week 24/2009 (De Grip and Sauermann 2012). The call center acts as a service center for current and prospective customers. We focus on the largest department, which serves private customers with fixed cell phone contracts. Call agents in this department have only one task, to answer incoming customer phone calls. Customers contact customer service when they have problems, complaints, or questions. All agents take part in a training course when entering the department, which enables them to handle basic types of calls. Throughout their careers, agents receive further training. These training programs focus mainly on information in promotional

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campaigns, communication, and information technology skills, as well as on handling more complex calls.

Call agents are organized in teams, which are led by a team leader. There is no specialization of teams, and no team-based incentives. Although the firm collects a large amount of data on the performance of individual call agents, these are not explicitly used to incentivize the call agents. Agents' performance can influence wages only through an annual appraisal interview with their team leader in which agents are evaluated for the past year. Based on the outcome of this appraisal interview, agents receive an annual bonus as well as an annual wage increase. Otherwise, wages are fixed for agents.

Our data contain weekly information on various performance outcomes, with average handling time being the most important measure for monitoring agent performance used in the firm. Average handling time is defined as the average time an agent needs to handle a customer call and is available for each individual agent and each working week. We use the inverse of average handling time multiplied by 100, which allows us to interpret low (high) y_{it} as low (high) performance.[2]

2.2 The field experiment

In 2009, randomly selected agents participated in a field experiment on the returns to training.[3] The training program itself was designed as a week-long program, held in the call center's in-house training center over 5 consecutive days. Roughly half the training time was reserved for group discussions, in which the group discussed skills they lacked in their tasks, how these skills could be improved, and how the agents could provide more help to each other. During the other half of the training time, training coaches assisted the agents in handling customer calls. The training program was intended for agents

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[2]This measure is also used in Liu and Batt (2007), Murthy et al. (2008), De Grip and Sauermann (2012), and Breuer et al. (2013). Agents with lower average handling time are evaluated as performing well. The main argument for this approach is that shorter calls are cheaper for the firm. There is only limited evidence that short calls are associated with lower quality (cf. De Grip and Sauermann (2012))

[3]A more detailed description of the field experiment is found in De Grip and Sauermann (2012).

with some experience on the job with the aim of increasing efficiency. Underperformance on overall targets led management to organize the training to decrease the average time needed for handling calls.

In week 50/2008, management selected agents for the training program and announced that a one-week training course would take place about three month later. During the sample period between week 45/2008 and week 24/2009, a total of 177 agents worked in the department. Of these agents, 74 participated in the training program, while 103 were not eligible to participate in the training experiment or were eligible but dropped out before the experiment. The firm deliberately chose to train more experienced workers to avoid losing their training investment due to high turnover among agents with low tenure. At a later point, the firm also offered training to other agents who were initially not selected for the experiment.

During each training week, only up to 10 agents could be trained. Because of the requirement that training groups are formed from agents of the same team, randomization took place in two steps: First, the 10 teams who were involved in the training program were randomly assigned to treatment and control groups, and to specific training weeks. Second, due to capacity constraints, teams were randomly split up into separate training groups which were then trained in different weeks within the training period. In this setting, agents of both treatment and control groups eventually received the one-week training. The treatment effect of training participation on performance, and the interaction with the measure of reciprocal attitudes are identified from exogenous variation in training participation. After a pre-training period (17 weeks), during which none of the agents was trained, agents from the treatment group ($N = 34$) are trained between weeks 10/2009 and 15/2009. Agents of the control group ($N = 40$) were treated as well, but only after week 24/2009, i.e., after the last week in our data. This experimental design creates a 10-week period during which treated agents from the treatment group worked alongside non-treated agents from the control group. In total, the data contain performance information for 32 weeks. Agents were never informed about this randomization. Agents

learned about their training week about four weeks in advance along with information about their work schedule.

An important feature of this study is that agents in both the treatment and control groups were always aware that they would eventually be trained. Prior to the experiment, management communicated that, due to capacity constraints in the training center, the training would be rolled out over the course of several months. For this reason, we do not expect that agents in the control group perceived the training as unfair.

