

DISCUSSION PAPER SERIES

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## ABSTRACT

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### **Sales Performance and Social Preferences\***

We use an incentivized experimental game to uncover heterogeneity in other-regarding preferences among salespeople in a large Austrian retail chain. Our results show that the majority of agents take the welfare of others into account but a significant fraction reveals self-regarding behavior. Matching individual behavior in the game with firm data on sales performance shows that higher concern for others is significantly associated with higher revenue per customer. At the same time, it is also associated with fewer sales per day. Both effects offset each other, so that the overall association with total sales revenue becomes insignificant. Our findings highlight the nuanced role of self- vs. other-regarding concerns in sales contexts with important implications for management and marketing research.

**JEL Classification:** C91, D91, M31

**Keywords:** other-regarding preferences, sales performance, experimental games

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# 1 Introduction

More than 35 years ago, Saxe and Weitz (1982) introduced the concept of customer orientation into marketing research highlighting the importance for salespeople to take into account customer benefits and needs when selling goods and services to them.<sup>1</sup> Other, closely related concepts developed subsequently are adaptive selling behavior (Spiro and Weitz 1990) and customer stewardship (Schepers et al. 2012). These concepts have in common that they build on the more general notion of an individual’s “concern for others” vs. “concern for self” and how the relationship between the two plays out in different selling approaches (Blake and Mouton 1970, Buzzotta et al. 1972). Saxe and Weitz (1982), e.g., write: “High customer orientation is most closely associated with high concern for others/high concern for self, whereas low customer orientation is most closely associated with low concern for others/high concern for self” (p. 344). Since then empirical marketing research has studied variation across salespeople and sales contexts along these dimensions together with its association with sales performance and customer satisfaction using different combinations of subjective and objective outcome measures, self-reports, and questionnaire data (e.g., Franke and Park 2006, Jaramillo et al. 2007).

In parallel with this literature — and, for the most part, in ignorance of it — research in behavioral economics has documented that decision makers differ significantly in the degree to which they care about others when making economic decisions (Güth et al. 1982, Forsythe et al. 1994, Fehr and Gächter 2000; see Cooper and Kagel 2016 for a recent review). This evidence comes from incentivized economic experiments, in which a substantial fraction of individuals reveal by their decisions that they take the welfare of other parties into account, whereas others reveal that they focus primarily on own material payoffs. Models of “social preferences” have emphasized different underlying motives, including fairness, equality, and efficiency to explain these behaviors as well as the resulting heterogeneity in economic decision-making (Rabin 1993, Levine 1998, Fehr and Schmidt 1999, Bolton and Ockenfels 2000, Andreoni and Miller 2002, Charness and Rabin 2002, Dufwenberg and Kirchsteiger 2004, Falk and Fischbacher 2006, Alger and Weibull 2013). These models capture, in different ways, explicitly how a decision maker weighs his or her “concern for others” vs. “concern for self”.

In this paper, we combine these two strands of the literature by investigating the following question: do salespeople who reveal to care about others in an experimental game generate higher or lower revenue in their day-to-day business context? To answer this question, we match firm data from a large retail chain in Austria that includes objective measures of individual sales performance with behavioral data from an economic experiment we conduct with salespeople of the same firm. Our performance measure covers a two-year period and records the number of sales as well as revenue for each sale

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<sup>1</sup>The paper is ranked among *The Top Ten Sales Articles of the 20th Century* (Leigh et al. 2001).

on a daily basis. Our measure of social preferences comes from a salesperson’s behavior as a second mover in the classic trust game of Berg et al. (1995). This measure has been used by previous studies in different contexts (e.g., Baran et al. 2010, Bellemare and Kröger 2007, Falk and Zehnder 2013) and can also be interpreted as a measure of positive reciprocity or trustworthiness (Cox 2004). The measure allows both a continuous and a discrete classification of other-regarding concerns, which we exploit in our analysis.

Our basic hypothesis is that, in line with the approach in marketing research, the association between social preferences and sales performance is positive. The intuition is that if a customer lacks information about a certain product — for example, what type or version best suits her needs, or whether the advertised quality of a particular brand is worth its price — the decision to buy requires an element of trust. Trust in the product features, the product quality, and most importantly in the information and the advice the salesperson provides. Salespeople who care about the customer and take customer concerns into account may do better in inspiring this trust and consequently generate higher revenue.<sup>2</sup> On the other hand, identifying a customer’s needs and explaining how a certain product satisfies these needs, requires both effort and time (Homburg et al. 2009), resources that from an efficiency point of view might also, and perhaps better, be used elsewhere, e.g., in serving other customers. Franke and Park (2006) therefore warn against a solely positive view of high customer focus and Homburg et al. (2011) document indeed a negative relationship between customer orientation and the number of customers served in a cross-industry study. In the light of the at times rather mixed evidence on the association between adaptive selling behavior, customer orientation, and overall sales performance (Franke and Park 2006), further empirical analyses therefore seem warranted. This is where our paper contributes.

The results in our study show a clear positive association between social preferences and revenue per customer. Salespeople who return higher amounts as a second mover in the trust game generate significantly higher revenue per customer, controlling for important covariates including tenure, education and full-time employment. The observed effect is economically sizable and corresponds to a 6-percent increase in the average revenue per customer based on our continuous social-preference measure. Once we allow for heterogeneity in the association by classifying social preferences into different “types” (selfish, cooperative, equality-minded, altruistic), the results show that the effect primarily comes from equality-minded types, i.e., salespeople who send back amounts such that both players in the trust game earn exactly the same payoff. While all other-regarding types are associated with higher customer revenue than selfish types, only for equality-minded salespeople the effect is significant and amounts to an increase of even more than 16

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<sup>2</sup>Lammers (2010) shows that even in pure bargaining contexts without asymmetric information social preferences may pay off as principals prefer agents who care about customer welfare, to a limited degree, over agents who do not.

percent in revenue per customer compared to selfish types. This finding nicely mirrors the original idea of Saxe and Weitz (1982) that successful salespeople score high on *both* concern for others and concern for self (see quote above).

Besides this positive association with revenue per customer, our results also document a significant association of social preferences with the number of sales per day. Intriguingly, this association, however, is negative. Salespeople who return higher amounts in the trust game complete significantly fewer sales per day and the effect is again largest for equality-minded types. This suggests that salespeople who care about others spend indeed more time with a given customer and therefore have less time available to serve other customers. The result confirms previous findings by Homburg et al. (2011). In sum, both effects, the negative on sales per day and the positive on revenue per customer, completely offset each other such that the overall association between social preferences and total sales revenue is insignificant.

Our results have direct managerial implications. First, they suggest that salespeople benefit from different forms of advice and training measures depending on their extent of other- or self-regarding preferences. Agents, who show that they take others' regards into account, for example, perform less well in terms of number of sales per day. Their performance could thus be raised by helping them complete sales more quickly. At the same time, agents with a more self-regarding motivation apparently leave money on the table as the association with revenue per customer shows. These agents could in turn benefit from HR measures that provide support in catering better to customer needs. Second, regardless of training the results also offer advice for the optimal assignment of agents across different sales environments. In principle, salespeople who score high in terms of other-regarding preferences are best employed in environments and on days where customer need for advice is high and, at the same time, customer frequency is low. The opposite holds for agents who score high in terms of self-regarding preferences.

The paper belongs to a growing number of empirical studies that investigate the influence of social preferences on economic and business outcomes. Several papers have combined experimental lab measures like we do with field data on individual-level or aggregate measures of performance (e.g., Karlan 2005, Barr and Serneels 2009, Rustagi et al. 2010, Carpenter and Seki 2011, Kosfeld and Rustagi 2015, Burks et al. 2016). To the best of our knowledge our study is the first to examine this association with employees of a well-established company in an industrial country based on detailed performance measures on the individual level. In the management literature, Flynn (2003) has analyzed the relationship between helping behavior of engineers and productivity finding that generosity, as perceived by other colleagues, is positively associated with individual productivity. Grant (2013) argues that pro-social "givers" are often found to be either the least or the most productive workers. Our study differs from this work mostly in the empirical approach we take. We employ a behavioral measure based on an incentivized economic experiment

to elicit pro-social preferences rather than self-reports or questionnaires. Furthermore, we estimate the association using a rich data set allowing us to control for a number of important aspects of the sales environment as well as socio-demographic characteristics of individual salespeople.

The remainder of the paper is structured as follows. Section 2 provides a detailed description of the company setting and the field data. Section 3 outlines the experimental design and procedures to measure social preferences. Section 4 presents the empirical results and robustness checks. Finally, Section 5 discusses our findings and concludes.

