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Social preferences and sales performance

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Abstract

We use an incentivized experimental game to uncover heterogeneity in social 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 reveal selfish behavior. Matching individual behavior in the game with firm data on sales performance shows that agents with social preferences achieve a significantly higher revenue per customer. However, at the same time, they achieve 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 selfish versus social preferences in sales contexts with important implications for economic research.

1 | INTRODUCTION

Lab research in behavioral economics has documented one consistent finding: people differ significantly in the degree to which they care about others when making economic decisions (Fehr & Gächter, 2000; Forsythe et al., 1994; Güth et al., 1982; see Cooper & Kagel, 2016 for a review). Models building on these findings have emphasized different underlying motives for "social preferences," including fairness, equality, and efficiency to explain these behaviors as well as the resulting heterogeneity in economic decision-making (Alger & Weibull, 2013; Andreoni & Miller, 2002; Bolton & Ockenfels, 2000; Charness & Rabin, 2002; Dufwenberg & Kirchsteiger, 2004; Falk & Fischbacher, 2006; Fehr & Schmidt, 1999; Levine, 1998; Rabin, 1993). However, what has received much less attention in the literature, are two important questions: What are the implications of heterogeneous social preferences in terms of economic outcomes? And what does this imply for the "(in)stability" of this heterogeneity, that is, do selfish types dominate other types or vice versa so that we should expect homogeneity in the long run?

Some empirical studies in economics have investigated the influence of social preferences on economic and business outcomes by combining experimental lab measures with field data on performance. It has been shown, for example, that Peruvian borrowers who are more trustworthy in a trust game are more likely to repay their loans (Karlan, 2005), workers in Ghana who are more reciprocating achieve higher productivity (Barr & Serneels, 2009), groups with a higher share of conditional cooperators (Rustagi et al., 2010) and with leaders emphasizing equality and efficiency (Kosfeld & Rustagi, 2015) are more successful in forest commons management in Ethiopia, and crews of Japanese fishermen with greater degrees of conditional cooperation are more productive (Carpenter & Seki, 2011).

Much less evidence comes from larger-scale corporations in industrial countries. A recent exception is the work by Deversi et al. (2020) discussed below.[1]

In this paper, we consider the business, in particular the sales context, of a large Austrian retail chain to examine the implications of heterogeneous social preferences among sales agents who are employed at the firm. Sales are at the heart of economic activities, because this is where the firm directly interacts with its customers and profits are generated. Furthermore, the sales context offers the advantage that the performance of the different behavioral types can be easily measured, compared, and disaggregated into different subdimensions, in our case revenue per customer and number of sales transactions. Finally and importantly, interactions between customers and salespeople in our context are mostly one-shot, owing to the irregularity of customer visits, the size of the stores, and the alternating shifts of the sales staff. This makes the sales context in this paper an appropriate environment to identify potential differences between selfish and social types, as reputation building is basically ruled out.

To answer our main research question of whether agents with social preferences generate higher, lower, or equal revenue in their day-to-day business, we match firm data that includes objective measures of individual sales performance with behavioral data from an economic experimental game we conduct with salespeople of the same firm. Our performance measure covers a 2-year period and records the number of sales as well as revenue for each sale 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 & Kröger, 2007; Falk & 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 social preferences, which we exploit in our analysis.

A plausible hypothesis might be that selfish types are more successful. They aim at maximizing their commission and thus sell as much as they can, irrespective of a customer's well-being. On the other hand, it could also be that types with social preferences might be more successful. 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. Agents who care about the customer may do better in inspiring this trust, for instance, by listening better to the customer's needs and by adapting their advice to the customer's requirements, thus generating a higher revenue per customer.[2] Regarding the number of sales transactions, the prediction is also not straightforward. On the one hand, an ability to advise more convincingly could also increase the number of successful sales transactions. On the other hand, identifying a customer's needs and explaining how a certain product satisfies these needs, requires both effort and time, resources that from an efficiency point of view might also, and perhaps better, be used elsewhere, for example, in serving other customers. Thus, ex ante, the effect of heterogeneous social preferences is ambiguous in our setting and warrants an in-depth empirical analysis.

The results in our study show a clear positive association between social preferences and revenue per customer. Agents 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% higher 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" (egoistic, cooperative, equality-minded, and altruistic), the results show that the effect primarily comes from equality-minded types, that is, agents who send back amounts such that both players in the trust game earn exactly the same payoff. While all social types are associated with higher revenue per customer than egoistic types, only for equality-minded agents the effect is significant and amounts to a 16% higher revenue per customer compared with egoistic types. Intriguingly, this finding is in line with the concept of customer orientation proposed in marketing research, whereby successful agents should score high on *both* concern for others and concern for self (Saxe & Weitz, 1982).

