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**Trust on the Streets:
A Natural Field Experiment on
Newspaper Purchasing**

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A Natural Field Experiment on Newspaper Purchasing

Gerald Pruckner and Rupert Sausgruber*

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Abstract

A publisher uses an honor-system for selling a newspaper in the street. The customers make payments into a cash-box, but can also just take the paper without paying. Payments are not monitored and highly anonymous; hence customers exhibit trustworthiness if they pay for the paper. We run a natural field experiment to identify motives behind payments. The experiment reveals that trustworthiness is based on a social rather than a legal norm. Additional survey questions serve to identify individual-specific components of trustworthiness. We find effects of gender, age, family status, church attendance, measures of reciprocity, social connectedness, and social risk.

Keywords: trust, trustworthiness, natural field experiment, survey

JEL-codes: C93, K42

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1 Introduction

“In the rural areas around Ithaca it is common for farmers to put some fresh produce on a table by the road. There is a cash box on the table, and customers are expected to put money in the box in return for vegetables they take. The box has a slit, so money can only be put in, not taken out. Also, the box is attached to the table, so no one can (easily) make off with the money. We think that farmers who use the system have just about the right model of human nature. They feel that enough people will volunteer to pay for fresh corn to make it worthwhile to put it out there. The farmers also know that if it were easy to take the money, someone would do so.”

Robyn DAWES und Richard THALER (1988: p. 195)

In this paper we empirically analyze customers' payment behavior in a market as the one described by Dawes and Thaler (1988). Instead of farm produce, the market trades a tabloid. Every weekend, a publisher positions hundreds of sales booths in the streets of an Austrian province. A booth consists of a plastic board of 25×15 inches in size, a moisture-proof plastic bag from which the customers take the paper, and a cashbox. The cashbox is padlocked to the board. The paper has a price indicated on the cashbox (see Appendix 1 for pictures).

Payments in this market are difficult to reconcile with standard assumptions in economics. First, the customers face no threat of punishment. Stealing the paper is illegal, but in our case the publisher abstains from legal sanctions against paper filchers.¹ Second, payments are highly anonymous and reputation is of limited concern. The reason for this is that one cannot easily observe a payment. One would have to stand very close to the customer or alternatively unlock the box in order to record payments. Neither case is typical. Finally, the customers are experienced with the market and know about this.

Recently, behavioral economists became interested in explaining why not everyone free rides all the time. There are two broad lines of research exploring this question. The first one is experimental. The laboratory “trust game” was designed to mimic exchange situations that are prone to a free-rider problem (McCabe et al. 1995; for an empirical survey, see Camerer 2003). In the standard, two-player version of this

¹ The publisher introduced the honor system in the 1970's. He does not monitor payments since the early 1980's. Nobody has been fined for taking a paper without paying since then. Other publishers apply a different strategy. The German publisher of the “Süddeutsche Zeitung” employs monitors who announce thefts to the police. The resulting fine is €30 (approx. 25 times the price of the paper). Swiss publishers have replaced the honor system by permanent vending machines, which are not prone to free rider problems.

game, the first mover can keep or invest. The investment yields some return. Then the second mover decides how to share the investment plus the return between himself and the first mover.

The second line of research has emerged from observing that social variables are empirically associated with measures of economic success. Although loosely defined and multifaceted, the concept of “social capital” suggests that there are identifiable behavioral traits which mitigate incentive problems when contracts are incomplete (see Sobel 2002 for a survey). This research has triggered several investigations on how to measure social capital. In a seminal paper, Glaeser et al. (2000) analyze students’ behavior in the laboratory trust game to identify individual-specific correlates of trust and trustworthiness. Fehr et al. (2002), Barr (2003), Bellmare and Kröger (2004), Johansson-Stenman et al. (2005) and Schechter (2005) have extended this approach to non-student participants.² Recently, Karlan (2005) found that the second movers’ behavior in the experimental trust game is associated with field behavior of borrowers in a Peruvian microcredit program.

Our paper extends this previous research in two important dimensions. First, we run a natural field experiment with customers in the newspaper market. According to Harrison and List (2004: p. 1010) a field experiment is “what might be better called an ideal experiment, in the sense that one is able to observe a subject in a controlled setting but where the subject does not perceive any of the controls as being unnatural and there is no deception being practiced”. In contrast to previous studies, we do not employ students as participants in the experiment. We also do not run an “artefactual field experiment”, which uses non-student participants in the laboratory trust game. Instead, we observe natural subjects in their roles as customers for newspapers in conditions that are controlled by us. Our subjects do not know that they are participating in an experiment.

The second difference from previous research is that we combine individual-level background variables with payment data from a field market. The publisher has provided us with the extraordinary opportunity to monitor customers’ choices and survey the same customers thereafter. We check the cash box, gather the survey data and record individual payments along with the survey responses. The customers do

² Gächter et al (2004) and Anderson et al. (2004) apply the same approach but use behavior from the experimental public good game.

not know that we verify their payments, nor do they know that we will combine their responses in the survey with their payments. With this approach we can identify individual-specific components of trustworthiness in a natural context.