2.3 Measuring reciprocity, personality, and cognitive ability

During the field experiment, call agents participated in a survey on "working in call centers," which included questions on reciprocal attitudes, personality measures, cognitive questions, and socioeconomic information. Individual information on reciprocity was gathered using the questions developed by Perugini et al. (2003).[4] In the survey, respondents were asked to rate the following questions on a 5-point Likert scale from 1 ('does not apply to me at all') to 5 ('applies perfectly to me'): (1) "If someone does me a favor, I am prepared to return it," (2) "If I suffer a serious wrong, I will take my revenge as soon as possible, no matter what the costs," (3) "If somebody puts me in a difficult position, I will do the same to him/her," (4) "I do my best to help somebody who helped me before," (5) "If somebody offends me, I will offend him/her back," and (6) "I am ready to undergo personal costs to help somebody who helped me before." From the standardized values of the answers to items (1), (4), and (6), we calculate an average measure of positive reciprocal behavior.[5] Answers to items (2), (3), and (5) are used to calculate the equivalent measure for negative reciprocity. These measures are constructed such that positive and negative reciprocity are not correlated.

A potential concern arising from using these survey measures is that they might be distorted because of intentional or unintentional misreporting. Although measures of

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[4]The same set of questions are used by Dohmen et al. (2009), and Montizaan et al. (2015a).

[5]All results in this study are qualitatively similar when using measures of reciprocity, which are derived from Principal-Component-Analysis.

reciprocity gathered in choice experiments might be more reliable (Cohn et al. 2015), we argue that our measures do capture reciprocal inclinations, for two reasons (cf. Montizaan et al. 2015a). First, the survey questions were experimentally validated in Perugini et al. (2003). Second, several studies have shown that these survey measures yield results that are consistent with theoretical predictions (Dohmen et al. 2009, Montizaan et al. 2015a).

One additional concern is that effects attributed to reciprocity are driven by other individual-specific characteristics correlated with our measure of reciprocity. To provide evidence against this argument, we employ measures of personality and test scores for cognitive ability. Personality is measured by the 15-item Big-5 questionnaire, which is implemented in the German Socio-Economic Panel (Gerlitz and Schupp 2005). These 15 questions can be grouped into the five factors of conscientiousness, extraversion, agreeableness, openness to new experience, and neuroticism. All Big-5 factors are standardized with a mean of 0 and a standard deviation of 1. To measure cognitive ability, we implemented six questions on arithmetical and logical problems (CentERdata 2007). The answers could be either right or wrong; the cognitive test score is computed as the average of correct answers.[6]

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[6]These questions are adapted from CentERdata (2007). The questions are (1) "There are two groups of tourists of 60 persons each. If 3/4 of the first group and 2/3 of the second group take the bus to the museum, how much larger is the first group than the second group?" (2) "A rubber ball jumps up half the distance which it fell down. If the ball falls down from a 18m high roof, how many meters does the ball travel before it touches the ground for the third time?" (3) "Four girls are 100cm, 150cm, 125cm, and 75cm, respectively. Debbie is the tallest of the four girls. Karin is the shortest. Emmy is taller than Sara. How tall is Sara?" (4) "A ball and a hat cost 1.10 Euro in total. The ball costs 1 Euro more than the hat. How much does the hat cost? Please give your answer in cents." (5) "If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?" and (6) "In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?".

3 Results

3.1 Descriptive statistics

During our observation period, 177 agents work in the department. Column (1) of Table 1 shows the descriptive statistics for these agents. The agents are predominantly female (71%), average age is 33 years, and agents have an average tenure of 2.6 years. Most of the agents work part-time, with an average of 18 weekly work hours. Out of the 177 agents, 109 agents (61.6%) participated in the survey. Column (2) shows that the agents who participated in the survey are on average 35 years old, and have higher tenure (3.5 years).[7] Column (3) shows the respective figures for agents who participated in the field experiment ($N = 63$). As more experienced agents were selected for the experiment, and the survey was intended to accompany the experiment, agents who are part of the experiment have relatively similar characteristics as the respondents to the survey.[8] The sample shown in Column (3) comprises the main estimation sample, as it contains both random assignment to treatment and control groups and survey measures of reciprocity. Columns (4) to (6) show that none of our observable characteristics significantly differs between the treatment group ($N = 30$) and the control group ($N = 33$). Only one of the factors of the Big-5 measures (extraversion) is slightly more pronounced in the treatment group, compared to agents in the control group.