Besides this positive association with revenue per customer, our results document a significantly negative association of social preferences with the number of sales per day. 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. 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 study makes several contributions: First, our results highlight the role of social preferences in an important economic setting, namely, the sales context. We show the association between a behavioral measure of social preferences based on an incentivized experiment with different sales performance outcomes. Second, we contribute to the discussion on the implications of social preferences with respect to performance. Our study thus adds to previous work that has looked at social preferences in the workplace, showing the role they play in "real world" settings, such as labor relations (e.g., Bandiera et al., 2010; Chan et al., 2014; Herbst & Mas, 2015; Mas & Moretti, 2009) and job satisfaction (e.g., Card et al., 2012). While a large literature focuses on horizontal social preferences between coworkers (e.g., Bandiera et al., 2005; Cohn et al., 2014; Mas & Moretti, 2009) or vertical social preferences toward the employer (e.g., DellaVigna et al., 2016), we investigate how vertical social preferences toward individuals outside the organization, namely, customers, benefit the organization. Our results highlight that inside the same company and the same context, different behavioral types that produce statistically indistinguishable total revenue can coexist.[3] Most closely related to our research are the studies by Deversi et al. (2020) and Coffman and Niehaus (2020). Deversi et al. (2020), who conduct an experiment in a multinational software company, find that cooperative employees earn lower financial but higher nonfinancial rewards than selfish employees. The authors discuss that the combination of these rewards can help sustain the coexistence of both types of employees inside the company. Coffman and Niehaus (2020) examine different pathways of persuasion in a simple seller–buyer framework in the lab. They show that both appeals to self-interest and others' interests matter for persuasion.

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 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 an incentivized 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, as customers come to these stores only irregularly, the stores are very large, and the sales staff has alternating shifts.

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. While sales agents in principle can advise and encourage sales from the whole assortment, they are assigned to and specialized in a particular product-category area. These areas are ranked by the company into three different categories (low, medium, and high) based on the average price of products offered in a given area. During a shift, sales agents largely work on their own in their respective product-category area. Each agent is in charge of covering on average about 527 m^2 with a standard deviation of 138 m^2. Thus, collaboration with other sales agents is limited to arrangements at shift changeovers and forwarding of customers to more specialized colleagues.

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 toward a bonus system. If the sum of such qualified sales minus refunds exceeds a certain threshold, an agent receives a commission of 0.75% 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% 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 total revenue 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.[4] We account for this by attributing refunds and pick-ups uniformly across a sales agent's workdays in the 30 days before 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 4 weeks after the purchase is fully refunded. Applying alternative thresholds such as 1 week, 2 weeks, or 40 days does not change the results of our analysis. Second, for a significant fraction of working days (9%), 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 like inventory, 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 distinguish 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 8 h working day equivalents, we make entries comparable irrespective of the individuals' working hours on a given day. Daily revenue per customer is then calculated using the harmonic mean.

In addition to this performance data, the company also supplied us with information about marketing activities in the 2-year period such as sales promotions on particular days as well as data on the employees' job description, gender, employment level, and tenure.

2.3 | Sample construction and characteristics

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

A total of 291 of the 1369 sales agents who were employed in the fall 2013 voluntarily took part in our experiment. This corresponds to a response rate of 21.3%. 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 nonparticipants 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.[5] 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 nonparticipants, 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 nonparticipants, 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 euros per day.

TABLE 1 Sample characteristics.

	Sales agents in the sample (1)	Sales agents not in the sample (2)	Difference (3)
Male	0.401	0.504	−0.103***
Tenure	7.725	7.364	0.361
	(6.274)	(6.584)	(0.448)
Full-time	0.669	0.730	−0.061*
Product category			
Low	0.293	0.252	0.041
Medium	0.438	0.440	−0.002
High	0.269	0.308	−0.039
Performance measures			
Revenue per customer	68.693	73.306	−4.613
	(35.399)	(122.464)	(4.300)
Number of sales	13.262	12.352	0.910*
	(7.044)	(7.287)	(0.502)
Total revenue	878.033	815.477	62.556*
	(541.700)	(492.689)	(15.818)
Fraction of days with sales	0.897	0.903	−0.006
	(0.227)	(0.195)	(0.016)
N	242	1127	

Notes: Column (1) reports the means and percentage frequencies for sales agents in our sample, column (2) for sales agents not in our sample. Column (3) reports the difference between the two groups. Standard deviations are reported in parentheses. The analysis is based on sales agents 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 8-h working day over the 2-year time period. Differences in continuous variables are tested for significance using a two-sided *t* test. Differences in the categorical variables are tested for significance using a two-sided Fisher-exact test. * and *** document significance at the 10% and 1% levels, respectively.

3 | BEHAVIORAL EXPERIMENT

3.1 | Experimental design

We used an adaptation of the trust game introduced by Berg et al. (1995) to elicit sales agents' social preferences. The advantage of the trust game, compared with, for example, the dictator game, is that it provides a reliable measure of social preferences based on the behavior as a second mover in this game.[6] It has also been used successfully in the field before (Bellemare & Kröger, 2007; Falk & Zehnder, 2013; Friebel et al., 2019). Note that the measure does not allow us to distinguish between reciprocal and outcome-based social preferences, nor between other aspects, such as equity, efficiency, maximin, or spite. This would have required a more contrived design (as, e.g., in Andreoni & Miller, 2002; Fisman et al., 2007; or Kerschbamer, 2015) which was not feasible in our field setup.