To summarize, we conduct two independent studies on the behavior of customers in a market for newspapers in which payments are not enforced. The field experiment applies treatment variations to learn about customers' motivations and contains no survey. The survey study asks questions of customers in a natural non-experimental condition and has no variation of treatments. Our procedures did not aim at making the experiment and the survey comparable. Rather, we took care that the survey does not spoil the results from the field experiment and vice versa.

In the field experiment our interest is to see whether and how the publisher can promote trustworthiness on behalf of the customers. There are two treatments and a control. In the first treatment "LEGAL", we give a "reminder" about the existing legal norm by displaying the message "*Stealing a paper is illegal*" on the sales booth. We expect an effect of this treatment if customers pay because they comply with the legal norm. In the second treatment "SOCIAL", the message shows "*Thank you for being honest*". The intention behind this treatment is to test whether trustworthiness in this market rests on a social norm.

The field experiment produces two substantial results. First, the message in SOCIAL has a strong positive effect on payments as compared to the control. There is no effect of treatment LEGAL. Second, we observe that the number of free riders is the same across all three treatments. This observation implies that the message in SOCIAL has an effect only on those who do not free ride. We regard this observation as indication that payments in the newspaper market are motivated by a social norm.

From the survey of customers we find that males pay less than females and that older people pay less than younger ones. Family status matters in the sense that customers with partners and children pay more than singles without children. Social connectedness measured by volunteering activities is positively associated with payments. Customers who frequently attend the service at the (catholic) church pay significantly less than others. Customers who trust in the legal system and those who are willing to return a favor pay more for the paper. People who care about what

others think of them pay more than others. Customers who state in the survey that they would evade taxes if they had the opportunity to do so pay less.

In the next section we present the details about the sales-booth system. Section 3 explains the procedures of the field experiment and the survey study. Section 4 reports the results. Section 5 concludes.

2 The sales booths system for Sunday newspapers

The sales-booth system is common among Austrian publishers. It is particularly popular on weekends. Labor market regulation makes it expensive to hire work on weekends. Shop-hours are restricted, too. As a consequence of such regulation, on Sundays Austrians can only shop in a few places at railway stations, airports, gas stations, and tourist centers. In the newspaper market, some publishers provide a weekend house-delivery service for their customers. Apart from that, the delivery of Sunday papers via the sales-booth system is common mostly for tabloids but also for several serious papers. The customers know the streets and corners where they can find the sales booths for papers.

The paper we consider is a daily tabloid. It is distributed in Vorarlberg, a province in the west of Austria with 350 thousand inhabitants. The publisher is a large company that combines business from selling electric power, telecommunication, broadcasting, printing and distributing magazines and newspapers. Apart from the tabloid, the company edits several magazines and a serious newspaper. It also prints and distributes magazines and newspapers for other publishing houses.

At the time of the study in 2004, the Sunday print run of the tabloid was 33 thousand; on weekdays it was 25 thousand. In the same year, the estimated number of readers was 64 thousands, representing 23.7 percent of all potential readers above 14 years of age in the province. On weekends, part of the run is distributed directly to the homes of readers, who hold a subscription of the Sunday edition. Another part goes to the above mentioned shops that open on Sundays. About 42 percent of the Sunday edition, i.e., 14 thousand copies are distributed via the sales-booths system.

A question of immediate interest is what motivates the publisher to use the sales-booth system for distribution. The most likely answer is that it is optimal. The lion's share of the publisher's revenue comes from printing advertisements. A typical issue

of the tabloid has 20-30 double pages. The editorial text makes up less than one third of the total available print space. The remaining space is sold for advertisements. The selling price of advertisements increases with the number of readers of the paper. The sales booth system not only enables the publisher to distribute the paper to a large number of readers; the system is also cheap. In 2004, the year of our experiment, the paper had a price of €0.60. The publisher informed us that the average payment at the sales booths on a Sunday is approximately one third of the full price (Figure 2 in section 4 will confirm this statement). So the system generates approximately €2,800 ($= 14,000 \times €0.20$) revenues every Sunday. Subtracting the cost of hiring a number of employees who mount the sales booth and collect the money, the system is cheaper than the next best alternative of having direct house delivery.

3 Procedures

The natural field experiment and the survey study are independent from each other. The procedures of these two approaches differ in several respects. We will describe them separately in the next two subsections.

3.1 Procedures of the field experiment

The experiment has two treatments and a control. The treatments differ exclusively in a message prompted to the customers at the sales booth. This message is printed on the cover of the bag containing the papers (see Appendix 1 for pictures). A customer has to lift the cover in order to take out the paper from the bag. Therefore, customers can hardly take the paper without taking notice of the experimental message. Table 1 shows the exact wording we apply in the treatments.

The publisher provided us with 10 sales booths that we could use for the purpose of conducting the experiment. We ran the experiment during the week, for the first time on 3 subsequent days in June 2004 in a town with 44,000 inhabitants, and for the second time on 3 subsequent days in October 2004 in another town with 28,000 inhabitants.³ In both towns we chose a set of potential locations. These sets contained 20 locations in the first and 15 locations in the second town. On each day of the

³ We ran the experiment during the week because we did not want to interfere with the survey study, which was conducted on Sundays in May and June 2004 (see next section). Surveying customers required the help of many people who were physically present in the streets on Sundays. Our procedures aimed to assure that the samples of the field experiment and the survey do not overlap.

experiment, we randomly selected 10 locations from the set of potential locations. At these locations we mounted a sales booth. All locations in the experiment are frequently in use by the system. Customers know that they find sales booths for the paper at these locations. We also randomly assigned the treatments to the locations. At day 1 of the experiment, for instance, there were 3 locations each in treatment CONTROL and LEGAL, plus 4 locations in treatment SOCIAL. On day 2, we had 3 locations each in treatment SOCIAL and CONTROL, plus 4 locations in treatment LEGAL, etc. By this means we controlled for idiosyncratic location effects.