To understand the role of reciprocity in the workplace, we first analyze the correlation of reciprocity with agent-specific characteristics. Using data limited to the period before the experiment, Table 2 shows the correlation coefficients of worker characteristics, work-related outcomes, and personality measures and reciprocity. The table shows

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[7]The sample of agents with information on reciprocal attitudes ($N = 109$) is clearly not representative of the overall sample of agents working in this department. This sample does not, however, violate the assumption that assignment to the treatment group is exogenous, which we will use later to study the effects of training. This is because assignment to the treatment and control groups is exogenous conditional on being assigned to the training program.

[8]The sample of participants in the experiment ($N = 74$, cf. De Grip and Sauermann, 2012) does not differ significantly from the sample of participants who also participated in the survey ($N = 63$). The table is available upon request.

that reciprocity is related neither to worker characteristics (gender, age), nor worker outcomes (performance, tenure, working hours, absenteeism, training incidence). In line with Dohmen et al. (2008), however, we find that reciprocity is significantly related to all elements of the Big-5 personality measures. Reciprocity is not significantly correlated with the cognitive test score and the measure of negative reciprocity.

One might be concerned that the estimation sample ($N = 63$), and thus observed reciprocity, is not randomly selected (cf. Table 1). The absence of significant correlations between worker characteristics and worker outcomes, however, does not suggest that the observations are biased. If reciprocal individuals have a stronger tendency to stay in the firm, for instance, we would expect to find a significant correlation. Furthermore, the distribution of reciprocity, shown in Figure 1, is similar to population-wide distributions of reciprocity (Dohmen et al. 2009).

3.2   The effect of reciprocity on the returns to training

To analyze how reciprocal attitudes affect the returns to training, we employ the panel structure of the data, in which we observe performance in each week an agent is working. Because agents are randomly assigned to participation in the training course, the causal effect of the training program on worker productivity and its interaction with the measure of reciprocity can be estimated from an ordinary least squares regression. We estimate a regression of the logarithm of performance y_{it} on the treatment dummy d_{it}, the measure of reciprocity rec_i, and its interaction with the treatment dummy.

$$log(y_{it}) = \alpha + \tau_1 d_{it} + \tau_2 rec_i + \tau_3 d_{it} \cdot rec_i + \beta_1 t_t + \beta_2 X_{it} + \beta_3 X_t + u_{it} \qquad (1)$$

In addition, we control for several characteristics to account for remaining individual heterogeneity (X_{it}), which is assumed to be independent from the treatment status d_{it}, such as working hours in week t and whether an agent works during peak hours. Furthermore, we control for trends in aggregate performance by including a linear time trend t_t, the

overall number of calls divided by total number of full-time equivalent agents (X_t) to control for aggregate effects on performance. Because surveys were not all conducted in the same week, we also include fixed effects to control for possible survey week effects. The idiosyncratic error term u_{it} is clustered at the individual level.

Table 3 shows the results of estimating Equation (1). Without taking reciprocity into account, the baseline treatment effect is 0.0871 (Column (1)). Participation in the training improves performance on average by 8.7%.[9] When including reciprocity (Column (2)), and reciprocity and its interaction with the treatment (Column (3)), the treatment effect slightly increases. Columns (2) and (3) show that reciprocity itself does not affect performance significantly, but that the interaction between positive reciprocity and the treatment effect is positive and significant (0.0637, Column (3)). A one-standard-deviation difference in worker reciprocity is related to a 6.4% difference in estimated returns to training. This result suggests that individuals with positive reciprocal attitudes respond to the training with greater effort made and higher performance. This result is in line with the idea of a gift-exchange where workers reciprocate kind actions of the employer.

An important question is whether reciprocal individuals put more effort into their training, or whether they exert greater effort after participation in training. Whereas the former should rather result in more efficient human capital acquisition and thus a more permanent increase in skills and performance, the latter might cause only a transitory effect on performance. Figure 2 shows the treatment effect by week after training. After reaching peak in the fifth week after training, the treatment effect decreases substantially. Despite being small in size, the interaction effect between treatment and reciprocity does not follow this decrease. Although far from conclusive, this hints at more permanent effects on worker effort, e.g., through higher effort during the training, resulting in more efficient human capital acquisition.