## 2 Field Setting and Data

The data analyzed in this paper stem from a larger research project we conducted in cooperation with an Austrian retail company. Besides providing us with rich performance and organizational data at both the individual and the firm level, the company supported us in conducting a lab-in-the-field experiment with its workforce.

### 2.1 Company Setting

As of September 2013, the company operated 66 stores in Austria, whose business predominantly focuses on the business-to-consumer sector. Interactions between salespeople and customers in these stores are mostly one-shot, owing to the irregularity of customer visits, the size of the stores, and the alternating shifts of the sales staff.

Salespeople are assigned to one of the company stores and include both full-time and part-time employees. Their main tasks comprise administrative duties, stock management, and most importantly, direct customer advice. During a shift, sales agents largely work on their own, administering their respective product area such that collaboration with other sales agents is limited to arrangements at shift changeovers and forwarding of customers to more specialized colleagues. While sales agents in principle can advise and encourage sales from the whole assortment, they are assigned to and specialized in a particular product area. These areas are ranked by the company into three different categories (low, medium, high) based on the average price of products offered in a given area.

Individual sales performance is measured and incentivized using an automatized sticker system. Sales agents are encouraged to attach personalized stickers to any product sold after consultation. Sales are then registered at the cash point and credited to an individual's account, which also facilitates the tracking of returned products and refund requests. All sales which exceed a product category-specific benchmark count towards a bonus system. If the sum of such qualified sales minus refunds exceeds a certain threshold, an agent receives a commission of 0.75 percent of his or her monthly sales. This policy not only fosters personalized interaction, but also provides agents with an incentive to cross-sell

and promote more expensive products. Monthly commissions vary widely across sales agents, with an average commission of 42.11 euros and a corresponding standard deviation of 55.52 euros. This accounts for 3.4 percent of the average sales agent’s monthly income.

## 2.2 Sales Performance Data

We use data on recorded sales from the company’s incentive pay system to measure sales performance. For the period between March 2012 and March 2014, we received data on each receipt assigned to a salesperson’s sales record based on the sticker system. This data contain among other information the number of receipts, the total revenues per receipt, the assigned product category, the number and volume of refunds, and the salesperson’s daily working time. While these data are rich and allow us to assess an individual salesperson’s performance over a long period on a daily basis, they also come with a few caveats.

First, since refunds and customer pick-ups are registered on the day the customer returns or picks up the product instead of the day the sale is completed, they add noise to the performance measurement at the daily level.<sup>3</sup> We account for this by attributing refunds and pick-ups uniformly across a sales agent’s workdays in the 30 days prior to the recorded date. We choose 30 days as a threshold, because of the company’s refund policy stipulating that all products which are returned within four weeks after the purchase are fully refunded. Applying alternative thresholds such as one week, two weeks, or 40 days does not change the results of our analysis. Second, for a significant fraction of working days (10 percent), salespeople have entries of zero sales. Days without any recorded sales can occur for several reasons: for example, agents might have been involved in other activities like stock management or administrative work, they might have forgotten or lost their stickers, or they might have simply not finalized a sale on that day despite customer interaction. The data, however, do not allow us to disentangle between these alternatives, because only sales with a sticker are formally tracked.

As a consequence, we focus on days with documented customer interaction and employ three different measures at the daily level: *revenue per customer*, *number of sales*, and *total revenue*. We employ a two-part regression model to address the fact that some days show zero sales (see further details below). By normalizing all daily sales data to eight hour working day equivalents, we make entries comparable irrespective of the individuals’ working hours on a given day. Daily revenues per customer are then calculated using the harmonic mean.

In addition to this performance data, the company also supplied us with information about marketing activities in the two-year period such as sales promotions on particular days as well as data on the employees’ job description, gender, employment level, and

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<sup>3</sup>Pick-ups usually occur when a product is out of stock and has to be ordered for the customer. In total, refunds represent 2 percent and pick-ups 17 percent of the recorded sales volume in the given period, respectively.

tenure.

## 2.3 Sample Construction and Characteristics

The company’s work force comprises a variety of job profiles. We restrict our attention to sales agents, who make up about 42 percent of the overall staff. As described above, sales agents are the principle people of contact for customers. According to the company’s working time analyses, they spend on average almost 45 percent of their time with direct customer-interaction. Sales output is thus a key part of their performance.

291 of the 1,369 sales agents who were employed in fall 2013 took part in our lab-in-the-field experiment. This corresponds to a response rate of 21.3 percent. Out of the 291 responses, nine participants indicated that they did not complete the decision sheet by themselves, while 25 participants failed to answer the control questions correctly. Six more individuals did not complete the full experimental material. We drop these 40 observations from our sample. Additionally, since our empirical strategy relies on the use of store fixed effects, nine further observations have to be dropped because they were the lone respondents in their store. This leaves us with a final sample of 242 sales agents.

Table 1 shows a comparison of observable characteristics for participants and non-participants in our study. Sales agents, who are included in the sample, differ from their colleagues in a few observables. Male and full-time employees are slightly underrepresented among the participants. Our sample, however, resembles the overall population in terms of product categories and tenure quite closely. We control for all of these variables in the analysis. With respect to performance data, participants in our sample closed marginally significantly more sales per day than non-participants, even though the share of days without a sale is virtually the same for the two groups. While revenue per customer is somewhat lower in our sample than among non-participants, total revenue per day is higher. Only the latter, however, is statistically significant. On average, sales agents in our sample make about 13 sales per day with an average revenue of 68.69 euros per customer generating a total revenue of 878.03 euros per day.

# 3 Behavioral Experiment

## 3.1 Experimental Design

We used an adaptation of the trust game introduced by Berg et al. (1995) to elicit social preferences in an incentivized economic experiment. The advantage of the trust game, compared to, e.g., the dictator game, is that it provides a reliable measure of social preferences based on the behavior as a second mover in this game.<sup>4</sup> It has also been used

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<sup>4</sup>Van der Weele et al. (2014), for example, show that second-mover behavior in the trust game is robust to manipulations of so-called “moral wiggle room”, which are known to affect behavior in the dictator

successfully in the field before (Bellemare and Kröger 2007, Falk and Zehnder 2013).

See Figure 1 for an illustration of the trust game in our experiment. There are two players, a sender (A) and a receiver (B). Both are endowed with 18 euros at the beginning of the experiment.<sup>5</sup> The sender has to decide whether to transfer either 0, 6, 12, or 18 euros of his endowment to the receiver. The transferred amount is tripled by the experimenter and passed on to the receiver, who then has to decide on a back transfer to the sender. Conditional on the sender's transfer  $t$ , this back transfer  $b_t$  can be any integer amount between 0 and a maximum of 72 euros. For example, if the sender transfers 12 euros, the receiver has available  $12 \times 3 + 18 = 54$  euros, from which he can transfer any integer amount back to the sender. Whereas the sender is paid his initial endowment of 18 euros minus his transfer plus the back transfer of the receiver, the receiver's payoff results from his initial endowment plus the tripled transfer of the sender minus the amount he returns, i.e.,

$$\Pi_A = 18 - t + b_t, \quad \Pi_B = 18 + 3t - b_t. \quad (1)$$

Hence, transfers by the sender are efficient, but require the receiver to be trustworthy, i.e., to send money back, if the sender does not want to compromise on his own payoffs.

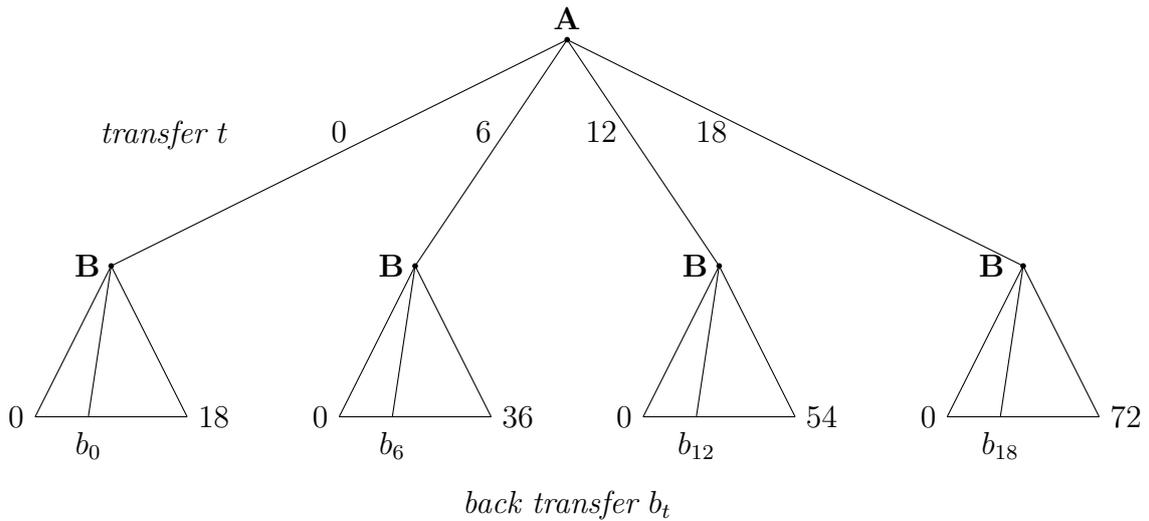


Figure 1: Trust game

We used the strategy method (Selten 1967) to elicit the full profile of the receiver's back transfers. To that end, each receiver had to indicate how much he would like to return for all possible amounts  $t$  the sender can transfer in the first stage. This allowed us to gather the complete strategy plan  $(b_t), t \in \{0, 6, 12, 18\}$  of the receiver and yields information also about responses to decisions that may be less frequently chosen by a sender. Moreover, it provides a simplification of the experimental procedures as it enables us to elicit decisions of the sender and the receiver simultaneously.

game (Dana et al. 2007).

