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Spring 6-10-2017

# REWARDING PROSOCIALITY ON NON-COMMERCIAL ONLINE SHARING PLATFORMS

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### Recommended Citation

Schneider, David, (2017). "REWARDING PROSOCIALITY ON NON-COMMERCIAL ONLINE SHARING PLATFORMS". In Proceedings of the 25th European Conference on Information Systems (ECIS), Guimarães, Portugal, June 5-10, 2017 (pp. 2269-2284). ISBN 978-989-20-7655-3 Research Papers.  
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# REWARDING PROSOCIALITY ON NON-COMMERCIAL ONLINE SHARING PLATFORMS

*Research paper*

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## Abstract

*Digitization and new trends in consumption behaviour have brought forward new business models within the Sharing Economy (SE). While commercial online sharing platforms such as Uber and Airbnb have already received some attention by researchers, non-commercial online platforms have remained largely unexplored. At the same time, prosocial motives are playing an increasingly central role in participation in the SE, calling for a better understanding of prosocial factors influencing user behaviour. This paper aims to close this gap by assessing the effect of prosociality, via donation behaviour in previous and current transactions, on the likelihood to make a transaction on non-commercial online sharing platforms. We conduct a controlled online experiment and find a significant increase in transaction likelihood in the presence of prosociality. Users who donated in previous transactions are twice as likely to make a transaction and three times more likely if they donate in current transactions. However, if simultaneously present they crowd each other out, suggesting a potential penalization of excessive prosociality. This paper contributes to the scarce Information Systems (IS) literature on non-commercial online sharing platforms by introducing prosociality as central design feature, and provides valuable insights into designing incentive schemes to foster traffic on online sharing platforms.*

*Keywords: Sharing Economy, prosociality, non-commercial online sharing platform, donation, design feature*

## 1 Introduction

The Sharing Economy (SE) has emerged as a marketplace for alternative consumption models in which peer communities gain access to a pool of shared resources (Botsman and Rogers, 2010). Despite the novelty of this technological phenomenon, the economic outlook is impressive with global revenues expected to grow from \$15bn in 2015 to \$335bn by 2025 (PWC, 2015). Uber and Airbnb, two of the most famous players in this space, alone bring together a combined valuation of almost \$100bn (Forbes, 2016; Bloomberg, 2016).

Growth of the SE has been facilitated by recent developments in information and communication technology (ICT) as well as changing consumer preferences regarding consumption of goods and services. Consumption behaviour experienced a shift from traditional ownership models (Chen, 2009) to temporary access to goods (Bardhi and Eckhardt, 2012). These trends have spurred growth of new business models within the SE, which might thus have the potential to become as important as the industrial revolution in terms of how society thinks about ownership (Botsman and Rogers, 2010).

Despite those developments, the SE has generally not received much attention from Information Systems (IS) researchers yet (Trang et al., 2015). Within this field, the majority of existing research has focused on user profile design features on commercial online sharing platforms, where products or services are exchanged in return for a monetary compensation. For example, Ert et al. (2016) found that guests on Airbnb infer the host's trustworthiness from the presence of user photos and that the choice to select an offer is affected by this inference. Similarly, Abramova et al. (2015) analysed different response strategies to negative reviews on commercial peer-to-peer accommodation platforms. Results

showed that when the subject of complaint is controllable by a host, strategies as confession, apology and denial can improve trusting beliefs towards the host. Thus, while common attributes such as profile pictures and user reviews have been explored, literature on the effect of social aspects on user transaction behaviour remains scarce.

However, social aspects have become increasingly relevant in the SE. Participation in sharing activities and the resulting behavioural change in consumption preferences are driven by several factors including a more sustainable view on resource consumption (Albinsson and Ysanthi Perera, 2012; Dabrowska and Gutkowska, 2015), increased importance of ecological consumption (Hamari et al. 2016) as well as social-altruistic motives (Albinsson and Yasanthi Perera, 2012; Gutt and Herrmann, 2015). Therefore, the inclusion of prosociality or prosocial behaviour defined as broad range of actions intended to benefit one or more people other than oneself (Batson, 2003), becomes crucial not only in the assessment of participation motives but also actual user behaviour. This holds particularly for non-commercial online sharing platforms, where social rather than economic participation motives may prevail.