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[9]The reported treatment effect in De Grip and Sauermann (2012) differs slightly due to different sample size.

3.3 Do individual characteristics matter?

A potential concern for the validity of this study is that individual-specific characteristics are correlated with the measure of reciprocity. To provide evidence against this hypothesis, we use a range of alternative specifications, including individual fixed-effects, agent personality as measured by the Big-5, information on individuals' cognitive test scores, and a measure of negative reciprocity.

As a first step, we test whether including individual fixed-effects removes the heterogeneity introduced by the measure of reciprocity. Because reciprocity is time-invariant, we split the sample into agents with low (below median) reciprocity, and agents with high (above median) reciprocity. Columns (1) and (2) of Table 4 show that individuals with low reciprocity have a treatment effect of 6.3% (6.2%) without (with) individual fixed-effects. For agents with high levels of reciprocity, the returns to training are substantially stronger: reciprocal agents have a treatment effect of 15.5% without individual fixed effects, which declines to 10.6% when including individual fixed effects (Columns (3) and (4)). This suggests that the effect of reciprocity on the returns to training is not purely due to reciprocal behavior, but might also be caused by other, related, individual-specific characteristics.

To test this notion, we first augment Equation (1) separately with each additional Big-5 element and its interaction effect with the treatment dummy. Columns (1) to (6) of Table 5 show that, except for the measure of extraversion, none of the Big-5 elements significantly affects performance, directly or in interaction with the treatment effect. Individuals who score high on extraversion, however, have a significantly higher treatment effect. These individuals also are slightly overrepresented in the treatment group (Column (6) of Table 1). The interaction between reciprocity and the treatment remains significant and stable throughout all regressions (0.051-0.068).

Second, we use the measure of cognitive skills to analyze whether cognitive ability drives the result that reciprocal individuals have higher returns to training. Although reciprocity and cognitive test scores are not correlated, we could estimate the effects

of differences in skills, and not the effect of reciprocity. When including the cognitive test score in the regression and the interaction effect with the treatment, the interaction effect is not significant (Column (7)). The effect of reciprocity remains as in the main regressions.

Third, we analyze whether our main results are driven by negative reciprocity. Although positive and negative reciprocity are constructed to be uncorrelated, one might be concerned that some individuals perceive the training as not useful and instead react negatively to the training. The results for negative reciprocity, shown in Column (8), are not significant. The effect for positive reciprocity remains unchanged.

Taken together, these results suggest that positive reciprocity does not merely pick up the effects of other, correlated characteristics, but rather that the measure of positive reciprocity explains part of the heterogeneity in the returns to training.

4   Conclusion

Why do firms invest in training? While standard human capital theory predicts that firms do not invest in general human capital and underinvest in firm-specific human capital (Becker 1962), more recent studies provide evidence that firms do invest substantially in training. While there is evidence that reciprocal workers receive more firm-sponsored training, there is no evidence for the mechanism driving this result. Workers could reciprocate the firm's investment by positive actions, e.g., by making greater effort after the training.

We analyze one such mechanism, namely, whether individuals with positive reciprocal attitudes have higher returns to training. Combining personnel data with panel information on worker performance with random assignment to training courses and direct measures of reciprocal attitudes, we find that reciprocal individuals have higher returns to training. This result suggests that workers indeed return training investments by exerting greater effort after the training. We test whether this could be explained by

other individual-specific characteristics that are potentially correlated with reciprocity. We find that the estimated effect is stable even when including other characteristics. This suggests that we indeed measure the effect of positive reciprocal attitudes, and not other individual-specific characteristics.

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Figures

Figure 1: Distribution of reciprocity
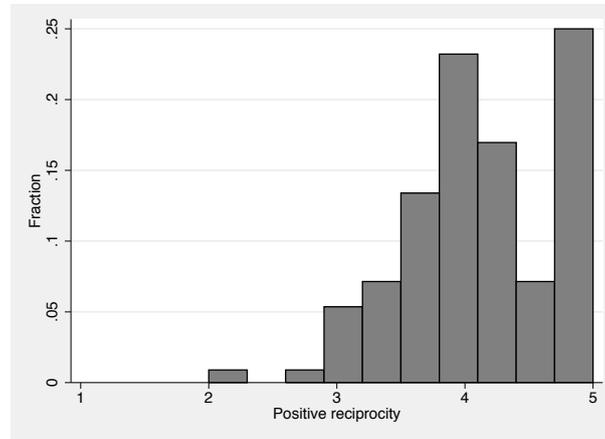
Note: The figure shows the histogram of positive reciprocity across the full sample of agents ($N = 109$). The underlying questions (see Section 2.3) could be answered on a scale from 1 ('does not apply to me at all') to 5 ('applies perfectly to me').