<sup>5</sup>See procedures on earnings in the experiment below.

## 3.2 Social Preference Measure

We measure a sales agent’s revealed social preference by the average return on investment ratio RIR as a receiver in the trust game. This ratio is the average quotient of receiver  $i$ ’s back transfer  $b_{i,t}$  over the corresponding sender’s transfer  $t$  for the three positive transfer levels  $t \in \{6, 12, 18\}$ ,

$$\text{RIR}_i = \frac{1}{3} \sum_t \frac{b_{i,t}}{t}. \quad (2)$$

This measure has the advantage that it is scaled and controls for differences in the amount available for back transfer. Moreover, it is readily interpretable. Never returning anything results in an RIR of 0. A value of 1 means that the receiver on average sends back the sender’s transfer and keeps the whole surplus that is generated by the tripling of the transfer. Receivers, who return twice the transfer, i.e., have an RIR of 2, share the surplus equally such that both the sender and the receiver earn exactly the same payoff, while RIR values larger than 2 leave the receiver with even less money than the sender.

We use both the RIR as a continuous measure and the following discrete classification into different social preference types in our analysis. Receivers with  $\text{RIR} < 1$  are called *selfish* types, as they do not only keep the whole surplus that is generated but return even less than the sender’s transfer such that the latter would actually be better off by transferring nothing. This includes pure payoff-maximizing preferences ( $\text{RIR} = 0$ ) as a special case. Receivers with  $1 \leq \text{RIR} < 2$  are called *cooperative* types, because they send back weakly more than what the sender transfers and thus behave cooperatively in the sense of sharing surplus. Receivers with  $\text{RIR} = 2$  share the surplus equally and are hence called *equality-minded* types. Finally, we call receivers with  $\text{RIR} > 2$  *altruistic*, as they share the surplus to such an extent that they earn even less than the sender.<sup>6</sup>

## 3.3 Procedures

Similar to Falk and Zehnder (2013) we conducted the experiment via mail correspondence and sent the experimental material together with a postpaid envelope for return to all employees of the company. The experiment was conducted in November 2013. A translation of the original instructions is available from the authors upon request. All participants played the trust game in both player roles. This provides us not only with a measure of salespeople’s social preferences but also with a measure of first-mover trust, which we will use as a control variable in our robustness checks (Section 4.5). To make instructions easy to understand, we framed the decision of the sender and the decisions of the receiver as two “separate” games starting with the receiver decisions. In each role, employees were matched

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<sup>6</sup>In Section 4.5, we also present results from an alternative type classification as a robustness check, where receivers with  $\text{RIR} = 1$  are either assigned to the selfish-type category or are treated independently.

with another player, who was an anonymous person residing in Austria not employed by the firm.<sup>7</sup> Thus, employees did not play the trust game with each other but with an unknown person in Austria, just as in their normal daily sales interactions. This procedure is important in order to be able to interpret behavior in the experiment as a measure of an employee's generalized social preference in one-shot interactions with an unknown person, in contrast to repeated interactions with colleagues, friends or family (e.g., Burks et al. 2015). In addition to the instructions and decision sheets, the experimental material also contained two control questions as a means to identify participants' understanding of the instructions. A survey on socio-demographic and other personal characteristics relevant for sales performance completed the material.

Participants returned the documents within three weeks after they had received the material via the postpaid envelope. One in four participants were paid based on their actual decision and the decision of the other person they were randomly matched with in the game.<sup>8</sup> On average, participants earned 22.98 euros. All earnings were paid out in cash that was sent in sealed envelopes to store managers, who distributed these envelopes to the respective employees based on their identification number in the experiment.

## 4 Results

In the results section, we proceed as follows. We first present data on salespeople's social preferences as revealed by their behavior in the trust game. Subsequently we explain our main empirical strategy for estimating the association between social preferences and sales performance and report the results from this estimation, including various robustness checks.

### 4.1 Social Preferences

On average, salespeople in our sample reveal an RIR equal to 1.55. This shows that the senders' trust is rewarded and transfers pay off for both players on average. However, the standard deviation of 0.74 indicates that there is considerable heterogeneity. Table 2 summarizes the distribution of social preferences in our sample, both in terms of our continuous measure and the classification into different social preference types. As can be seen, the majority of 115 (out of 242) agents reveal a cooperative preference with an average RIR of 1.39. 38 agents are selfish with an average RIR of 0.45, while 61 agents reveal an equality-minded preference with RIR equal to 2. Finally, 28 agents are altruistic with average RIR equal to 2.75. These data corroborate previous experimental findings

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<sup>7</sup>The corresponding decisions were collected from students in the experimental lab at the University of Innsbruck.

<sup>8</sup>Participants also played a public goods and a competitiveness game in the experiment that were paid out with the same probability. These games are not considered in this paper.

documenting that despite the fact that all participants face exactly the same experimental environment, they exhibit very different behaviors revealing an important heterogeneity in self- vs. other-regarding concerns in trust and related social-dilemma games (Berg et al. 1995, Fischbacher et al. 2001, Kurzban and Houser 2005, Rustagi et al. 2010).<sup>9</sup> The key question is how this observed heterogeneity relates to differences in sales performance of these employees in their daily business context.

Table 2 also shows that participants display considerable first-mover trust with average transfers equal to 7.56 euros (SD 5.22). As can be seen, average trust levels and social preferences correlate positively, an observation that corroborates previous findings in the experimental economics literature (Brandts and Charness 2000, Altmann et al. 2008, Miettinen et al. 2017).

## 4.2 Empirical Strategy

We estimate the association between social preferences and sales performance by means of the following OLS specification:

$$Y_{isd} = \beta_0 + \beta_1 \text{RIR}_i + \beta_2 X_{is} + \alpha_m + \alpha_w + \alpha_p + \alpha_s + \epsilon_{isd}, \quad (3)$$

where  $Y_{isd}$  is one of our three sales performance measures (revenue per customer, number of sales, total revenue) of sales agent  $i$  in store  $s$  on date  $d$ ;  $\text{RIR}_i$  is our measure of social preference of agent  $i$  explained above;  $X_{is}$  is a vector of sales agent’s socio-demographic and work-specific variables that are described in detail below;  $\alpha_m$  and  $\alpha_w$  are fixed effects for the months and weekday of the observation, respectively;  $\alpha_p$  indicates days with a particular sales-promotion, while  $\alpha_s$  represents store fixed effects.

As mentioned before, modeling the association between social preferences and sales performance is complexed by the structure of our data, in particular the non-negligible fraction of observations for which no sales performance is measured. We tackle this issue by using a two-part model (Wooldridge 2010, Farewell et al. 2017). Specifically, we use pooled OLS regressions to model all non-zero outcomes and additionally apply a probit model to estimate the likelihood for making a sale on a given day. We take this approach, because zero observations do not necessarily result from missing data or self-selection of sales agents in our sample, but for a variety of other reasons (cf. Section 2.2). Given that we are interested in actual rather than potential sales performance, this approach is more appropriate for our setting than a Heckman selection or a Tobit model (Dow and Norton 2003, Madden 2008). As our outcome variable is heavily right-skewed, we take the

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<sup>9</sup>While our data do not allow us to assess whether the results are representative for the total population of sales agents in the firm, recent studies by Falk et al. (2013) and Cleave et al. (2013) show that participation in typical lab experiments is independent of participants’ pro-sociality. It is therefore plausible to assume that sales agents in our sample do not differ systematically in their revealed social preference from their colleagues who did not participate.

logarithm of our performance measures as the dependent variable. Further, we use robust clustered standard errors at the level of the individual sales agent.