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.[7] 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

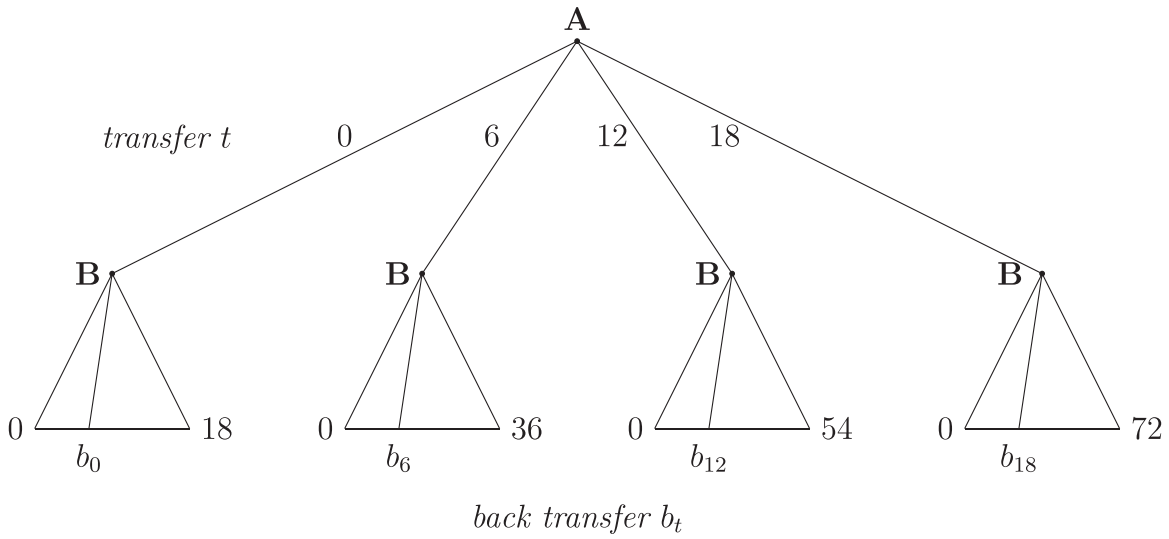

FIGURE 1 Trust game.

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, that is,

$$\Pi_A = 18 - t + b_t, \quad \Pi_B = 18 + 3t - b_t. \tag{1}$$

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

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.

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 $t \in \{6, 12, 18\}$,

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

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, that is, 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 RIR <1 are called *egoistic* 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 (RIR $= 0$) as a special case. Receivers with

$1 \leq RIR < 2$ 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 $RIR = 2$ share the surplus equally and are hence called *equality-minded* types. Finally, we call receivers with $RIR > 2$ *altruistic*, as they share the surplus to such an extent that they earn even less than the sender.[8]

An alternative, more data-driven, procedure to our theory-based approach is to classify sales agents using, for example, hierarchical clustering. Fallucchi et al. (2019) suggest this procedure for the classification of social preferences in public goods games and show that nonmonotonic types (so-called "hump-shaped" preferences) do not emerge. In our case, 90% of sales agents reveal a nonnegative monotonic strategy profile, for which the RIR provides a straightforward interpretation and classification. Moreover, excluding the participants, who reveal a nonmonotonic or negative profile, does not alter our results (see details below).

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. The instructions are provided in Supporting information Appendix B. All participants played the trust game in both player roles. This provides us not only with a measure of agent'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 with another player, who was an anonymous person residing in Austria not employed by the firm.[9] 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 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., 2016). 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 sociodemographic and other personal characteristics relevant for sales performance completed the material.

Participants returned the documents within 3 weeks after they had received the material via the postpaid envelope. One in four participants was paid based on their actual decision and the decision of the other person they were randomly matched with in the game.[10] 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 this 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, agents 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. Thirty-eight agents are egoistic with an average RIR of 0.45,[11] while 61 agents reveal an equality-minded preference with RIR equal to 2. Finally, 28 agents are altruistic with an average RIR equal to 2.75. These data corroborate previous experimental findings documenting that despite the fact that all participants face exactly the same experimental environment, they exhibit very different

TABLE 2 Distribution of social preferences and trust.

	N	Average RIR (SD)	Average trust (SD)
Egoistic	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.

Abbreviation: RIR, return on investment ratio.

behaviors revealing an important heterogeneity in self-regarding versus social preferences in trust and related social-dilemma games (Berg et al., 1995; Fischbacher et al., 2001; Friebel et al., 2019; Kurzban & Houser, 2005; Rustagi et al., 2010).[12] 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 (Altmann et al., 2008; Brandts & Charness, 2000; Miettinen et al., 2020). Finally, Table A1 in Appendix A shows that there are no large differences in the distribution of types over weekdays and product categories.[13]

4.2 | Empirical strategy

We estimate the association between social preferences and sales performance by means of the following ordinary least squares (OLS) specification:

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

where Y_{isd} is one of our three sales performance measures (revenue per customer, number of sales, and total revenue) of sales agent i in store s on date d; RIR_i is our measure of social preference of agent i explained above; X_{is} is a vector of sales agent's sociodemographic and work-specific variables that are described in detail below; α_m and α_w are fixed effects for the months and weekday of the observation, respectively; α_p indicates days with a particular sales-promotion, while α_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 nonnegligible fraction of observations for which no sales performance is measured. We tackle this issue by using a two-part model (Farewell et al., 2017; Wooldridge, 2010). Specifically, we use pooled OLS regressions to model all nonzero 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 & Norton, 2003; Madden, 2008). As our outcome variable is heavily right-skewed, we take the logarithm of our performance measures as the dependent variable. Further, we use robust standard errors clustered at the individual level as agents are in charge of a relatively large sales area of more than 500 m^2 on average and thus mainly work on their own without much interaction with other sales agents.[14]

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. 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 & La Ferrara, 2002; Bellemare & Kröger, 2007; Dohmen et al., 2008) or sales performance (Barrick & Mount, 1991; Judge & Cable, 2004; Vinchur et al., 1998). 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 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 sales. The same applies to the 19 promotion days which fall in our sampling period. Due to sizable prize deductions on these days, generated revenue 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 revenue per customer of agents who send back the initial transfer of the sender (RIR = 1) exceeds those of agents who return nothing (RIR = 0) by about 7%. However, it is not statistically significant ($p = 0.133$). This changes once we control for work-related variables and other individual characteristics in columns (2) and (3). Whereas the magnitude of the coefficient drops only slightly, it is now much more precisely estimated and significant at the 5% 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% higher revenue per customer compared with sales agents with RIR = 0. Out of the other characteristics, only body height has a statistically significant positive effect (cf. Judge & 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 8-h 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 also not 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 advice 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 (4) of Table 3 shows a marginally significant negative association between social preferences and the number of sales. Adding control variables in columns (5) and (6) further supports this finding. Expressed in percentage terms, sales agents with RIR = 1 register on average about 10% 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 sales agents 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 the revenue 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 (7)–(9) by estimating Equation (3) for total daily revenue. 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. 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 revenue.

Lastly, Table 4 shows the results of probit regressions on the probability of making a sale, that is, 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 sociodemographic traits is 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

TABLE 3 Sales performance and social preferences: Continuous measure.

	Revenue per customer			Number of sales			Total revenue		
	RIR (1)	Work-related controls (2)	Individual characteristics (3)	RIR (4)	Work-related controls (5)	Individual characteristics (6)	RIR (7)	Work-related controls (8)	Individual characteristics (9)
RIR	0.069	0.056**	0.060**	−0.110*	−0.129**	−0.096*	−0.041	−0.072	−0.037
	(0.046)	(0.027)	(0.027)	(0.056)	(0.055)	(0.052)	(0.064)	(0.046)	(0.042)
Product category									
Medium		0.433***	0.423***		0.171*	0.196*		0.605***	0.618***
		(0.047)	(0.052)		(0.094)	(0.104)		(0.082)	(0.082)
High		0.878***	0.787***		0.152	0.169		1.030***	0.956***
		(0.058)	(0.066)		(0.112)	(0.124)		(0.096)	(0.097)
Full-time		0.190***	0.161***		−0.095	0.042		0.096	0.203**
		(0.047)	(0.051)		(0.085)	(0.105)		(0.078)	(0.084)
Tenure		0.007*	0.003		0.013**	0.002		0.021***	0.004
		(0.004)	(0.004)		(0.006)	(0.008)		(0.006)	(0.006)
Male			0.052			−0.096			−0.044
			(0.073)			(0.137)			(0.106)
Age			0.017			0.049**			0.067***
			(0.015)			(0.024)			(0.020)
Age^2			−0.000			−0.000			−0.001**
			(0.000)			(0.000)			(0.000)
Body height			0.009***			0.003			0.012***
			(0.003)			(0.006)			(0.004)
Education									
Higher education			−0.033			−0.101			−0.135
			(0.097)			(0.196)			(0.146)
Other education			−0.075			0.040			−0.035
			(0.076)			(0.143)			(0.158)

TABLE 3 (Continued)

	Revenue per customer			Number of sales			Total revenue		
	RIR (1)	Work-related controls (2)	Individual characteristics (3)	RIR (4)	Work-related controls (5)	Individual characteristics (6)	RIR (7)	Work-related controls (8)	Individual characteristics (9)
Personality traits									
Conscientiousness			0.001			0.014			0.015
			(0.037)			(0.059)			(0.045)
Extraversion			−0.008			0.053			0.045
			(0.022)			(0.041)			(0.031)
Agreeableness			−0.017			−0.030			−0.047
			(0.022)			(0.043)			(0.034)
Openness			0.020			−0.027			−0.007
			(0.024)			(0.037)			(0.027)
Neuroticism			−0.032*			0.019			−0.013
			(0.019)			(0.038)			(0.030)
Constant	3.728***	3.515***	1.836***	2.354***	2.271***	0.501	6.082***	5.786***	2.337**
	(0.100)	(0.190)	(0.636)	(0.464)	(0.502)	(1.167)	(0.489)	(0.665)	(0.962)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	71,069	71,069	71,069	71,069	71,069	71,069	71,069	71,069	71,069
Individuals	242	242	242	242	242	242	242	242	242
R^2	0.178	0.353	0.369	0.189	0.198	0.208	0.215	0.312	0.332

Notes: Columns (1)–(9) present the results of a pooled OLS regression with clustered standard errors at the individual level in parentheses. The dependent variable is the logarithm of revenue per customer in columns (1)–(3), the logarithm of the number of sales in columns (4)–(6), and the logarithm of total revenue in columns (7)–(9). All variables are aggregated at the daily level and normalized to an 8-h working day. Besides fixed effects, columns (1), (4), and (7) include the individual's RIR. Columns (2), (5), and (8) further include work-related controls and in columns (3), (6), and (9) we add individual characteristics. 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. Personality traits are measured by the 15-item Big-5 survey inventory by Gerlitz and Schupp (2005). Full-time, Tenure, Product category, and Male, are as defined in Table 1. 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% levels, respectively.