Figure 2: Treatment and interaction effect on performance over time
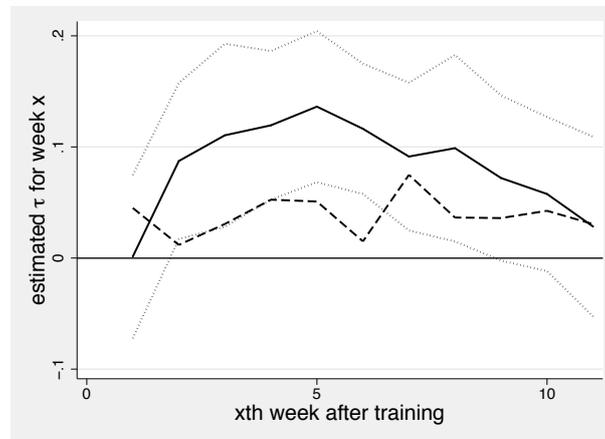
Note: This figure shows the estimated treatment effect on performance for each week after the training (solid line) and the corresponding 95% confidence interval (dotted line), controlling for a linear time trend, and for the week the survey was taken. The dashed line shows the estimated week-by-week interaction between the treatment dummy and the measure of reciprocity. Week 0 denotes the training week.

Tables

Table 1: Descriptive statistics

Sample	(1) Full	(2) Survey	(3) Field experiment	(4) Treatment group	(5) Control group	(6) Diff (4)–(5)
Gender (1=female)	0.2881	0.2661	0.3016	0.3667	0.2424	0.1242
	(0.4542)	(0.4439)	(0.4626)	(0.4901)	(0.4352)	(1.0658)
Age	32.5367	34.6977	36.3504	34.9622	37.6125	-2.6503
	(11.3617)	(11.7374)	(11.2356)	(10.3689)	(11.9876)	(-0.9341)
Tenure (in years)	2.6152	3.4869	4.1990	4.4147	4.0029	0.4118
	(3.6017)	(3.8092)	(3.9701)	(3.9226)	(4.0633)	(0.4084)
Performance	0.3313	0.3633	0.3629	0.3673	0.3589	0.0085
	(0.1112)	(0.0991)	(0.0837)	(0.0727)	(0.0935)	(0.3985)
Working hours	18.1412	17.2202	16.6508	15.9667	17.2727	-1.3061
	(8.3962)	(8.4078)	(8.4799)	(9.3199)	(7.7309)	(-0.6074)
Share Peak-Hours	0.5572	0.5547	0.5328	0.5386	0.5276	0.0110
	(0.1745)	(0.1770)	(0.1935)	(0.1817)	(0.2063)	(0.2242)
Absenteeism	0.0621	0.0734	0.1111	0.1000	0.1212	-0.0212
	(0.2421)	(0.2620)	(0.3168)	(0.3051)	(0.3314)	(-0.2634)
Training incidence	0.1864	0.2110	0.1905	0.1000	0.2727	-0.1727
	(0.3906)	(0.4099)	(0.3958)	(0.3051)	(0.4523)	(-1.7588)
Positive reciprocity		4.1713	4.2011	4.1222	4.2727	-0.1505
		(0.6552)	(0.6627)	(0.7349)	(0.5919)	(-0.8989)
Negative reciprocity		2.5474	2.4815	2.5556	2.4141	0.1414
		(0.8743)	(0.8875)	(0.8502)	(0.9281)	(0.6285)
Conscientiousness		12.3945	12.6667	12.5667	12.7576	-0.1909
		(1.6160)	(1.4142)	(1.3566)	(1.4797)	(-0.5320)
Extraversion		11.8440	12.0952	12.6667	11.5758	1.0909*
		(1.7752)	(1.8554)	(1.5388)	(1.9848)	(2.4204)
Agreeableness		12.3303	12.7619	12.5667	12.9394	-0.3727
		(1.8760)	(1.6821)	(1.8696)	(1.4987)	(-0.8767)
Openness to experience		10.3670	10.3810	10.5333	10.2424	0.2909
		(2.0352)	(1.9380)	(1.9250)	(1.9690)	(0.5919)
Neuroticism		7.3486	7.2857	7.2667	7.3030	-0.0364
		(2.2582)	(2.3721)	(2.4344)	(2.3517)	(-0.0603)
Cognitive test score		0.4414	0.4561	0.4770	0.4345	0.0425
		(0.2669)	(0.2450)	(0.2736)	(0.2144)	(0.6511)
Observations	177	109	63	30	33	63