Another concern in estimating equation 3 is the potential for omitted variable bias. Ideally, one would include fixed effects for every individual sales agent, which capture all of the unobserved personal characteristics and traits that might be correlated with social preferences. While such fixed effects would filter out all time-invariant unobserved components, their use is not feasible in our case as a sales agent’s social preference is also fixed and would thus be canceled out by the fixed effects. To mitigate the scope of individual heterogeneity in factors other than social preferences, we therefore control for a rich set of variables.

In particular, we include measures on age, education, body height, and the Big-5 personality traits of sales agents, which all have been identified to be correlated with social preferences (Alesina and La Ferrara 2002, Bellamare and Kröger 2007, Dohmen et al. 2008) or sales performance (Barrick and Mount 1991, Vinchur et al. 1998, Judge and Cable 2004). We also control for tenure as a proxy for a sales agent’s experience. Moreover, we include dummy variables for men and full-time employees to account for the overrepresentation of women and part-time employees in our sample. Finally, we also control for the product category a sales agent is assigned to.

To absorb variation which stems from the sales environment and is unrelated to the individual sales agent, we incorporate several fixed effects. Dummies for each month of the sampling period take care of the marked seasonal fluctuation in our sample. Furthermore, we add weekday and promotion day dummies, because the data reveal that Monday, Friday, and Saturday differ substantially from the remaining days in terms of sales volume and the number of customers. The same applies to the 19 promotion days which fall in our sampling period. Due to sizable prize deductions on these days, generated revenues peak on these days. Lastly, all our specifications include store fixed effects to account for differences in the size, location, and product range of the stores.

### 4.3 Social Preferences and Sales Performance

Table 3 presents our main results. Column (1) shows the raw effect of a sales agent’s social preference, measured by the RIR, on revenue per customer without accounting for heterogeneity in other individual characteristics. The coefficient on RIR is positive and sizable, indicating that the revenues per customer of salespeople who send back the initial transfer of the sender ( $RIR = 1$ ) exceed those of salespeople who return nothing ( $RIR = 0$ ) by about 7 percent. It, however, misses statistical significance at the conventional levels ( $p = 0.133$ ). This changes once we control for other individual characteristics in column (2). Whereas the magnitude of the coefficient drops only slightly, it is now much more precisely estimated and significant at the 5-percent level. This shows that

social preferences play a role over and above that of other individual characteristics. On average, sales agents with  $RIR = 1$  generate about 6 percent higher revenue per customer compared to sales agents with  $RIR = 0$ . Out of the other variables, only body height has a statistically significant positive effect (cf. Judge and Cable 2004). Not surprisingly, revenue per customer also depends on the assigned product category with higher categories, that by definition comprise more expensive products on average, being associated with higher revenue per customer. Additionally, despite normalizing daily records to eight-hour equivalents, full-time employees generate significantly higher sales than their part-time colleagues.

To investigate the overall profitability of social preferences from the company’s perspective, we next turn to the association between social preferences and the number of sales. Here, predictions are less straightforward. On the one hand, an ability to advise more convincingly could also increase the number of successful sales transactions. On the other hand, providing such advise may be a more time-intensive sales strategy, as identifying the customer’s needs and the appropriate solutions requires time and effort. Estimating equation 3 with the logarithm of the number of sales as the dependent variable indicates that the latter effect dominates the former. Column (3) of Table 3 shows a marginally significant negative association between social preferences and the number of sales. Adding the set of control variables in column (4) further supports this finding. The magnitude of the coefficient drops only marginally and becomes almost significant at the 5-percent level ( $p = 0.064$ ). Expressed in percentage terms, sales agents with  $RIR = 1$  register on average about 10 percent fewer sales per day than sales agents with  $RIR = 0$ . Aside from social preferences, only age is significantly correlated with the number of sales. Older salespeople close significantly more sales. Whether this can be interpreted as evidence for experience, however, is unclear as the coefficient on tenure is indistinguishable from zero.

Given the opposing directions of the association of social preferences and revenues per customer and the number of sales, the overall assessment of the profitability of social preferences in terms of sales performance remains an open question. We address this in columns (5) and (6) by estimating equation 3 for total daily revenues. Overall, the two effects fully offset each other. While the coefficient is negative both with and without additional controls, it is not significantly different from zero ( $p = 0.386$ ). Hence, we conclude that the average net effect of social preferences on sales performance in total is zero. The same holds for all other individual characteristics, aside from age and body height which have a significant positive correlation with total revenues.

Lastly, Table 4 shows results of probit regressions on the probability of making a sale, i.e., the first part of the two-part model. As becomes evident from the low magnitude as well as the lack of statistical significance, none of the behavioral and socio-demographic traits are a strong predictor of the fraction of days a salesperson completed a sale. Importantly, variation in social preferences does not predict the probability to make at least one sale per

day. This suggests that days with zero sales are the result of other job and store-related random components rather than individual-specific performance differences.

#### 4.4 Balancing Other- and Self-regarding Concerns

The results so far show that an increase in other-regarding concerns, as measured by salespeople’s average return on investment ratio RIR, is significantly associated with higher revenue per customer and, at the same time, fewer sales per day. The presumed mechanism is that salespeople who take the welfare of others into account advise their customers differently — in a sense more trustworthily — and thus do better in inspiring a customer’s trust and consequently generate higher revenue. Yet, customer focus takes time and hence the number of sales is lower compared to more self-interested agents, a finding that is in line with previous observations by Homburg et al. (2011).

Now, obviously sales success cannot come without taking into account own economic interests as well. Good salespeople need to balance other-regarding (i.e., customer) and self-regarding (i.e., salesperson or company) concerns in order to maximize profit.<sup>10</sup> Our categorization of social preferences into different types allows us to analyze this relationship as types differ exactly in the way how other- and self-regarding concerns are balanced. Selfish types ( $RIR < 1$ ) put a strong weight on self, whereas cooperative types ( $1 \leq RIR < 2$ ) reveal both significant self- and other-regarding concerns. Equality-minded types ( $RIR = 2$ ) balance other- and self-regarding concerns perfectly, while altruistic types put a relatively stronger weight on the concerns for others.

Table 5 reports the results of our main regression if we replace the continuous social-preference measure by the three different other-regarding types (cooperative, equality-minded, altruistic) taking the selfish type as the baseline category. The results show that while all three types are associated with higher revenue per customer, the effect of the equality-minded type is the strongest. Based on column (2) where additional controls are included, we see that equality-minded salespeople generate on average about 16 percent higher revenue compared to selfish types. A similar picture emerges when considering the number of sales. Again, the coefficient of the equality-minded type is the largest in absolute value, albeit without reaching significance ( $p = 0.240$ ) in this case. Finally, as before the association with total revenue remains insignificant. In sum, the results document that the relationship between social preferences and sales performance is particularly pronounced and in a sense driven by salespeople who balance other- and self-regarding concerns perfectly. This finding nicely mirrors the original hypothesis of Saxe and Weitz (1982) who suggest that successful salespeople score high on both concern for others and concerns for self (cf. introduction).

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<sup>10</sup>Note that via the bonus system salespeople’s self-regarding concerns are (at least partly) aligned with the company’s interests.

## 4.5 Robustness

We perform a number of checks to test for the robustness of our results. First, we include additional control variables in our main regressions above. Second, we use two alternative type classifications by assigning salespeople with  $RIR = 1$  either to the selfish category or by treating them independently. Finally, we use the slope coefficient of a linear regression through the origin of salespeople’s back transfers on transfers received as a measure of social preferences. This measure has previously been used, e.g., by Altmann et al. (2008) and Falk and Zehnder (2013). We report all results consecutively.

Table 6 reports the coefficients of our continuous and type-based social preference measures, respectively, both from our main specification above and when we include additional control variables separately in the regression.<sup>11</sup> We first control for the amount a salesperson returns as a receiver in the trust game in case the sender sends a zero transfer. While our data show that about a third of the participants return a small amount in this case (mean 2.27, SD 3.78), our RIR measure does not include this information, as by definition this would imply division by 0. As the second row in Table 6 shows, however, controlling for these back transfers has no major bearing on our results. Both the magnitude and the statistical significance of our social preference measures remain basically unchanged or drop only marginally. Next, recall that all participants in our experiment played the trust game in both player roles, i.e., aside from our measure of social preferences we also have a measure of first-mover trust based on a participant’s behavior as a sender. Controlling for this variable does not affect our main results either, as the third row in Table 6 shows. Finally, we include measures of risk and time preferences we obtained from the questionnaire at the end of the experiment. Results show that neither of these variables alter the effect of our social preference variables. At the same time, none of the additional controls are significantly associated with any of our sales performance measures in a consistent way.