Table 1: Treatments of the field experiment

Treatment	Message
CONTROL	<i>“The paper costs 60 Cents.”</i>
LEGAL	<i>“The paper costs 60 Cents. Stealing a paper is illegal.”</i>
SOCIAL	<i>“The paper costs 60 Cents. Thank you for being honest.”</i>

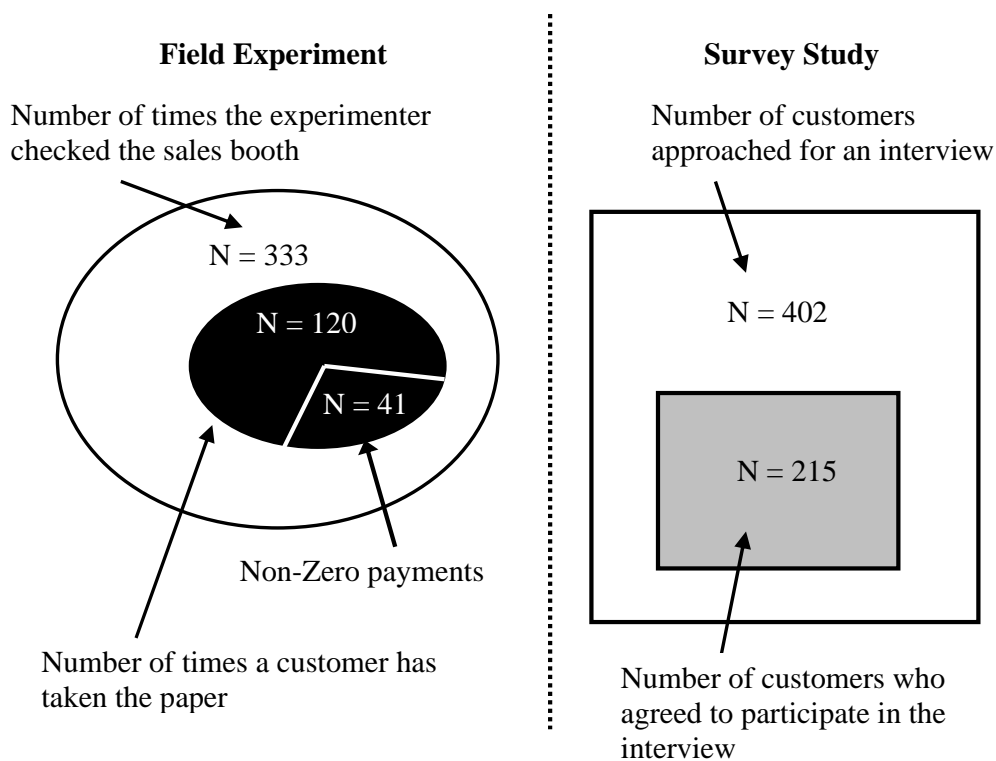
We were very cautious to ensure that the experimenters’ presence did not affect the customers’ anonymity. For this reason, the experimenter put just a single paper into the bag of a sales booth and checked for payments in intervals of 40 to 60 minutes. If the paper has been taken out of the bag, the experimenter opened the padlock, emptied the cashbox, and recorded the payment. After that, the experimenter refilled the bag again with just one single paper and moved on to the next experimental location. This reduced the probability to a minimum that the customers observed the experimenter recording a payment or that they felt being observed when they took the paper.

In total, in 6 days and two towns, we gathered data from 40 different locations. Every treatment was implemented 20 times. We selected 21 locations once for the experiment and 18 locations twice. Only one location was selected three times for the experiment. The experimenter checked the sales booths at the 40 locations a total of

333 times. At this instant, the experimenter observed one of the following events: $\Omega = \{\{\text{Paper still in the bag}\}, \{\{\text{Zero Payment}\}, \{\text{Positive Payment}\}\}\}$.

Figure 1 (left panel) illustrates these events. The figure contains the actually observed frequencies in the experiment. In 120 out of 333 cases the paper has been taken out of the bag. In 41 out of 120 cases a positive payment has been recorded.

Figure 1: Numbers of observations in the field experiment and in the survey



3.2 Procedures of the survey study

The survey was conducted independently of the field experiment. Data was collected by 60 research assistants in four towns on three Sunday mornings in May and June 2004. The total population size in these four towns is 118,500.⁴

The details of collecting the data are as follows. A team of two research assistants, a monitor and an interviewer, inspected a sales booth from some distance. When a customer took a paper from a sales booth the interviewer first waited. Only after the customer had walked a certain distance away from the sales booth, the interviewer

⁴ Only one of these four towns was also chosen for the field experiment.

approached the customer for an interview. A customer was told that the interview would last for 20 minutes. To guarantee a high rate of response a customer was promised €20 for agreeing to the interview. On request, a customer was shown an official letter from the University stating that this study is funded by the Austrian Science Foundation for the purpose of basic research. Inquiring customers were informed that the study served to explore “social behavior in the society”. All interviews were run face-to-face and took approximately 15 minutes. The questions were read aloud to buyers who could also follow reading the questions themselves.