The objective of this paper is to understand whether prosociality is valued in the context of non-commercial online sharing platforms by rewarding more prosocial users with a higher likelihood to successfully complete a transaction. The effect of prosociality is tested via the use of donations, which represent a channel through which prosociality may be exerted (Khadjavi, 2016). More specifically, two types of donation behaviour are assessed, namely donation behaviour in previous transactions and current transactions. Previous donation behaviour is defined by users' donation frequency in previous transactions, while current donation behaviour postulates whether users donate in a current transaction. We further argue that excessive donation behaviour defined as donation behaviour in both previous and current transactions, undermines the effect of prosociality by decreasing overall transaction likelihood. Therefore, this study raises the following two research questions:

*RQ1: Are users rewarded by a higher transaction likelihood if they engage in prosociality via donations on non-commercial online sharing platforms?*

*RQ2: Are the effects of previous and current donation behaviour on the transaction likelihood on non-commercial online sharing platforms complementary or do they crowd each other out?*

From a research perspective, this paper contributes to the scarce IS literature on design features on non-commercial sharing platforms by introducing prosociality as a central component. From a practical perspective, this paper adds to a better understanding of factors influencing user behaviour and thereby generating traffic on non-commercial online sharing platforms.

## **2 Theoretical foundation and hypotheses development**

This section is structured along the theoretical foundations of our research followed by our hypotheses development. Theoretical foundations are divided into two parts, namely non-commercial online sharing platforms and prosociality.

### **2.1 Non-commercial online sharing platforms in the Sharing Economy**

With the rise of international players such as Uber and Airbnb, the SE has increasingly started to receive more attention by researchers. Given the recency of this phenomenon, a precise common definition of the SE is lacking despite the emergence of several SE conceptualizations such as Access-Based Consumption (e.g., Bardhi and Eckhardt, 2012), Collaborative Consumption (e.g., Möhlmann, 2015) and Collaborative Economy (e.g. Martin, 2016). Since the aim of this study is to shed light on the effect of prosociality on non-commercial online sharing platforms, it will not focus on the clarification of different definitions and terminologies. Instead we revert to the definition of the Oxford dictionary, where the SE describes an *economic system in which assets or services are shared between private individuals, either for free or for a fee, typically by means of the Internet* (Oxford Dictionary, 2016). This definition touches upon two key components, namely compensation received and the sharing activity itself.

Compensation received in sharing activities may differ depending on whether it entails a monetary component or not. Monetary compensation includes for example fees (e.g., Belk, 2014b; Lamberton and Rose, 2012; Matzler et al., 2015), whereas non-monetary compensation entails for example an exchange of goods such as swapping (Albinsson and Yasanthi Perera, 2012). The use of fees is typically found in sharing practices motivated by economic benefits such as cost savings or profit generation. Cost savings can be achieved through either a broader cost allocation to several parties as in the case of ridesharing (Andersson et al., 2013; Cohen and Kietzmann, 2014) or the avoidance of asset acquisition and maintenance costs (Matzler et al., 2015; Möhlmann, 2015; Trang et al., 2015; Tussyadiah, 2015). Examples for profit generation can be found in the areas of private car sharing (e.g., Cohen and Kietzmann, 2014) or accommodation sharing (Fang et al., 2015). Similarly, non-monetary motivations are driven by the increasing awareness of a more sustainable use of resources and responsible consumption. These range from government participation in alternative consumption forms (Chasin and Scholta, 2015) to smarter use of existing resources through borrowing and swapping (e.g., Piscicelli et al., 2015; Gullstrand Edbring et al., 2015; Martin and Upham, 2015). Further examples of compensation can be found in the “true” sharing space, in which no reciprocal exchange occurs but goods and services are rather provided free of charge (e.g., Couchsurfing).