Recall that in our main classification of social-preference types participants, who return exactly the sender’s transfer and keep the whole surplus in the trust game (i.e., who reveal an  $RIR = 1$ ), are assigned to the so-called cooperative type category. 36 (out of the 115) sales agents belong to this group. The reason for classifying them as cooperative is that senders in the trust game at least do not lose anything if they interact with a receiver of this type. Alternatively, it may be argued that such receivers could also be classified as selfish, as they do not share the generated surplus. Table 7 shows that our results do not depend on how exactly we classify sales agents with  $RIR = 1$ . The upper panel in Table 7 reports regression results, where we classify all salespeople with  $RIR \leq 1$  as selfish types and take this category as the baseline category. In the lower panel, salespeople with  $RIR = 1$  are classified separately from the other types. Here,  $RIR < 1$  serves as the baseline

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<sup>11</sup>The complete regressions including coefficients of all variables are available upon request.

category. Otherwise, we keep everything the same as in our main specification in Table 5, i.e., columns (1), (3), and (5) report results without controls while columns (2), (4), and (6) include controls.<sup>12</sup> As can be seen, similar to before, the equality-minded type ( $RIR = 2$ ) shows the largest coefficient in absolute value both for revenue per customer and number of sales with the former association being significant at the 5-percent level. Also the size of the coefficient is very similar, corresponding to a 14- to 17-percent increase in revenue per customer compared to the baseline type. Intriguingly, the only difference to our main classification above is that once we separate salespeople with  $RIR = 1$  from those who return strictly more ( $1 < RIR < 2$ ), the latter group, i.e., those who really cooperate, is also found to generate significantly more revenue per customer. Yet, the association is still slightly smaller than the one of the equality-minded type.

Lastly, we use as an alternative measure of social preferences the slope coefficient of a linear regression of salespeople’s back transfers on transfers received forcing the regression to go through the origin (cf. Falk and Zehnder 2013). Note that similar to our RIR measure this coefficient does not factor in positive back transfers in case of a zero transfer. As the last row in Table 7 shows, taking this measure has no major effect on our results either. The estimate drops slightly but points in the same direction and remains significant at the 10-percent level.

## 5 Discussion and Conclusion

This paper connects two up to now distinct strands in the management science literature: behavioral economic research on social preferences on the one hand and marketing research on customer orientation, adaptive selling behavior, and customer stewardship on the other hand. By using an incentivized experimental game to elicit social, i.e., other-regarding, preferences among salespeople, our study shows that agents, who take into account the welfare of others, achieve significantly different sales performance outcomes than agents, who reveal a more self-regarding motivation in the experimental game. Our results provide important behavioral as well as managerial insights that highlight the role of other-regarding concerns in the marketing and sales context, corroborating also some of the previous findings in the literature. At the same time, they show that behavior in economic lab experiments is informative for the analysis of business outcomes and processes outside the lab, i.e., the “real world”. On a methodological level, the approach and the results of this paper seem encouraging and call for a further combination of economic experiments, survey measures, and objective field data in empirical management research.

Documenting a significant correlation between social preferences and different dimensions of sales performance in the field is a by no means trivial task, in particular given the particularities of our sales environment. Sales in the present business context largely

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<sup>12</sup>The full results are again available upon request.

take the form of one-shot interactions, such that other-regarding concerns cannot influence sales performance through long-term effects like reputation formation or repeat interaction. Rather, it must unfold through immediate differences in the sales process. In line with the marketing literature, our study postulates that salespeople who care about others may be more attentive to customer needs and thereby consult more convincingly and effectively (Homburg et al. 2009). This generates higher sales volumes, as customers trust and buy more. Such behavior, however, requires effort and time, which can explain the lower number of sales that agents complete, who score high in terms of other-regarding preferences.

The results have direct managerial implications. First, salespeople who pay attention to customer concerns should be aware that, while having clear benefits in terms of higher revenue per customer, such behavior comes at a cost: They are able to serve fewer customers. At the same time, salespeople who close many sales per day, most likely leave money on the table as they may care too little about what customers really need. The fact that both sales strategies yield statistically indistinguishable outcomes in terms of total sales revenue suggests that both lie opposite each other on the same isoprofit curve (see Figure 2).<sup>13</sup>

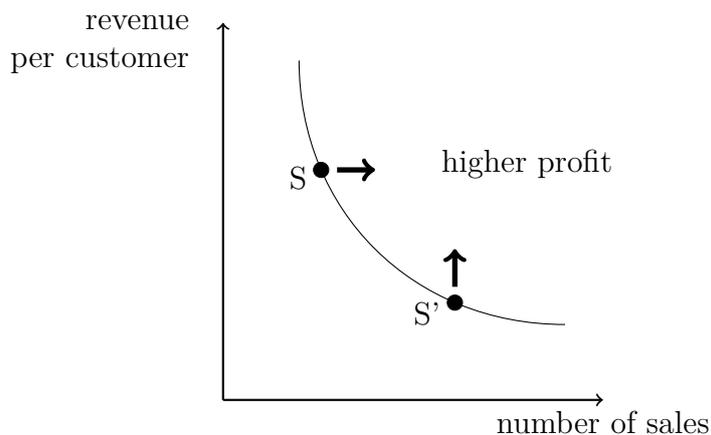


Figure 2: Different sales strategies on the same isoprofit curve

This implies that salespeople, who score high on revenue per customer but low on number of sales (point S), can raise performance by increasing the latter variable, whereas salespeople, who score low on revenue per customer but high on number of sales (point S'), should try to increase the former. Note that our results not only highlight that salespeople may benefit from very different advice and training and, consequently, the importance of individual-specific HR development. They also uncover a key driver, namely the underlying heterogeneity in the degree to which salespeople take into account customer concerns.

<sup>13</sup>While the figure mainly serves for the purpose of illustration, a linear regression with sales agent fixed effects confirms that the correlation between revenue per customer and number of sales per day is indeed negative and highly significant ( $\beta = -1.810, p < 0.01$ ).

Our results thus identify an important “behavioral” dimension for targeting and training salespeople effectively.

Second, to the extent that sales behaviors are more directly linked to personality differences and hence training measures may be limited, our results still point out clear directions for the optimal assignment of agents across different sales environments.<sup>14</sup> Intuitively, agents should operate in environments, in which the benefits of their corresponding sales strategy are maximized and at the same time costs are minimal. For agents with social preferences this implies that they are optimally assigned to environments where customer uncertainty and consequential need for advice is high (making use of the positive effect on revenue per customer), and customer frequency is low (limiting the negative effect on the number of sales). In contrast, salespeople with a more self-regarding motivation are employed best in areas with relatively high customer frequency and little need for consumer advice. For instance, in the setting of our company the number of customers varies significantly over weekdays. Assigning self-regarding salespeople to high volume days and agents with other-regarding preferences to low volume days could prove beneficial for the company.

Given that the results in this study document social preferences to even play a role in one-shot sales activities, an important direction for follow-up studies is certainly to identify the set of underlying mechanisms more precisely. In this context, analyzing the direct correlation between social preferences and measures of customer orientation, adaptive selling behavior, or customer stewardship (Saxe and Weitz 1982, Spiro and Weitz 1990, Schepers et al. 2012) would be a promising first step. Bagozzi et al. (2012) document that customer-oriented salespeople score high on empathy providing also important neurological foundations that could form a basis for bringing the different measures and concepts together (Singer and Fehr 2005). Additionally, investigating the effect of social preferences in other sales environments in which long-term effects such as reputation and customer satisfaction also matter is another obvious direction for future research. Finally, an interesting avenue for future research would be to examine the optimal team composition of sales teams (Ahearne et al., 2010) with respect to team members’ social preferences.

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<sup>14</sup>For example, Centorrino et al. (2015) show that subjective judgments of another person’s appearance do not only correlate with the level of trust in the other person, but also with actual trustworthiness by the other person. This suggests that it may be difficult for selfish individuals to emulate other-regarding concerns perfectly.