The task of the monitor was to record individual payment for the paper. This required removing, opening, and reattaching the cashbox at the sales booth. Monitors were instructed to act such that the customers did not notice the verification of their payments. This was possible without much effort because the actual sales frequency at a location was quite low. Until noon, on average between 2 and 3 papers were taken from a sales booth.⁵ It rarely happened that another customer had taken a paper before the monitor verified the payment of the previous customer. In these cases, the decisions of both customers were not coded and therefore not considered in the data set.

We were careful to avoid that the customers would relate the interview with their payment decision at the sales booth. Interviewers were instructed not to mention to the customers the tabloid and anything related to it. Furthermore, we did not ask any question related to the newspaper in the questionnaire. A first reason for this was the publisher’s concern that our study might alienate the customers. The publisher was supportive to our research; however, he was worried about the reputation of his company. As it showed, not a single person complained about the interviews to the publisher, indicating that our precautions have been effective. The second reason is methodological: if customers had known that their payments were linked to the interview, the survey might have produced biased responses.

Figure 1 (right panel) shows that we recorded the payments of 402 customers in total. These payments were collected at 43 different locations in 4 towns. Out of 402 customers 215 (= 53 %) agreed to participate in the interview.

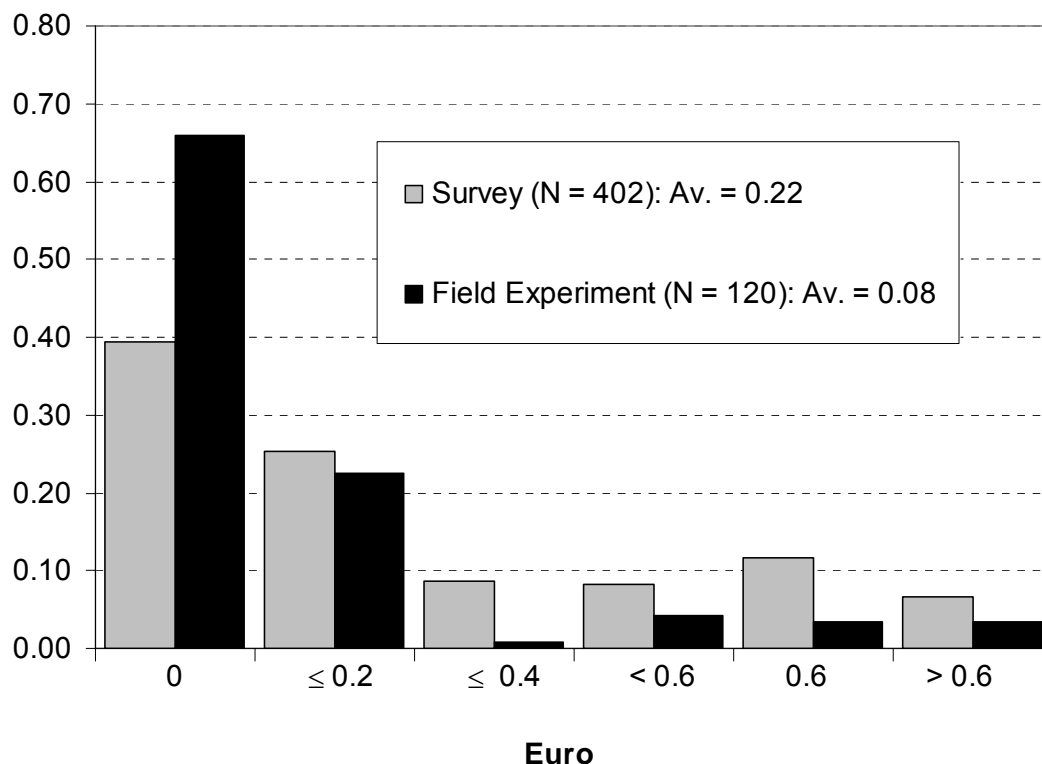
⁵ This explains the large number of helpers needed to gather this data.

4 Results

We first provide the results about the extent of trustworthiness in the market. Figure 2 shows the relative frequency of payments of customers in the survey and the experimental study. In the survey, 39 percent of customers pay zero. 61 percent make at least some positive payment. 19 percent of all customers in this sample pay the full price or even overpay. The average payment is 22 Eurocents. Those 7 percent of customers who overpay do so, most likely, because they lack the change to pay the exact price.

Payments in the field experiment are quite different. Here, 66 percent of customers pay zero. Only 34 percent make at least some payment, and only 6 percent of all customers within this sample pay the full price or overpay. The average payment is only 8 Eurocents. This figure is significantly lower than the average payment in the survey sample ($p = 0.000$).