A classification of sharing activities may be conducted along the dimension of ownership, namely whether it is transferred or not. Research exists along both extremes with some authors arguing that solely a transaction without the corresponding transfer of ownership correctly represents the concept of the SE (e.g., Andersson et al., 2013; Bardhi and Eckhardt, 2012). Examples where ownership is not transferred include for example private car (e.g., Trang et al., 2015) and accommodation sharing (e.g., Gutt and Herrmann, 2015; Tussyadiah, 2015). Others include practices in which a transfer of ownership occurs via swapping and trading (e.g., Albinsson and Yasanthi Perera, 2012; Barnes and Mattsson, 2016) such as swapping of clothes (e.g., Kleiderkreisel) or services (e.g., Craigslist).

This paper focuses on SE platforms or marketplaces operated via the internet, namely non-commercial online sharing platforms where ownership is transferred via an exchange of goods (e.g., Tauschbörse or Tauschticket). The motivation to focus on this subset of platforms is driven by the importance of social rather than economic benefits in users’ participation in the SE, such as altruism (Albinsson and Yasanthi Perera, 2012). This is contrary to previous research indicating that the perceived lack of economic benefits (i.e., lack of cost savings) may prevent consumers from participating in collaborative consumption (Buczynski, 2013) or that consumers may be concerned about receiving bad quality products and services and that the value from collaborative consumption is not worth the effort (Olson, 2013). We assume that the prevalence of altruistic participation motives marked by feelings of solidarity and bonding (Belk, 2010; Benkler, 2004; Wittel, 2011) is stronger on non-commercial online sharing platforms. Given that the motivation to participate is partly driven by the desire to transact with other users, we use motivation to transact as a proxy for transaction likelihood. Therefore, the transaction likelihood is likely to be higher if prosocial behaviour is present on non-commercial compared to more commercial platforms.

## **2.2 Prosociality and indirect reciprocity**

Individuals engage in actions intended to benefit others than oneself through helping, comforting, sharing and cooperation. These activities have been coined prosocial behaviour or prosociality and may be elicited by altruism (Batson, 2003). Given that participation in the SE is partially driven by altruistic motives, a better understanding of the effect of prosociality on user behaviour in this context becomes imperative. Motivation to engage in prosociality can be segmented into three broad categories, namely image, intrinsic and extrinsic motivation (Ariely et al., 2009). Image motivation refers to an individual’s tendency to be motivated by the other people’s perception or image of oneself. Intrinsic motivation is derived from the internal value of doing good, such as the personal interest in the well-being of other people. Finally, extrinsic motivation is based on the notion of material rewards upon giving (e.g., tax breaks). For the purpose of this paper, we will focus on image and intrinsic motivation and exclude

extrinsic motivation, given that this paper is positioned in the non-commercial online sharing platform context where no material reward is provided if products or services are exchanged.

Image motivation can best be explained through the theory of indirect reciprocity, where individuals will tend to help those who help others (Alexander, 1987). Prominent examples include theories of image scoring (Nowak and Sigmund, 1998) and image standing (e.g., Sugden, 1986; Leimar and Hammerstein, 2001; Panchanathan and Boyd, 2004) which aim to explain how prosocial actions may lead to reputational benefits. A central notion of these models is that individuals with higher prosocial reputation accrue benefits through indirect reciprocity. Recent theories in the context of indirect reciprocity have focused on conditional cooperation, which implies that people are assumed to be more willing to contribute when others contribute (Fischbacher et al., 2001). Following this theory, contribution rates are likely to be higher when information is provided that many others contribute as well. For instance, Frey and Meier (2004) and Heldt (2005) depicted that if potential donors are provided with information about historical donations made by others, their propensity to donate changed. In the experiment conducted by Frey and Meier (2004), students had the option to donate to two social funds upon payment of their tuition fee. Informing students about historical donation frequency had a significant impact on their propensity to donate relative to a control group. The percentage of students contributing to at least one of the funds increases by more than 2.3 percentage points when they received the information that other students contributed. Heldt (2005) found similar results. In a field experiment he illustrated that the propensity of skiers to contribute towards track maintenance via donations was significantly impacted by information provided about historical donation frequency. The share of subjects giving a contribution was significantly greater in the group receiving information about others' behaviour than in the group that does not. Thus, individuals who perceive others to be engaged in prosociality via donations are likely to reward those via the mechanism of indirect reciprocity. At the same time, these individuals become more willing to engage in prosocial behaviour themselves, such as via donations. Donations can be classified as a form of charitable giving, which represents one channel through which prosociality might be exerted (Khadjavi, 2016).