Note: The full sample (Column (1)) is defined as all agents working in the department during the observation period; the survey sample is defined as the subsample of (1) with survey information (Column (2)); the field experiment is a subsample of (2) and defined as those agents who participated in the field experiment (Column (3)); Columns (4) and (5) show the treatment and control groups within the field experiment; Column (6) shows the t-statistics on the difference between the treatment and control groups. Standard deviations are in parentheses in Columns (1) to (5); t-statistics are in parentheses in Column (6).

Table 2: Reciprocity and worker characteristics

(1) Worker characteristics		(2) Worker outcomes		(3) Personality	
Gender (1=female)	0.0633	Performance	-0.0581	Conscientiousness	0.3388***
Age	0.0379	Tenure	0.0725	Extraversion	0.2692***
		Working hours	0.0506	Agreeableness	0.2451***
		Absenteeism	0.1183	Openness to experience	0.2105**
		Training incidence	0.0152	Neuroticism	-0.2226**
				Cognitive test score	0.0288
				Negative Reciprocity	-0.0257

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. This table shows the correlation coefficients of worker characteristics and positive reciprocity. This table includes all 109 agents who participated in the survey and contains only 1 observation per agent. All time-varying variables are averaged over the pre-experiment period. Worker outcomes are defined as: performance y, tenure in years, working hours, absenteeism, measured by the share of weeks an agent reported being sick, and training incidence, measured by the share of weeks an agent received training. All outcome variables are averaged over all weeks of the pre-experiment period.

Table 3: The returns to training and interaction with reciprocity

	(1)	(2)	(3)
Treatment dummy	0.0871**	0.1062***	0.1094***
	(0.0408)	(0.0332)	(0.0317)
Working hours	0.0018	0.0010	0.0012
	(0.0020)	(0.0016)	(0.0016)
Share Peak-Hours	-0.2683**	-0.2718***	-0.2807***
	(0.1025)	(0.0912)	(0.0895)
Calls per FTE	0.0001	0.0001*	0.0001*
	(0.0001)	(0.0001)	(0.0001)
Time trend	0.0020*	0.0016*	0.0015
	(0.0012)	(0.0009)	(0.0009)
Reciprocity		0.0164	0.0029
		(0.0236)	(0.0229)
Treatment × Reciprocity			0.0637**
			(0.0280)
Constant	-1.0889***	-1.0021***	-0.9951***
	(0.1073)	(0.1158)	(0.1158)
Observations	1,673	1,673	1,673
Number of agents	63	63	63
R-squared	0.0757	0.2796	0.2881
Individual FE	No	No	No

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. This table shows ordinary least squares regressions of the dependent variable $\log(y_{it})$ on a treatment dummy, reciprocity, an interaction of reciprocity and the treatment, and further controls. Standard errors are clustered at the agent level. All regressions also include fixed effects for the week in which agents participated in the survey.