## References

- Alger, I., Weibull, J. (2013). Homo Moralis – Preference Evolution Under Incomplete Information and Assortativity. *Econometrica* 81 (6), 2269-2302.
- Ahearne, M., MacKenzie, S. B., Podsakoff, P. M., Mathieu, J. E., Lam, S. K. (2010). The Role of Consensus in Sales Team Performance. *Journal of Marketing Research* 47 (3), 458-469.
- Alesina, A., La Ferrara E. (2002). Who Trusts Others? *Journal of Public Economics* 85 (2), 207-234.
- Altmann, S., Dohmen, T., Wibral, M. (2008). Do the Reciprocal Trust Less? *Economics Letters* 99 (3), 454-457.
- Andreoni J., Miller J. (2002). Giving According to GARP: An Experimental Test of the Consistency of Preferences for Altruism. *Econometrica* 70 (2), 737-753.
- Bagozzi, R. P., Verbeke, W. J. M. I., van den Berg, W. E., Rietdijk, W. J. R., Dietvorst, R. C., Worm, L. (2011). Genetic and Neurological Foundations of Customer Orientation: Field and Experimental Evidence. *Journal of the Academy of Marketing Science* 40 (5), 639-658.
- Baran, N. M., Sapienza, P., Zingales, L. (2010). Can We Infer Social Preferences from the Lab? Evidence from the Trust Game. NBER Working Paper 15654.
- Barr, A., Serneels, P. (2009). Reciprocity in the Workplace. *Experimental Economics* 12 (1), 99-112.
- Barrick, M. R., Mount, M. K. (1991). The Big Five Personality Dimensions and Job Performance: A Meta-Analysis. *Personnel Psychology* 44 (1), 1-26.
- Bellemare C., Kröger, S. (2007). On Representative Social Capital. *European Economic Review* 51 (1), 183-202.
- Berg, J., Dickhaut, J., McCabe, K. (1995). Trust, Reciprocity, and Social History. *Games and Economic Behavior* 10 (1), 122-142.
- Blake, R. R., Mouton, J. S. (1970). *The Grid for Sales Excellence*. New York: McGraw-Hill.
- Bolton, G., Ockenfels, A. (2000). ERC: A Theory of Equity, Reciprocity, and Competition. *American Economic Review*, 90 (1), 166-193.
- Brandts, J., Charness, G. (2000). Hot vs. Cold: Sequential Responses and Preference Stability in Experimental Games. *Experimental Economics* 2 (3), 227-238.

- Burks, S. V., Ganzhorn, D., Nosenzo, D., Götte, L., Anderson, J., Rustichini, A., Bombyk, M. (2016). Lab Measures of Other-Regarding Preferences Can Predict Some Related On-the-Job Behavior: Evidence from a Large Scale Field Experiment. IZA Discussion Paper No. 9767.
- Buzzotta V. R., Lefton, R. E., Sherberg, M. (1972). *Effective Selling Through Psychology*. New York: John Wiley & Sons.
- Carpenter, J., Seki, E. (2011). Do Social Preferences Increase Productivity? Field Experimental Evidence from Fishermen in Toyama Bay. *Economic Inquiry* 49 (2), 612-630.
- Centorrino, S., Djemai, E., Hopfensitz, A., Milinski, M., Seabright, P. (2015). Honest Signaling in Trust Interactions: Smiles Rated as Genuine Induce Trust and Signal Higher Earning Opportunities. *Evolution and Human Behavior* 36 (1), 8-16.
- Charness, G., Rabin, M. (2002). Understanding Social Preferences with Simple Tests. *Quarterly Journal of Economics* 117 (3), 817-869.
- Cleave, B., Nikiforakis, N., Slonim, R. (2013). Is There Selection Bias in Laboratory Experiments? The Case of Social and Risk Preferences. *Experimental Economics* 16 (3), 372-382.
- Cooper, D. J., Kagel, J. (2016). Other Regarding Preferences: A Selective Survey of Experimental Results. In Kagel, J. H., Roth, A. E. *The Handbook of Experimental Economics Vol. 2*. Princeton University Press, New Jersey, 217-289.
- Cox, J. C. (2004). How to Identify Trust and Reciprocity. *Games and Economic Behavior* 46 (2), 260-281.
- Dana, J., Weber, R. A., Kuang, J. X. (2007). Exploiting Moral Wiggle Room: Experiments Demonstrating an Illusory Preference for Fairness. *Economic Theory* 33 (1), 67-80.
- van der Weele, J., Kulisa, J., Kosfeld, M., Friebe, G. (2014). Resisting Moral Wiggle Room: How Robust is Reciprocal Behavior? *American Economic Journal: Microeconomics* 6 (3), 256-264.
- Dohmen, T., Falk, A., Huffman, D., Sunde, U. (2008). Representative Trust and Reciprocity: Prevalence and Determinants. *Economic Inquiry* 46 (1), 84-90.
- Dow, W. H., Norton, E. C. (2003). Choosing between and Interpreting the Heckit and Two-Part Models for Corner Solutions. *Health Services and Outcomes Research Methodology* 4 (1), 5-18.

- Dufwenberg, M., Kirchsteiger, G. (2004). A Theory of Sequential Reciprocity. *Games and Economic Behavior* 47 (2), 268-298.
- Falk, A., Fischbacher, U. (2006). A Theory of Reciprocity. *Games and Economic Behavior* 54 (2), 293-315.
- Falk, A., Meier, S., Zehnder, C. (2013). Do Lab Experiments Misrepresent Social Preferences? The Case of Self-Selected Students Samples. *Journal of the European Economic Association* 11 (4), 839-852.
- Falk, A., Zehnder, C. (2013). A City-Wide Experiment on Trust Discrimination. *Journal of Public Economics* 100, 15-27.
- Farewell V. T., Long, D. L., Tom, B. D. M., Yiu, S., Su, L. (2017). Two-Part and Related Regression Models for Longitudinal Data. *Annual Review of Statistics and Its Applications* 4, 283-315.
- Fehr, E., Gächter, S. (1999). Fairness and Retaliation: The Economics of Reciprocity. *Journal of Economic Perspectives* 14 (3), 159-181.
- Fehr, E., Schmidt, K. (1999). A Theory of Fairness, Competition, and Cooperation. *Quarterly Journal of Economics* 114 (3), 817-868.
- Fischbacher, U. Gächter, S., Fehr, E. (2001). Are People Conditionally Cooperative? Evidence from a Public Goods Experiment. *Economics Letters* 71 (3), 397-404.
- Flynn, F. J. (2003). How Much Should I Give and How Often? The Effects of Generosity and Frequency of Favor Exchange on Social Status and Productivity. *Academy of Management Journal* 46 (5), 539-553.
- Franke, G. R., Park, J.-E. (2006). Salesperson Adaptive Selling Behavior and Customer Orientation: A Meta-Analysis. *Journal of Marketing Research* 43 (4), 693-702.
- Forsythe, R., Horowitz, J. L., Savin, N. E., Sefton, M. (1994). Fairness in Simple Bargaining Experiments. *Games and Economic Behavior* 6 (3), 347-369.
- Gerlitz, J.-Y, Schupp, J. (2005). Zur Erhebung der Big-Five-basierten Persönlichkeitsmerkmale im SOEP. DIW Research Notes 4.
- Grant, A. M. (2013). *Give and Take: Why Helping Others Drives Our Success*. Penguin Group, New York.
- Güth, W., Schmittberger, R., Schwarze, B. (1982). An Experimental Analysis of Ultimatum Bargaining. *Journal of Economic Behavior and Organization* 3 (4), 367-388.

- Homburg, C., Müller, M., Klarmann, M. (2011). When Should the Customer Really Be King? On the Optimum Level of Salesperson Customer Orientation in Sales Encounters. *Journal of Marketing* 75 (2), 55-74.
- Homburg, C., Wieseke, J., Bornemann, T. (2009). Implementing the Marketing Concept at the Employee – Customer Interface: The Role of Customer Need Knowledge. *Journal of Marketing* 73 (4), 64-81.
- Jaramillo, F., Ladik, D. M., Marshall, G. W., Mulki, J. P. (2007). A Meta-Analysis of the Relationship Between Sales Orientation-Customer Orientation (SOCO) and Salesperson Job Performance, *Journal of Business and Industrial Marketing* 22 (5), 302-310.
- Judge, T. A., Cable, D. M. (2004). The Effect of Physical Height on Workplace Success and Income: Preliminary Test of a Theoretical Model. *Journal of Applied Psychology* 89 (3), 428-441.
- Karlan, D. S. (2005). Using Experimental Economics to Measure Social Capital and Predict Financial Decisions. *The American Economic Review* 95 (5), 1688-1699.
- Kosfeld, M., Rustagi, D. (2015). Leader Punishment and Cooperation in Groups: Experimental Field Evidence from Commons Management in Ethiopia. *American Economic Review* 105 (2), 747-783.
- Kurzban, R., Houser, D. (2005). Experiments Investigating Cooperative Types in Humans: A Complement to Evolutionary Theory and Simulations. *Proceedings of the National Academy of Sciences of the United States of America* 102 (5), 1803-1807.
- Lammers, F. (2010). Fairness in Delegated Bargaining. *Journal of Economics & Management Strategy* 19 (1), 169-183.
- Leigh, T. W., Pullins, E. B., Comer, L. B. (2001). The Top Ten Sales Articles of the 20th Century. *Journal of Personal Selling & Sales Management* 21 (3), 217-227.
- Levine, D. (1998). Modeling Altruism and Spitefulness in Experiments. *Review of Economic Dynamics* 1 (3), 593-622.
- Madden, D. (2008). Sample Selection versus Two-Part Models Revisited: The Case of Female Smoking and Drinking. *Journal of Health Economics* 27 (2), 300-307.
- Miettinen, T., Kosfeld, M., Fehr, E., Weibull, J. (2017). Revealed Preferences in a Sequential Prisoners' Dilemma: A Horse-race Between Five Utility Functions. CESifo Working Paper No. 6358.