Figure 2: Relative frequency of payments



There are several explanations for the differences in payments between the two samples. First and most importantly, we conducted the survey on Sundays while the experiment was run during the week. The paper is thicker and contains more information on Sundays than during the week. Moreover, on weekdays subscribers to the paper get the paper delivered via postal service. On Sundays only a few customers with an extra subscription get delivered the paper to their homes. Therefore, Sunday customers may value the paper higher than weekday customers. Second, only one paper was in the bag under the conditions of the field experiment. In the survey study, the natural condition applies, and a bag has been filled with 5 to 10 papers. Differences in the anonymity of the customers may be a third reason for the observed difference in payments. In particular, because the interviewer had to observe the sales booth from some distance we cannot exclude the possibility that some customers actually felt being observed. Finally, all experimental conditions prompted a message to the customers. There was no such message in the natural condition which applied to the survey.

4.1 Results from the field experiment

Figure 1 has revealed that the paper has been taken in 120 out of 333 cases. Table 2 shows how many of these sales resulted in a zero payment and decomposes the data per treatment. We make two observations from this table. First, the sales do not differ between treatments.⁶ We did not expect that one of our treatments would attract new customers and this result does not come as a surprise.

The second observation is more informative and regards the number of free-riders across treatments. If trustworthiness was driven by a legal norm, one would expect that the number of free-riders decreases in response to a message that recalls to customers that stealing the paper is illegal. However, Table 2 reveals that this message is ineffective on free riders: in LEGAL, 66.7 percent of customers were free riders; in CONTROL, 67.5 percent did not pay for the paper. In treatment SOCIAL we identify 63.4 percent of customers as free riders. These numbers are not significantly different from that in the treatment CONTROL. Before we provide an

⁶ For instance, testing for a difference in sales between SOCIAL and LEGAL gives a p-value of $p = 0.468$ according to a one-sided χ^2 -test.

interpretation of this result, we ask whether there are any treatment effects on customers who do not free ride.

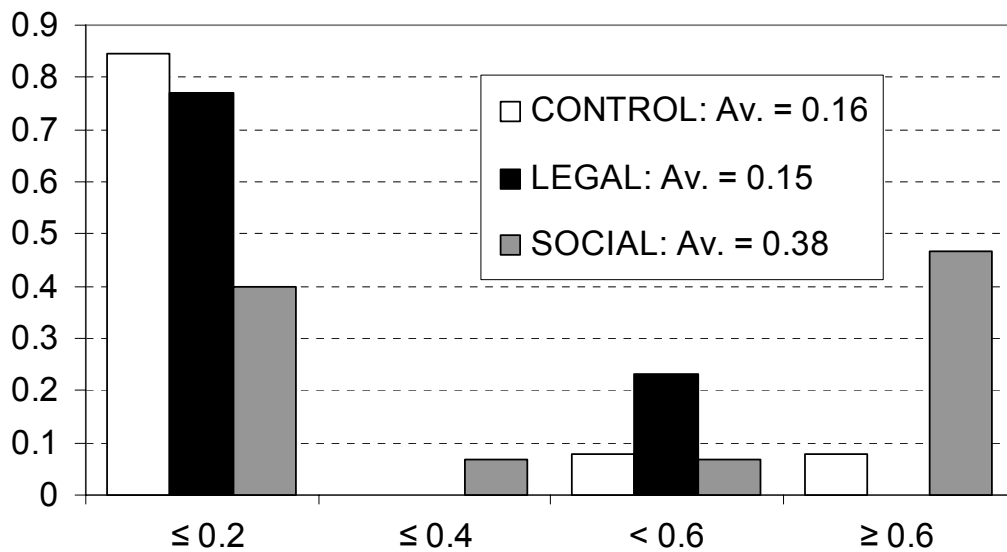
Table 2: Distribution of observations per treatment (N = 333)

	Treatment		
	CONTROL N = 109	LEGAL N = 118	SOCIAL N = 106
Sales in percent of N	36.7	33.1	38.7
Free Riders in percent of sales	67.5	66.7	63.4

Figure 2 shows the frequency distribution of non-zero payments per treatment. In treatments CONTROL and LEGAL there is a pronounced spike of the distribution at low payments. Furthermore, there is almost no difference between the patterns of payments between these two treatments. Again, this indicates that payments are not associated much with a legal norm. In contrast, payments in treatment SOCIAL shift up. In this treatment, the mode of the distribution is at paying the full amount or even more.

The average non-zero payment is 16.3 Eurocents in treatment CONTROL. With 15.4 Eurocent, non-free-riding customers pay about the same amount in treatment LEGAL as in CONTROL. In SOCIAL, non-free-riding subjects pay 38.3 Eurocents. The difference in positive payments between SOCIAL and CONTROL is significant according to a non parametric Wilcoxon rank-sum test ($p = 0.016$). Payments in SOCIAL also exceed those in LEGAL ($p = 0.004$). Comparing all non-zero payments from all three treatments jointly, a Kruskal-Wallace test reveals that the data cannot be regarded as sampled from the same population ($p = 0.017$). Finally, using all data points (N = 120), a left-censored Tobit regression, which accounts for the high frequency of zeroes in this sample, reconfirms that payments in SOCIAL exceed those of the other treatments ($p = 0.055$, one-sided).