Abbreviations: OLS, ordinary least squares; RIR, return on investment ratio.

TABLE 4 First part probit model: Continuous measure.

	Fraction of days with sales		
	RIR (1)	Work-related controls (2)	Individual characteristics (3)
RIR	−0.013	−0.0151	−0.024
	(0.017)	(0.16)	(0.016)
Product category			
Medium		−0.025	−0.030
		(0.029)	(0.029)
High		0.056**	0.055*
		(0.028)	(0.029)
Full-time		−0.012	−0.016
		(0.023)	(0.027)
Tenure		0.003	0.003
		(0.002)	(0.002)
Male			−0.035
			(0.039)
Age			0.008
			(0.007)
Age^2			0.000
			(0.000)
Body height			0.002
			(0.002)
Education			
Higher education			0.031
			(0.045)
Other education			−0.119
			(0.101)
Personality traits			
Conscientiousness			−0.030*
			(0.018)
Extraversion			−0.012
			(0.011)
Agreeableness			−0.004
			(0.014)
Openness			0.007
			(0.011)
Neuroticism			−0.005
			(0.010)
Constant	1.298**	1.292**	0.252
	(0.571)	(0.648)	(3.022)

TABLE 4 (Continued)

	Fraction of days with sales		
	RIR (1)	Work-related controls (2)	Individual characteristics (3)
Fixed effects	Yes	Yes	Yes
Observations	79,244	79,244	79,244
Individuals	241	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% levels, respectively.

Abbreviation: RIR, return on investment ratio.

corroborates those days with zero sales seem to be the result of other job and store-related random determinants rather than individual-specific performance differences.

4.4 | Balancing social and self-regarding concerns

The results so far show that an increase in social concerns, as measured by agents' average RIR, is significantly associated with higher revenue per customer and, at the same time, fewer sales per day. The presumed mechanism is that agents 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 with more self-interested agents.

Now, obviously sales success cannot come without taking into account own economic interests as well. Good salespeople need to balance social (i.e., customer) and self-regarding (i.e., salesperson or company) concerns to maximize profit.[15] Our categorization of social preferences into different types allows us to analyze this relationship as types differ exactly in the way how social and self-regarding concerns are balanced. Egoistic types ($RIR < 1$) put a strong weight on self, whereas cooperative types ($1 \leq RIR < 2$) reveal both significant self-regarding and social concerns. Equality-minded types ($RIR = 2$) balance social 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 with the three different social types (cooperative, equality-minded, and altruistic) taking the egoistic type as the baseline category. Interestingly, the results show that the association between social preferences and sales performance is primarily driven by the equality-minded type. Including controls (columns 2 and 3), equality-minded agents generate on average about 16% higher revenue per customer compared with egoistic types and the association is significant at the 5% level. The result nicely mirrors the original hypothesis of Saxe and Weitz (1982) in marketing research who suggest that successful salespeople score high on both concern for others and concerns for self. As before, the association with the number of sales is negative; yet, it does not reach significance in some of the specifications (columns 4–6). Finally, the association with total revenue remains insignificant (columns 7–9).

4.5 | Robustness

We conduct various checks to test for the robustness of our results. First, we include additional control variables in our main regressions above. Table A3 in Appendix A shows the coefficients of our continuous and type-based social-preference measures, respectively, both from our main specification and when we include additional control variables separately in the regression.[16] 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 results show, however, controlling for these back transfers has no major bearing on our results.

TABLE 5 Sales performance and social preferences: Types.