In the case of intrinsic motivation, indirect reciprocity is less likely to materialize. The widespread phenomenon that people donate money to people who typically do not belong to one's own social group implies that people may follow different motives for charitable giving than observed in indirect reciprocity (Milinski et al., 2002). The work of Andreoni (1990) has provided key insights into psychological donation motives suggesting that charitable donations can be attributed to a "joy-of-giving" or "warm-glow" effect that results in people gaining satisfaction from knowing that they contributed to a worthy cause. The motivation to engage in prosocial behaviour can thus be driven by both indirect reciprocity as well as other motivational reasons such as charitable giving by gaining satisfaction from helping others. While these findings are also relevant for the explanation of prosocial behaviour, we will focus only on the concept of indirect reciprocity for the purpose of this experiment as indirect reciprocity and charitable giving (e.g., donations) represent two channels via which prosociality may be exerted (Khadjavi, 2016).

While reciprocal behavior has been confirmed in both laboratory experiments and surveys on fairness support (e.g., Kahneman et al., 1986; Milinski et al., 2002a, b; Rockenbach and Milinski, 2006; Engelmann and Fischbacher, 2009), it has not yet been explored in more anonymous settings such as in the SE. We argue that indirect reciprocity also works on non-commercial online sharing platforms. Users who engage in prosociality via donations are rewarded by other users and thus more likely to make a transaction compared to users who do not engage in prosociality. However, we differentiate between two types of donation behaviour, namely donation behaviour in previous and current transactions. The underlying rationale is twofold. On the one hand, more frequent donations in previous transactions might be perceived more credible compared to a single donation in a current transaction. On the other hand, the effect of indirect reciprocity might be stronger when donations occur in current transaction due to a more direct contribution as opposed to in historic donation activities. Therefore, we include previous donation behaviour and current donation behaviour separately in our research model (Figure 1) and derive our main effect hypotheses:

*H1A: Transaction likelihood on non-commercial online sharing platforms increases if a person has engaged in prosociality by donating in previous transactions.*

*H1B: Transaction likelihood on non-commercial online sharing platforms increases if a person engages in prosociality by donating in current transactions.*

In addition to assessing the individual effect of the two prosociality factors, we are also interested in understanding the combined effect on the likelihood to make a transaction. More specifically, we contend that excessive prosociality may also be harmful and thus have a negative effect on overall transaction likelihood compared to if only one of the two factors is present. Previous research showed that offering rewards to increase prosociality may decrease total contribution. This can be explained by the motivation crowding out theory, suggesting that external intervention via monetary incentives may undermine intrinsic motivation to engage in prosocial activities (Frey and Jegen, 2001). It may be the case that both previous and current donation behaviour are rewarded by a higher transaction likelihood if viewed separate. However, if simultaneously present, users’ perceived intrinsic motivation to donate in previous transaction may be reduced in the presence of a donation in current transactions. The combination of both prosociality factors could be interpreted as excessive donation behaviour, potentially suggesting the presence of extrinsic incentives such as leveraging non-commercial online sharing platforms for more self-beneficial reasons. Therefore, additional donations in transactions where previous donation behaviour is already high may result in a penalization through a lower transaction likelihood. We thus derive our next hypothesis reflecting this interaction effect:

*H2: Current donation behaviour will moderate the relationship between previous donation behaviour and transaction likelihood such that the effect of high previous donation behaviour on transaction likelihood will be lower in the presence compared to the absence of current donation behaviour.*