Figure 2: Distribution of non-zero payments per treatment (N = 41)



These results make perfect sense if trustworthiness is based on a social norm. Free-riding customers are those who do not comply with the norm. Therefore, we should not expect those customers responding to the message in SOCIAL. In contrast, our findings do not support the hypothesis that the customers' trustworthiness in the market rests on a legal norm.

4.2 Individual-specific components of trustworthiness

The field experiment provides evidence that trustworthiness is due to a social norm. An implication of this finding is that customers' payments are meaningful as a measure of trustworthiness. Moreover, this measure has been taken from observing behavior in a truly natural market. The question of how to measure trust and trustworthiness is of vital importance in the research on social capital. What characterizes a free-rider? Which persons can be trusted and which variables determine the overall level of trust and trustworthiness in the society? We now report the results of our survey study which aims at answering such questions.

The rate of participation in the survey was 53 percent, i.e., 215 customers out of 402 in total agreed to participate in the interview (see Figure 1).⁷ Table 3 shows the results from a regression between payments and various background variables. The table also provides a summary of our results. A description of the variables in this table is given in the Appendix 2. We use a left-censored Tobit model with zero as the cutoff point to account for the fact that payments cannot be negative. To account for idiosyncratic location effects the regression includes dummies for each location. The number of observations in the regression is reduced from 215 to 197 because we lack the income data of some customers.

The results show that male customers pay less than female ones (*Male*) and those with an age above 50 years pay more than younger respondents (*Age > 50*). Customers with children and those living in a partnership (including marriage) make higher payments than singles without children (*Kids&NoPartner*, *NoKids&Partner*, and *Kids&Partner*). Only children do not behave differently from customers with siblings (*OnlyChild*). Personal income (*Income*) and a degree of higher education (*High_Education*) do not affect payments.

Reciprocity_Pos indicates whether a customer is willing to return a favor for beneficial behavior. This variable has a positive effect on payments. *Reciprocity_Neg* captures a customer's willingness to retaliate hostile behavior. There is no effect of this variable. The variable *Church* indicates whether or not a customer regularly attends the service at the church.⁸ It has a strong negative impact on payments. Customers who regularly donate to social charity do not pay more for the paper (*Donate_Charity*). Customers who spend time on volunteer work pay significantly more for the paper (*Volunteer*).

Customers who care about what others think of them pay significantly more for the Sunday paper (*Esteem*). *Cheat_Tax* indicates a customer's willingness to evade taxes if he or she had a chance to do so. The estimated effect of this variable on payments is strongly negative. *Gambling* indicates the willingness to bet a days

⁷ There is a selection effect with respect to participation: the customers who participate in the interview pay more for the paper than the rest (25.8 vs. 17.9 Eurocents, $p = 0.004$). Several arguments can explain this effect. For instance, paying customers with social concerns may coincide with those willing to take the interview. Moreover, who likes to be discovered being a free-rider? It is not surprising that free-riders are less willing to get stopped and talk to an interviewer right after they have stolen a newspaper from the booth.

⁸ We did not ask for the confession because a vast majority of people living in the western provinces of Austria are Roman Catholic.

income at a gamble, *Invest* tells whether customers invest their savings in risky assets, and *Risky_Sport* is the willingness to undertake risky sport. These latter three variables have no effect. Smokers pay more for the Sunday tabloid (*Smoker*). Finally, *Trust_Legal* measures a customer's response to whether he or she trusts in the legal system. This variable has a positive effect.

Table 3: Left-censored Tobit regression. Dependent variable: Payment

	Coef.	(s.e.)
Male	-0.096*	(0.056)
Age > 50	-0.151**	(0.065)
Kids&NoPartner	0.185*	(0.095)
NoKids&Partner	0.164**	(0.080)
Kids&Partner	0.184**	(0.077)
Income	-0.029	(0.040)
OnlyChild	0.049	(0.088)
High_Education	-0.046	(0.061)
Reciprocity_Pos	0.106*	(0.059)
Reciprocity_Neg	0.028	(0.056)
Church	-0.245***	(0.073)
Donate_Charity	0.048	(0.066)
Volunteer	0.113**	(0.055)
Esteem	0.143***	(0.054)
Cheat_Tax	-0.121**	(0.059)
Gambling	0.031	(0.056)
Invest	0.003	(0.056)
Risky_Sport	-0.045	(0.058)
Smoker	0.124**	(0.054)
Trust_Legal	0.115**	(0.057)
Constant	0.333	(0.329)
Pseudo R ²	0.510	
Observations	197	
Left censored/uncensored	66/131	

Standard errors in parentheses; Estimation includes dummies for locations.

* significant at 10%; ** significant at 5%; *** significant at 1%

Research has only started to investigate socioeconomic correlates of trust and trustworthiness. [1] Glaeser, et al. (2000), [2] Fehr, et. al (2003), [3] Bellmare and Kröger (2004), [4] Karlan (2005), and [5] Stenman et al. (2005) have combined survey data with experimental behavior from laboratory trust games. We now discuss how our results compare to the results of these studies.