	Revenue per customer			Number of sales			Total revenue		
	RIR (1)	Work-related controls (2)	Individual characteristics (3)	RIR (4)	Work-related controls (5)	Individual characteristics (6)	RIR (7)	Work-related controls (8)	Individual characteristics (9)
Cooperative	0.088	0.071	0.116	−0.069	−0.105	−0.052	0.018	−0.034	0.064
	(0.115)	(0.074)	(0.072)	(0.121)	(0.113)	(0.112)	(0.166)	(0.100)	(0.086)
Equality-minded	0.223	0.148*	0.156**	−0.195	−0.227*	−0.145	0.028	−0.079	0.011
	(0.136)	(0.077)	(0.073)	(0.141)	(0.134)	(0.123)	(0.187)	(0.118)	(0.096)
Altruistic	0.049	0.055	0.102	−0.156	−0.207	−0.091	−0.107	−0.152	0.011
	(0.133)	(0.087)	(0.086)	(0.194)	(0.185)	(0.184)	(0.224)	(0.160)	(0.158)
Product category									
Medium		0.424***	0.415***		0.171*	0.185*		0.595***	0.600***
		(0.047)	(0.052)		(0.091)	(0.099)		(0.078)	(0.078)
High		0.868***	0.783***		0.159	0.156		1.028***	0.939***
		(0.058)	(0.066)		(0.110)	(0.123)		(0.094)	(0.096)
Full-time		0.196***	0.170***		−0.096	0.038		0.099	0.208**
		(0.048)	(0.052)		(0.083)	(0.103)		(0.076)	(0.081)
Tenure		0.008*	0.003		0.012**	0.000		0.021***	0.004
		(0.004)	(0.004)		(0.006)	(0.008)		(0.006)	(0.006)
Male			0.045			−0.066			−0.021
			(0.074)			(0.138)			(0.109)
Age			0.015			0.051**			0.066***
			(0.015)			(0.025)			(0.020)
Age^2			−0.000			−0.001			−0.001**
			(0.000)			(0.000)			(0.000)
Body height			0.009***			0.003			0.012***
			(0.003)			(0.006)			(0.004)
Education									
Higher education			−0.031			−0.121			−0.152
			(0.092)			(0.188)			(0.140)

TABLE 5 (Continued)

	Revenue per customer			Number of sales			Total revenue		
	RIR (1)	Work-related controls (2)	Individual characteristics (3)	RIR (4)	Work-related controls (5)	Individual characteristics (6)	RIR (7)	Work-related controls (8)	Individual characteristics (9)
Other education			−0.069			0.042			−0.028
			(0.072)			(0.139)			(0.146)
Personality traits									
Conscientiousness			0.009			0.012			0.021
			(0.037)			(0.060)			(0.047)
Extraversion			−0.012			0.057			0.045
			(0.023)			(0.042)			(0.031)
Agreeableness			−0.025			−0.027			−0.052
			(0.022)			(0.044)			(0.035)
Openness			0.022			−0.028			−0.006
			(0.024)			(0.038)			(0.028)
Neuroticism			−0.038**			0.022			−0.016
			(0.019)			(0.038)			(0.030)
Constant	3.669***	3.492***	1.887***	2.308***	2.226***	0.463	5.977***	5.717***	2.351**
	(0.129)	(0.186)	(0.631)	(0.482)	(0.518)	(1.173)	(0.503)	(0.671)	(0.976)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	71,069	71,069	71,069	71,069	71,069	71,069	71,069	71,069	71,069
Individuals	242	242	242	242	242	242	242	242	242
R^2	0.182	0.354	0.369	0.188	0.196	0.206	0.215	0.311	0.332

Notes: Columns (1)–(9) present the results of a pooled OLS regression with clustered standard errors at the individual level in parentheses. The dependent variable is the logarithm of revenue per customer in columns (1)–(3), the logarithm of the number of sales in columns (4)–(6), and the logarithm of total revenue in columns (6)–(9). All variables are aggregated at the daily level and normalized to an 8-h working day. Besides fixed effects, columns (1), (4), and (7) include the individual's RIR. Columns (2), (5), and (8) further include work-related controls and in columns (3), (6), and (9) we add individual characteristics. 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. The egoistic type represents the baseline category in specifications using type-based social-preference measures. All other variables as explained in Table 3. *, **, and *** document significance at the 10%, 5%, and 1% levels, respectively.

Abbreviations: OLS, ordinary least squares; RIR, return on investment ratio.

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, that is, 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. 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 alters the effect of our social-preference variables. At the same time, none of the additional controls is significantly associated with any of our sales performance measures in a consistent way.

In addition, we use alternative-type classifications by assigning agents with RIR equal to 1 either to the egoistic category or by treating them independently. 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., RIR = 1), are assigned to the so-called cooperative type category. Thirty-six (out of the 115 cooperatives) 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 egoistic, as they do not share the generated surplus. Table A4 in Appendix A shows that our results do not depend on whether we classify sales agents with RIR = 1 as egoistic or treat them independently. The only difference is that once we separate these agents from those who return strictly more (1< RIR <2), the latter group, that is, those who really cooperate, is also found to generate significantly more revenue per customer. Yet, the size of the association falls slightly short of the association of the equality-minded type.

Finally, about 10% of participants reveal a nonmonotonic or negative strategy profile as a second mover in the trust game. It could be that our classification based on the RIR does not capture this behavior well, so we exclude them to see whether our results depend on this. Table A4 in Appendix A (lower panel) shows that this is not the case. If anything and quite intuitively, the results tend to become stronger.

5 | DISCUSSION AND CONCLUSION

By using an incentivized experimental game to elicit social 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. Thus, our results provide important behavioral insights that highlight the role of social concerns in the sales context. At the same time, they show that behavior in economic lab experiments is informative for the analysis of economic outcomes and processes outside the lab, that is, 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 economic research.

Documenting a significant correlation between social preferences and different dimensions of sales performance in the field is by no means a trivial task, especially given the particularities of our sales environment. Sales in the present economic context largely take the form of one-shot interactions, such that social 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. Our study postulates that agents who care about others may be more attentive to customer needs and thereby consult more convincingly and effectively. This generates higher sales per customer, 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 social preferences. In sum, the effects on sales per day and revenue per customer completely offset each other such that the overall association between social preferences and total sales revenue is insignificant. Thus, our results indicate that within the same company and the same context, egoistic, and social types can coexist.