Table 4: The returns to tenure by type of low- and high-reciprocal individuals

	(1)	(2)	(3)	(4)
	Low reciprocity		High reciprocity	
Treatment dummy	0.0627	0.0624**	0.1551***	0.1062***
	(0.0441)	(0.0280)	(0.0479)	(0.0303)
Working hours	-0.0003	-0.0034***	0.0016	0.0004
	(0.0025)	(0.0011)	(0.0022)	(0.0017)
Share Peak-Hours	-0.2855**	-0.3736***	-0.3677***	-0.2970***
	(0.1304)	(0.1106)	(0.1285)	(0.1033)
Calls per FTE	0.0001	0.0000	0.0002	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Time trend	0.0019	0.0027**	0.0011	0.0023
	(0.0012)	(0.0011)	(0.0014)	(0.0014)
Constant	-0.9829***	-0.9226***	-0.9298***	-1.0869***
	(0.1702)	(0.1284)	(0.1801)	(0.1232)
Observations	847	847	826	826
Number of agents	31	31	32	32
R-squared	0.2302	0.6467	0.3953	0.6125
Individual FE	No	Yes	No	Yes

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The table shows ordinary least squares regressions of the dependent variable $\log(y_{it})$ on a treatment dummy and further controls for individuals with low reciprocity (Columns (1) and (2)), and individuals with high levels of reciprocity (Columns (3) and (4)). Individuals with low (high) levels of reciprocity are defined as individuals with reciprocity measures below (above) the median. Standard errors are clustered at the agent level. All regressions also include fixed effects for the week in which agents participated in the survey.

Table 5: Positive reciprocity, training outcomes, and additional controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment dummy	0.1078***	0.0844**	0.1094***	0.1117***	0.1076***	0.0988***	0.0414	0.1150***
	(0.0326)	(0.0333)	(0.0306)	(0.0316)	(0.0311)	(0.0310)	(0.0532)	(0.0304)
Reciprocity	0.0059	0.0024	0.0014	0.0090	-0.0073	-0.0028	0.0087	0.0031
	(0.0268)	(0.0230)	(0.0253)	(0.0225)	(0.0229)	(0.0282)	(0.0234)	(0.0230)
Treatment × reciprocity	0.0595**	0.0654**	0.0592**	0.0627**	0.0509	0.0679*	0.0554*	0.0676**
	(0.0289)	(0.0262)	(0.0292)	(0.0268)	(0.0309)	(0.0372)	(0.0279)	(0.0277)
Conscientiousness	-0.0075					0.0006		
	(0.0316)					(0.0346)		
Treatment × conscientiousness	0.0110					-0.0199		
	(0.0295)					(0.0356)		
Extraversion		-0.0022				-0.0206		
		(0.0184)				(0.0192)		
Treatment × extraversion		0.0556*				0.0498*		
		(0.0286)				(0.0262)		
Agreeableness			0.0060			0.0027		
			(0.0233)			(0.0258)		
Treatment × agreeableness			0.0141			0.0098		
			(0.0187)			(0.0184)		
Openness to experience				-0.0399		-0.0338		
				(0.0250)		(0.0235)		
Treatment × openness				-0.0202		-0.0168		
				(0.0254)		(0.0273)		
Neuroticism					-0.0264	-0.0329		
					(0.0208)	(0.0244)		
Treatment × neuroticism					-0.0185	0.0101		
					(0.0311)	(0.0302)		
Cognitive test score							-0.1000	
							(0.0958)	
Treatment × cognitive test							0.1559	
							(0.1008)	
Negative reciprocity								-0.0152
								(0.0215)
Treatment × neg. reciprocity								-0.0253
								(0.0245)
Constant	-0.9895***	-0.9899***	-0.9894***	-1.0058***	-1.0029***	-0.9795***	-0.9296***	-0.9823***
	(0.1174)	(0.1084)	(0.1138)	(0.1199)	(0.1098)	(0.1141)	(0.1302)	(0.1146)
Observations	1,673	1,673	1,673	1,673	1,673	1,673	1,532	1,673
Number of agents	63	63	63	63	63	63	57	63
R-squared	0.2884	0.2942	0.2897	0.3082	0.3030	0.3245	0.2375	0.2932
Individual FE	No	No	No	No	No	No	No	No

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Dependent variable: $\log(y_{it})$. This table shows ordinary least squares regressions of the dependent variable $\log(y_{it})$ on a treatment dummy, reciprocity, an interaction of reciprocity and the treatment, and further controls and their interactions with the treatment dummy. Standard errors are clustered at the agent level. All regressions also include fixed effects for the week in which agents participated in the survey. Further control variables include working hours, share in peak hours, calls per full-time equivalents (FTE), and a linear time trend.