- Rabin, M. (1993) Incorporating Fairness into Game Theory and Economics. *American Economic Review* 83 (5), 1281-1302.
- Rustagi, D., Engel, S., Kosfeld, M. (2010). Conditional Cooperation and Costly Monitoring Explain Success in Forest Commons Management. *Science* 330 (6006), 961-965.
- Saxe, R., Weitz, B. A. (1982). The Soco Scale: A Measure of the Customer Orientation of Salespeople. *Journal of Marketing Research* 19 (3), 343-351.
- Schepers, J., Falk, T., de Ruyter, K., de Jong, A., Hammerschmidt, M. (2012). Principles and Principals: Do Customer Stewardship and Agency Control Compete or Complement When Shaping Frontline Employee Behavior? *Journal of Marketing* 76 (6), 1-20.
- Selten, R. (1967). Die Strategiemethode zur Erforschung des eingeschränkt rationalen Verhaltens im Rahmen eines Oligopol-experiments. In Sauerman, H. *Beiträge zur Experimentellen Wirtschaftsforschung*. Tübingen: JCB Mohr (Paul Siebeck), 136-168.
- Singer, T., Fehr, E. (2005) The Neuroeconomics of Mind Reading and Empathy. *American Economic Review* 95 (2), 340-345.
- Spiro, R. L., Weitz, B. A. (1990). Adaptive Selling: Conceptualization, Measurement, and Nomological Validity. *Journal of Marketing Research* 27 (1), 61-69.
- Vinchur, A. J., Schippmann, J. S., Switzer III, F. S., Roth, P. L. (1998). A Meta-Analytic Review of Predictors of Job Performance for Salespeople. *Journal of Applied Psychology* 83 (4), 586-597.
- Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data*. MIT Press, Cambridge, Mass., 2nd ed. edition.

# Appendix A: Tables

Table 1: Sample Characteristics

	Salespeople in the sample (1)	Salespeople not in the sample (2)	Difference (3)
Male	0.401 (0.032)	0.504 (0.015)	-0.103*** (0.035)
Tenure	7.725 (0.403)	7.364 (0.196)	0.361 (0.448)
Full-Time	0.669 (0.030)	0.730 (0.013)	-0.061* (0.033)
Product Category			
Low	0.293 (0.029)	0.252 (0.013)	0.041 (0.032)
Medium	0.438 (0.032)	0.440 (0.015)	-0.002 (0.035)
High	0.269 (0.029)	0.308 (0.014)	-0.039 (0.032)
Performance Measures			
Revenue per Customer	68.693 (2.276)	73.306 (3.648)	-4.613 (4.300)
Number of Sales	13.262 (0.453)	12.352 (0.217)	0.910* (0.502)
Total Revenue	878.033 (34.822)	815.477 (14.676)	62.556* (15.818)
Fraction of Days without a Sale	0.897 (0.015)	0.903 (0.006)	-0.006 (0.016)
<i>N</i>	242	1,127	

*Notes:* Column (1) reports the mean for salespeople in our sample, column (2) for salespeople not in our sample. Column (3) reports the difference between the two groups. Standard errors are reported in parentheses. The analysis is based on salespeople who were employed at the company in September 2013. Product category is a categorical variable based on the company's product area classification. Tenure measures the time in years a sales agent has spent with the company. Full-Time is a dummy equal to 1 if the agent was under contract as a full-time employee (39 weekly working hours) for the company in September 2013, and 0 otherwise. Male is a dummy equal to 1 for males, and 0 otherwise. Performance measures report the mean daily values normalized to an eight-hour working day over the two-year time period. Differences in continuous variables are tested for significance using a two-sided t-test. Differences in the binary variables are tested for significance using a two-sided Fisher-Exact test. \* and \*\*\* document significance at the 10- and the 1-percent level, respectively.

Table 2: Distribution of Social Preferences and Trust

	$N$	Average RIR (SD)	Average Trust (SD)
Selfish	38	0.45 (0.30)	4.26 (3.92)
Cooperative	115	1.39 (0.34)	6.94 (4.02)
Equality-minded	61	2.00 (0.00)	9.64 (6.51)
Altruistic	28	2.75 (0.81)	10.07 (5.18)
All	242	1.55 (0.75)	7.56 (5.22)

*Notes:* RIR is the average return of investment ratio of a participant in the role of a receiver in the trust game as defined in Section 3.2. Trust is a participant's transfer in the role of a sender.

Table 3: Sales Performance and Social Preferences: Continuous Measure

	Revenue per Customer		Number of Sales		Total Revenue	
	(1)	(2)	(3)	(4)	(5)	(6)
RIR	0.069 (0.046)	0.060** (0.027)	-0.110* (0.056)	-0.096* (0.052)	-0.041 (0.064)	-0.037 (0.042)
Age		0.017 (0.015)		0.049** (0.024)		0.067*** (0.020)
Age <sup>2</sup>		0.000 (0.000)		0.000 (0.000)		-0.001** (0.000)
Body Height		0.009*** (0.003)		0.003 (0.006)		0.012*** (0.004)
Education						
Higher Education		-0.033 (0.097)		-0.101 (0.196)		-0.135 (0.146)
Other Education		-0.075 (0.076)		0.040 (0.143)		-0.035 (0.158)
Tenure		0.003 (0.004)		0.002 (0.008)		0.004 (0.006)
Full-Time		0.161*** (0.051)		0.042 (0.105)		0.203** (0.084)
Male		0.052 (0.073)		-0.096 (0.137)		-0.044 (0.106)
Product Category						
Medium		0.423*** (0.052)		0.196* (0.104)		0.618*** (0.082)
High		0.787*** (0.066)		0.169 (0.124)		0.956*** (0.097)
Constant	3.728*** (0.100)	1.836*** (0.636)	2.354*** (0.464)	0.501 (1.167)	6.082*** (0.489)	2.337** (0.962)
Additional controls	No	Yes	No	Yes	No	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	71,069	71,069	71,069	71,069	71,069	71,069
Individuals	242	242	242	242	242	242
R <sup>2</sup>	0.178	0.369	0.189	0.208		

Notes: Columns (1) - (6) present results of a pooled OLS regression with clustered standard errors at the individual level in parentheses. The dependent variable is revenue per customer in columns (1) and (2), number of sales in columns (3) and (4), and total revenue in columns (5) and (6). All variables are aggregated at the daily level and normalized to an eight-hour working day. Social preferences are measured by the individual's RIR in the receiver role in the trust game. Age is measured in years and entered linearly and squared. Body Height is measured in centimeters. Education is a categorical variable. Sales agents whose highest education is an apprenticeship serve as the baseline. Higher Education indicates employees with 13 years of schooling and more, and Other Education comprises all other forms of education. Tenure, Full-Time, Male, and Product category are as defined in Table 1. Additional controls not shown are the personality traits measured by the 15-item Big 5 survey inventory by Gerlitz and Schupp (2005). Fixed Effects include dummy variables for all 25 months of the sample period, for all weekdays, promotion days, and for the 53 stores in our sample. \*, \*\*, and \*\*\* document significance at the 10-, 5-, and 1-percent level, respectively.

Table 4: First Part: Probit Model

	Fraction of Days with Sales	
	(1)	(2)
RIR	-0.013 (0.017)	-0.024 (0.016)
Age		0.008 (0.007)
Age <sup>2</sup>		0.000 (0.000)
Body Height		0.002 (0.002)
Education		
Higher Education		0.031 (0.045)
Other Education		-0.119 (0.101)
Tenure		0.003 (0.002)
Full-Time		-0.016 (0.027)
Male		-0.035 0.039
Product Category		
Medium		-0.030 (0.029)
High		0.055* (0.029)
Constant	1.298** (0.571)	0.252 (3.022)
Additional controls	No	Yes
Fixed Effects	Yes	Yes
Observations	79,244	79,244
Individuals	241	241

*Notes:* Average marginal effects of a probit regression of the fraction of days with documented sales as a dependent variable. All other variables as explained in Table 3. \* and \*\* document significance at the 10- and 5-percent level, respectively.