The results have direct economic implications. First, agents 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, agents 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 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).[17]

This implies that agents, who score high on revenue per customer but low on a number of sales (point *S*), can raise performance by increasing the latter variable, whereas agents, who score low on revenue per customer but high on a

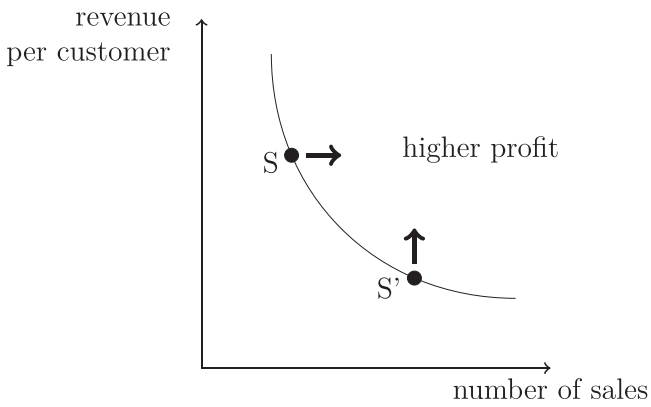

FIGURE 2 Different sales strategies on the same isoprofit curve.

number of sales (point *S'*), should try to increase the former. Previous research has shown that there is room for improvement in many functional areas within firms (Bloom & Van Reenen, 2010; Mas & Moretti, 2009). Our results add to this research by highlighting that agents 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 agents take into account customer concerns. Our results thus identify an important "behavioral" dimension for targeting and training agents effectively.

Second, our results point out clear directions for the optimal assignment of agents across different sales environments.[18] 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 egoistic 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 egoistic agents to high-volume days and agents with social preferences to low-volume days could prove beneficial for the company.

Some limitations inherent to our study raise open questions and provide interesting avenues for future research. Given that the results in this study document social preferences to play a role in one-shot sales activities, an important direction for follow-up studies is to identify the set of underlying mechanisms more precisely. In this context, more research is warranted to advance our understanding of the relationship between social preferences and related concepts, such as, for example, empathy. Another natural extension would be to examine how results vary with the nature of the product sold and the associated extent of asymmetric information between agents and customers. Furthermore, given that our results stem from a single company, investigating the effect of social preferences in other economic environments is an obvious direction for future research. In this respect, it would be particularly interesting to consider environments where long-term effects such as reputation and customer satisfaction play an important role. Finally, future work could examine what drives the benefits and costs of social preferences in respect to economic performance, perhaps by experimentally varying agents' strategies through coaching.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to a nondisclosure agreement. The nondisclosure agreement prevents us from sharing the data in their original form. A disguised data set with noise/multipliers added to the variables will be provided.

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NOTES

[1] A related literature has analyzed the relevance of social preferences in market interactions. See, for example, List (2006), Mujcic and Frijters (2013), Grosskopf and Pearce (2020), and Rustagi and Kröll (2022).

[2] 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. Rotemberg and Saloner (1993) provide a similar analysis in a leadership context.

[3] Kosfeld and von Siemens (2011) show the coexistence of selfish and cooperative types via sorting between firms. Our study considers the coexistence of different types within one firm.

[4] Pick-ups usually occur when a product is out of stock and has to be ordered for the customer. In total, refunds represent 2% and pick-ups 17% of the recorded sales volume in the given period, respectively.

[5] Importantly, selection on gender and working time is not significantly related to selection with respect to RIR.

[6] 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 game (Dana et al., 2007).

[7] See procedures on earnings in the experiment below.

[8] In Section 4.5, we also present results from an alternative-type classification as a robustness check, where receivers with RIR = 1 are either assigned to the egoistic-type category or are treated independently.

[9] The corresponding decisions were collected from students in the experimental lab at the University of Innsbruck.

[10] Participants also played two other games in the experiment that are not considered in this paper.

[11] Of these, nine agents have an RIR = 0 and the other 29 agents have 0< RIR <1.

[12] 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' prosociality. 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.

[13] According to a χ^2 test, there is no significant association between types and product categories ($p = 0.254$). As the allocation of sales agents to weekdays is not fixed and there are multiple days for each agent, we apply a multinomial probit regression for analyzing the distribution of types across weekdays. Results reveal no significant differences (see Table A2 in Appendix A).

[14] Clustering on the product-category level produces similar results (available upon request).

[15] Note that via the bonus system salespeople's self-regarding concerns are (at least partly) aligned with the company's interests.

[16] The complete regressions including coefficients of all variables are available upon request.

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

[18] Centorrino et al. (2015), for example, 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 egoistic individuals to emulate social concerns perfectly.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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APPENDIX A

See Tables A1–A4.

TABLE A1 Distribution of types across weekdays and product categories.