Our finding that males pay less than females is consistent with [3]. That age depresses trustworthiness is also found by [2], [3], and [4]. [2] and [4] find no impact of higher education on trustworthiness. However, [3] find that education is negatively associated with trustworthiness in the Netherlands, whereas [5] find the reverse for Bangladesh. The finding that there is no impact of income on trustworthiness is in line with [2], [3], and [5]. [1] find that only children are less likely to return trust. In line with our results, [2] do not observe any effect of having siblings. Our finding that customers who frequently attend the service at church pay less for the Sunday paper is consistent with [2], who find a negative effect of being catholic on being trustworthy. Negative effects of church attendance are also reported in [4].⁹

Volunteer work is a measure of social connectedness. Our finding that members of volunteer organizations pay more for the newspaper is in line with [1] and other studies cited by these authors who identify social connectedness as determinant of social capital. Similarly, “Do you trust in the legal system?” is one of several questions related to trust in the General Social Survey. [1], [2], [3], and [4] find that such attitudinal measures of trust are associated with trustworthy behavior.¹⁰

Regarding *Reciprocity_Pos*, this variable takes the value of one for 74 percent of customers (159/215) who responded that they would certainly return a favor for beneficial behavior in the interview, and zero else.¹¹ As it shows, customers with a tendency to reward kind behavior are also those who make higher payments for the newspaper. This finding is consistent with a large body of theoretical and empirical research on social preferences (for a survey see, Camerer 2003).

In contrast to laboratory studies on trust, we cannot exclude that the behavior observed in the field is motivated by considerations of risk. From a psychological perspective risk can have many different domains (e.g., Weber et al. 2002). To account for this fact, we have asked questions regarding social risk (*Esteem*), ethical risk (*Cheat_Tax*), statistical risk (*Gambling*), financial risk (*Invest*), recreational risk (*Risky_Sport*), and health risk (*Smoker*). We find that newspaper customers at Sunday

⁹ We wish to note that the negative coefficient of church attendance may be driven by variables other than confession or religion. People who have just attended the service at the church may lack the coin money to pay for the newspaper if they have donated this money at the gatherings of the church.

¹⁰ In contrast, first movers' behavior in the trust game is poorly associated with measures of trust. See, Karlan (2005).

¹¹ The exact wording of the question is given in appendix 2. This question has been used by Leuven et al. (2005) to measure attitudes towards reciprocation.

sales booths are concerned about what others think of them and care about ethical behavior. Customers who smoke pay more for the Sunday paper. One interpretation of this last result is that smokers are more risk seeking.¹² A plausible alternative explanation is that smokers simply have a higher willingness to pay for the paper.

5 Summary and conclusion

This study extends existing research on trust in two important dimensions. First, we conduct a natural field experiment to determine the motives behind trustworthiness in a natural market with anonymous customers. The experiment varies messages that are shown to customers. The first treatment reminds customers of the existing legal norm. The second treatments appeals to a social norm.

The outcome of the field experiment is that customers increase their payments in response to a message that appeals a social norm. The important observation is that free riders do not react to this treatment, i.e., this result is exclusively driven by non-free riding customers. This finding supports the view that social norms explain trustworthiness in the field. Furthermore, in the market for newspapers it is unlikely that the customers exhibit trustworthiness because of simple altruism towards the publisher. Rather, the social norm is reciprocal in the sense that the customers feel obliged to repay the publisher for his service.

Our second contribution to existing research is that we ask survey questions of customers whose behavior we observe in a field market. The survey enables us to identify individual-specific correlates of trustworthiness in a fully natural context. We identify a number of significant variables. For instance, males pay less than females, older people pay less than younger ones, and customers who spend time on volunteer work pay more for the Sunday paper. We find that people at the sales booths are concerned about aspects of ethical and social risk. On the other hand, measures of financial risk do not contribute to explain payments. Finally, in line with what we have found in the field experiment, measures of reciprocity are capable of explaining payments. These results are potentially important for research on social capital.

¹² This finding is robust with respect to another variable in our survey asking about how many times a customer has preventative medical checkups.