Table 5: Sales Performance and Social Preferences: Types

	Revenue per Customer		Number of Sales		Total Revenue	
	(1)	(2)	(3)	(4)	(5)	(6)
Cooperative	0.088 (0.115)	0.116 (0.072)	-0.069 (0.121)	-0.052 (0.112)	0.018 (0.166)	0.064 (0.086)
Equality-minded	0.223 (0.136)	0.156** (0.073)	-0.195 (0.141)	-0.145 (0.123)	0.028 (0.187)	0.011 (0.096)
Altruistic	0.049 (0.133)	0.102 (0.086)	-0.156 (0.194)	-0.091 (0.184)	-0.107 (0.224)	0.011 (0.158)
Age		0.015 (0.015)		0.051** (0.025)		0.066*** (0.020)
Age <sup>2</sup>		0.000 (0.000)		-0.001 (0.000)		-0.001** (0.000)
Body Height		0.009*** (0.003)		0.003 (0.006)		0.012*** (0.004)
Education						
Higher Education		-0.031 (0.092)		-0.121 (0.188)		-0.152 (0.140)
Other Education		-0.069 (0.072)		0.042 (0.139)		-0.028 (0.146)
Tenure		0.003 (0.004)		0.000 (0.008)		0.004 (0.006)
Full-Time		0.170*** (0.052)		0.038 (0.103)		0.208** (0.081)
Male		0.045 (0.074)		-0.066 (0.138)		-0.021 (0.109)
Product Category						
Medium		0.415*** (0.052)		0.185* (0.099)		0.600*** (0.078)
High		0.783*** (0.066)		0.156 (0.123)		0.939*** (0.096)
Constant	3.669*** (0.129)	1.887*** (0.631)	2.308*** (0.482)	0.463 (1.173)	5.977*** (0.503)	2.351*** (0.976)
Additional controls	No	Yes	No	Yes	No	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	71,069	71,069	71,069	71,069	71,069	71,069
Individuals	242	242	242	242	242	242
R <sup>2</sup>	0.182	0.369	0.188	0.206		

Notes: Columns (1) - (6) present results of a pooled OLS regression with clustered standard errors at the individual level in parentheses. The dependent variable is revenue per customer in columns (1) and (2), number of sales in columns (3) and (4), and total revenue in columns (5) and (6). All variables are aggregated at the daily level and normalized to an eight-hour working day. Social preferences are measured by the individual's RIR in the receiver role in the trust game using the type classification defined in Section 3.2. All other variables as explained in Table 3. \*, \*\*, and \*\*\* document significance at the 10-, 5-, and 1-percent level, respectively.

Table 6: Inclusion of Additional Controls

	Revenue per Customer			
	RIR (1)	Cooperative (2)	Equality-minded (3)	Altruist (4)
Main specification	0.060** (0.027)	0.116 (0.072)	0.156** (0.073)	0.102 (0.086)
With additional controls				
Back transfer $b_0$	0.054* (0.029)	0.112 (0.071)	0.175** (0.075)	0.085 (0.087)
Trust	0.062** (0.028)	0.119* (0.071)	0.161** (0.076)	0.108 (0.087)
Risk Preferences	0.060** (0.027)	0.115 (0.072)	0.156** (0.073)	0.102 (0.086)
Time Preferences	0.060* (0.027)	0.115 (0.072)	0.156** (0.073)	0.101 (0.086)
	Number of Sales			
	RIR (5)	Cooperative (6)	Equality-minded (7)	Altruist (8)
Main specification	-0.096* (0.052)	-0.052 (0.112)	-0.145 (0.123)	-0.091 (0.184)
With additional controls				
Back transfer $b_0$	-0.091 (0.057)	-0.048 (0.114)	-0.169 (0.125)	-0.069 (0.191)
Trust	-0.126** (0.055)	-0.083 (0.119)	-0.194 (0.138)	-0.144 (0.193)
Risk Preferences	-0.096* (0.051)	-0.059 (0.113)	-0.149 (0.123)	-0.091 (0.182)
Time Preferences	-0.095* (0.051)	-0.059 (0.112)	-0.142 (0.121)	-0.094 (0.184)
	Total Revenue			
	RIR (9)	Cooperative (10)	Equality-minded (11)	Altruist (12)
Main specification	-0.024 (0.016)	0.064 (0.086)	0.011 (0.096)	0.011 (0.158)
With additional controls				
Back transfer $b_0$	-0.036 (0.047)	0.065 (0.087)	0.005 (0.096)	0.016 (0.165)
Trust	-0.063 (0.046)	0.036 (0.093)	-0.033 (0.109)	-0.036 (0.167)
Risk Preferences	-0.036 (0.041)	0.056 (0.085)	0.007 (0.095)	0.011 (0.155)
Time Preferences	-0.034 (0.041)	0.056 (0.086)	0.014 (0.095)	0.007 (0.157)

*Notes:* The table shows the coefficients of the social-preferences measures (RIR, types) in our main specification and with the separate inclusion of additional controls. The main specification for the RIR measure is equal to the specification in columns (2), (4), and (6) in Table 3. The main specification for the type measure is equal to the specification in columns (2), (4), and (6) in Table 5. The selfish type represents the baseline category in specifications using type-based social preference measures. All models include age, body height, education, tenure, full-time, male, product category, and Big 5 as controls.

Table 7: Sales Performance and Social Preferences: Alternative Measures

Baseline category: RIR $\leq 1$					
	Revenue per Customer		Number of Sales		Total Revenue
	(1)	(2)	(3)	(4)	(5)
1 < RIR < 2	0.057 (0.091)	0.116** (0.053)	-0.073 (0.091)	-0.063 (0.094)	-0.016 (0.109)
RIR = 2	0.188* (0.108)	0.132** (0.055)	-0.182 (0.114)	-0.140 (0.098)	0.006 (0.135)
RIR > 2	0.012 (0.104)	0.078 (0.068)	-0.145 (0.177)	-0.087 (0.167)	-0.133 (0.182)
					0.053 (0.069)
					-0.008 (0.075)
					-0.009 (0.146)

Baseline category: RIR < 1					
	Revenue per Customer		Number of Sales		Total Revenue
	(1)	(2)	(3)	(4)	(5)
RIR = 1	0.074 (0.125)	0.053 (0.078)	-0.029 (0.143)	-0.012 (0.124)	0.044 (0.189)
1 < RIR < 2	0.094 (0.122)	0.143* (0.075)	-0.087 (0.125)	-0.070 (0.122)	0.006 (0.167)
RIR = 2	0.223 (0.136)	0.157** (0.073)	-0.196 (0.141)	-0.146 (0.123)	0.027 (0.187)
RIR > 2	0.050 (0.134)	0.107 (0.086)	-0.160 (0.194)	-0.094 (0.184)	-0.110 (0.223)
					0.041 (0.103)
					0.074 (0.090)
					0.011 (0.096)
					0.013 (0.158)

Slope coefficient					
	Revenue per Customer		Number of Sales		Total Revenue
	(1)	(2)	(3)	(4)	(5)
Slope coefficient	0.084* (0.048)	0.051* (0.028)	-0.084 (0.058)	-0.067 (0.054)	0.001 (0.065)
Additional controls	No	Yes	No	Yes	No
Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	71,069	71,069	71,069	71,069	71,069
Individuals	242	242	242	242	242

Notes: Pooled OLS regression with clustered standard errors at the individual level in parentheses. The dependent variable is revenue per customer in columns (1) and (2), number of sales in columns (3) and (4), and total revenue in columns (5) and (6). All variables are aggregated at the daily level and normalized to an eight-hour working day. In the upper and in the middle panel, social preferences are measured by the individual's RIR in the receiver role in the trust game. In the upper panel, individuals with RIR  $\leq 1$  are included in the baseline category. In the middle panel, individuals with RIR < 1 are included in the baseline category. In the lower panel, social preferences are measured using the slope coefficient of a OLS regression of a receiver's back transfers on transfers, forcing the slope through the origin. Additional controls in columns (2), (4), and (6) include age, body height, education, tenure, full-time, male, product category, and Big 5 (see Table 5). Fixed Effects include dummy variables for all 25 months of the sample period, for all weekdays, promotion days, and for the 53 stores in our sample. \*, \*\*, and \*\*\* document significance at the 10%, 5%, and 1-percent level, respectively.