	Egoistic (%)	Cooperative (%)	Equality-minded (%)	Altruistic (%)	Total (%)
Weekdays					
Monday	15	47	26	12	100
Tuesday	15	47	25	12	100
Wednesday	15	47	25	12	100
Thursday	16	47	26	11	100
Friday	16	48	26	11	100
Saturday	14	48	26	11	100
Product category					
Low	18	46	23	13	100
Medium	11	54	23	12	100
High	21	38	32	9	100

Notes: 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. Product category is a categorical variable based on the company's product area classification.

Abbreviation: RIR, return on investment ratio.

TABLE A2 Behavioral types over weekdays: Multinomial probit regression.

	Cooperative	Equality-minded	Altruist
Weekdays			
Tuesday	−0.001	−0.010	0.025
	(0.030)	(0.035)	(0.029)
Wednesday	0.022	−0.012	0.038
	(0.042)	(0.045)	(0.029)
Thursday	−0.048	−0.026	−0.061
	(0.053)	(0.056)	(0.064)
Friday	−0.002	−0.036	−0.043
	(0.048)	(0.051)	(0.061)
Saturday	0.073	0.084*	0.108*
	(0.046)	(0.046)	(0.060)
Constant	0.917***	0.342**	−0.206
	(0.153)	(0.162)	(0.183)
Observations	71,069	71,069	71,069
Individuals	242	242	242
Wald χ^2	14.91		
Prob > χ^2	0.458		

Notes: The table shows estimates of a multinomial probit model of behavioral types on weekdays. 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. The dependent variable equals 0 if the individual is egoistic, 1 if the individual is cooperative, 2 if she is equality-minded, and 3 if he is altruistic. Standard errors clustered at the individual level are shown in parentheses. *, **, and *** document significance at the 10%, 5%, and 1% levels, respectively.

Abbreviation: RIR, return on investment ratio.

TABLE A3 Inclusion of additional controls.

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

TABLE A3 (Continued)

	Total revenue			
	RIR (9)	Cooperative (10)	Equality-minded (11)	Altruist (12)
Time preferences	−0.034	0.056	0.014	0.007
	(0.041)	(0.086)	(0.095)	(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 (3), (6), and (9) in Table 3. The main specification for the type measure is equal to the specification in columns (3), (6), and (9) in Table 5. The egoistic type represents the baseline category in specifications using type-based social-preference measures. All models include product category, tenure, full-time, male, age, body height, education, and Big-5 as controls. * and ** document significance at the 10% and 5% levels, respectively.

Abbreviation: RIR, return on investment ratio.

TABLE A4 Alternative-type classification and different measurements of social preferences.

	Revenue per customer		Number of sales		Total revenue	
	(1)	(2)	(3)	(4)	(5)	(6)
Baseline category: RIR ≤ 1						
1< RIR <2	0.057	0.116**	−0.073	−0.063	−0.016	0.053
	(0.091)	(0.053)	(0.091)	(0.094)	(0.109)	(0.069)
RIR = 2	0.188*	0.132**	−0.182	−0.140	0.006	−0.008
	(0.108)	(0.055)	(0.114)	(0.098)	(0.135)	(0.075)
RIR >2	0.012	0.078	−0.145	−0.087	−0.133	−0.009
	(0.104)	(0.068)	(0.177)	(0.167)	(0.182)	(0.146)
Baseline category: RIR < 1						
RIR = 1	0.074	0.053	−0.029	−0.012	0.044	0.041
	(0.125)	(0.078)	(0.143)	(0.124)	(0.189)	(0.103)
1< RIR <2	0.094	0.143*	−0.087	−0.070	0.006	0.074
	(0.122)	(0.075)	(0.125)	(0.122)	(0.167)	(0.090)
RIR = 2	0.223	0.157**	−0.196	−0.146	0.027	0.011
	(0.136)	(0.073)	(0.141)	(0.123)	(0.187)	(0.096)
RIR >2	0.050	0.107	−0.160	−0.094	−0.110	0.013
	(0.134)	(0.086)	(0.194)	(0.184)	(0.223)	(0.158)
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
Baseline category: RIR < 1—excluding individuals with nonmonotonic or negative profiles						
0< RIR <1	0.082	0.159**	−0.153	−0.113	−0.071	0.046
	(0.154)	(0.080)	(0.126)	(0.127)	(0.194)	(0.096)
RIR = 2	0.146	0.177**	−0.304**	−0.224	−0.158	−0.048
	(0.171)	(0.088)	(0.152)	(0.143)	(0.210)	(0.106)

(Continues)

TABLE A4 (Continued)

	Revenue per customer		Number of sales		Total revenue	
	(1)	(2)	(3)	(4)	(5)	(6)
RIR > 2	0.044	0.207**	−0.364*	−0.319*	−0.320	−0.112
	(0.168)	(0.088)	(0.192)	(0.175)	(0.241)	(0.148)
Additional controls	No	Yes	No	Yes	No	Yes
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	64,695	64,695	64,695	64,695	64,695	64,695
Individuals	217	217	217	217	217	217

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), the 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 8-h working day. In the upper panel, individuals with RIR ≤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, all individuals with a nonmonotonic ($n = 22$) or negative ($n = 3$) strategy profile are excluded. 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% levels, respectively.

Abbreviations: OLS, ordinary least squares; RIR, return on investment ratio.