References

- Anderson, L. R, J.M. Mellor, and J. Milyo (2004): Social Capital and Contributions in a Public Good Experiment. *American Economic Review*. Papers and Proceedings 94(2): 373-6.
- Barr, A. (2003): Trust and Expected Trustworthiness: Experimental Evidence from Zimbabwean Villages. *Economic Journal* 113: 614-30.
- Bellmare, C. and S. Kröger (2004): *On Representative Social Capital*. IZA Discussion Paper No 1145.
- Berg, J., Dickhaut, J., and McCabe, K. (1995): Trust, Reciprocity and Social History. *Games and Economic Behavior* 10: 122-42.
- Camerer, C.F. (2003): *Behavioral Game Theory – Experiments in Strategic Interaction*. Princeton: Princeton University Press.
- Dawes, R. and R. Thaler (1988): Anomalies: Cooperation. *Journal of Economic Perspectives* 2(3): 187-97.
- Fehr, E., U. Fischbacher, B. von Rosenblatt, J. Schupp, and G. Wagner (2003): A *Nation-Wide Laboratory - Examining Trust and Trustworthiness by Integrating Experiments in Representative Surveys*. IZA Discussion Paper no 175.
- Gächter, S., B. Herrmann, and C. Thöni (2004): Trust, Voluntary Cooperation, and Socio-Economic Background: Survey and Experimental Evidence. *Journal of Economic Behavior and Organization* 55(4): 505-31.
- Glaeser, E. L., D. Laibson, J.A. Scheinkman, and C.L. Soutter (2000): Measuring Trust. *Quarterly Journal of Economics* 65: 811-46.
- Harrison, G. W. and J.A. List (2004): Field Experiments. *Journal of Economic Literature* 42(4): 1009-55.
- Johansson-Stenman, O., M. Mahmud, and P. Martinsson (2005): *Trust, Trust Games and Stated Trust: Evidence from Rural Bangladesh*. Working Papers in Economics No 166. Göteborg University, Department of Economics.
- Karlan, D. S. (2005): Using Experimental Economics to Measure Social Capital and Predict Financial Decisions. *American Economic Review* 95(5): 1688-99.
- Leuven, E., H. Oosterbeek, R. Sloof, and C. van Klaveren (2005): Worker Reciprocity and Employer Investment in Training. *Economica* 72: 137-49.
- Schechter, L. (2006): *Theft, Gift-Giving, and Trustworthiness: Honesty is Its Own Reward in Rural Paraguay*. Working Paper. University of Wisconsin-Madison.
- Sobel, J. (2002): Can we Trust Social Capital? *Journal of Economic Literature* 40(1): 139-54.
- Weber, E. U., A.-R. Blais, and N.C. Betz (2002): A Domain-Specific Risk-Attitude Scale: Measuring Risk Perceptions and Risk Behaviors. *Journal of Behavioral Decision Making* 15: 263-90.

Appendix 1: Pictures of sales booths for newspapers showing the transparent plastic bag for the newspapers and the padlocked cashbox.

Helpers mounting a sales booth to a light pole



Treatment SOCIAL



Appendix 2: Description of variables

Variable Name	Description	Mean	s. d.
Age > 50	Dummy variable equal to 1 if the buyer is older than 50 years.	0.64	0.48
Church	<i>Do you attend the service at the church?</i> 1. Regularly 2. Sometimes 3. Never Rescaled into a dummy variable equal to 1 for 1, and 0 else.	0.18	0.39
Donate_charity	<i>How many times do you donate to charities?</i> 1. Frequently 2. Sometimes 3. Never Rescaled into a dummy variable equal to 1 for 1, and 0 else.	0.25	0.43
Esteem	<i>It is important to me what others think of me.</i> 1. Very important 2. Rather important 3. Little important 4. Not important at all Rescaled into a dummy variable equal to 1 for 1 and 2, and 0 else.	0.42	0.50
Gambling	<i>Would you bet a day's income on a gamble?</i> 1. Certainly yes 2. Yes 3. No 4. Certainly no Rescaled into a dummy variable equal to 1 for 1 and 2, and 0 else.	0.49	0.50
High_education	Dummy variable equal to 1 if the buyer holds a degree of higher education.	0.54	0.50
Income	Monthly personal income (self-reported) 1. < 300 Euro 2. 300-700 Euro 3. 700-1100 Euro 4. 1100-1500 Euro 5. 1500-2000 Euro 6. 2000-3000 Euro 7. 3000-4000 Euro 8. > 4000 Euro	3.88	1.76
Invest	<i>Imagine you had 20 percent of your yearly income available for an investment. Where would you invest this money?</i> 1. Savings account 2. Real estate market 3. Bonds market 4. Stock market Rescaled into a dummy variable equal to 0 for 1, and 0 else.	0.47	0.50
Kids	Dummy variable equal to 1 if the buyer has children.	0.53	0.5
Male	Dummy variable equal to 1 if the buyer is male.	0.67	0.47

Appendix 2: Description of Variables
Continued

Variable Name	Description	Mean	s. d.
Only_child	<i>How many siblings do you have?</i> Shows 1 if the answer is zero.	0.08	.27
Partner	Dummy variable equal to 1 if the buyer is married or has a partner.	0.57	0.50
Reciprocity_pos	<i>If someone does something that is beneficial to you, would you be prepared to return a favor, even when this was not agreed upon in advance?</i> 1. Certainly yes 2. Yes 3. No 4. Certainly no Rescaled into a dummy variable equal to 1 for 1, and 0 for 2, 3, and 4.	0.74	0.44
Reciprocity_neg	<i>If someone mistreats you, would you mistreat this person, too?</i> 1. Certainly yes 2. Yes 3. No 4. Certainly no Rescaled into a dummy variable equal to 1 for 1 and 2, and 0 else.	0.41	0.49
Risky_Sport	<i>Do you frequently undertake risky sport?</i> 1. Certainly yes 2. Yes 3. No 4. Certainly no Rescaled into a dummy variable equal to 1 for 1 and 2, and 0 else.	0.28	0.45
Smoker	Dummy variable equal to 1 if the buyer is a smoker.	0.37	0.48
Trust_Legal	<i>Do you trust in the legal system of Austria?</i> 1. Certainly yes 2. Yes 3. No 4. Certainly no Rescaled into a dummy variable equal to 1 for 1 and 2, and 0 else.	0.58	0.49
Volunteer	<i>Do you volunteer for one of the following organizations? If yes, how many hours per week?</i> Dummy variable equal to 1 if the buyer volunteers, and 0 else.	0.43	0.50