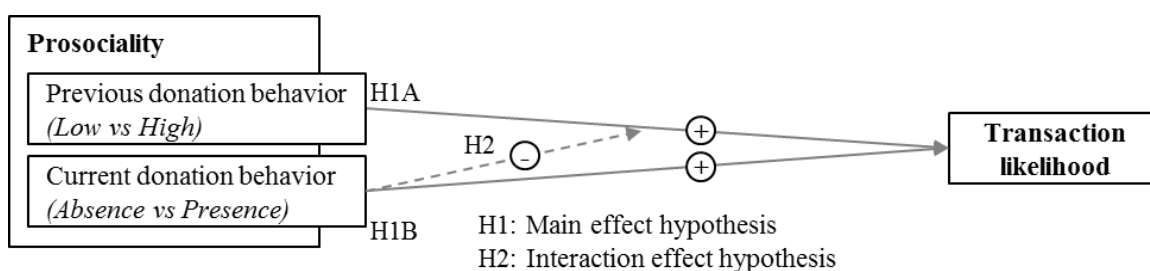


Figure 1. Research model and hypothesis.

### 3 Research methodology

This section describes the procedure to testing our hypotheses. We first explain our experimental design followed by a description of the manipulation of our independent variables. Then we define our dependent and control variables as well as our manipulation checks.

#### 3.1 Experimental design

To test our hypotheses, an online experiment was conducted because it allowed us to clearly isolate the individual effects of the two prosociality components, previous and current donation behaviour, on users’ likelihood to transact. In order to frame the experiment in the context of non-commercial online sharing platforms, a transaction on a fictional online sharing platform called “Swapstuff” was created. Participants were asked to make a decision to swap products with a fictional user called Sara. The platform was self-designed and reflected real platform functionalities including a user profile as well as an overview of the features of the products to be swapped. In order to test the effect of prosociality, a 2 (previous donation behaviour: *high vs low*) x 2 (current donation behaviour: *present vs absent*) between-

subjects design was employed. A qualitative pilot test was conducted with several participants to ensure the treatments were manipulated according to the experimental design (Perdue and Summers, 1986). Participants were recruited from social networks as well as Amazon Mechanical Turk, an online market place for business services. While participants recruited via Mechanical Turk received a monetary compensation per survey submitted, participants contacted via social networks did not.

The experiment was set up along three steps. In the first step participants received a short introduction to the functionality of typical swapping platforms, including an exemplary transaction. In a second step, the context of the hypothetical transaction was set. Participants were asked to put themselves in the position of a fictional platform user, Alex, who is browsing the platform in need for a toaster. The toaster is offered by Sara, who is the only one offering a toaster so that Alex cannot compare toasters from different users and she is willing to swap in return for a sandwich maker Alex is currently offering on the platform. Participants further received the information that “Swapstuff” was currently supporting a donation program in which a voluntary donation of €3 could be made to the local Red Cross if the parties decided to swap. In the final step participants were navigated to a transaction summary depicting one of the four different transaction outcomes. The summary included both a user profile as well as a product features overview. Based on this information, participants had to decide whether to transact with Sara.

### **3.2 Manipulation of independent variables**

Manipulation of the two independent variables, previous and current donation behaviour, was conducted on the transaction summary overview presented to the participants of the experiment. The transaction summary showed Sara’s user profile, an indication of a current donation as well as a product feature description. The user profile showed Sara’s previous donation behaviour, mirrored by a donation activity index. The index could be either high, meaning that a donation was made almost every deal, or low meaning that almost no donations had been made. Current donation behaviour was illustrated by a sticker at the bottom of the transaction summary page indicating that Sara would donate €3 to the Red Cross upon deal completion. No sticker was shown in the absence of current donation behaviour scenario. The manipulation was conducted via a randomization showing only one of the four different combinations. Figure 2 provides an illustration of the manipulation of the two experimental factors. The product and corresponding features were kept constant across all outcomes to rule out potential rival explanation for deal completion. Furthermore, an incentive was created to not make a transaction by differentiating the number of product features of the products to be swapped. In the experiment, the product features were set equal between the toaster and the sandwich maker, however, while the toaster only had three product features (adjustable thermostat, four-slice capacity and removable crumb tray), the sandwich maker had five (adjustable thermostat, four-slice capacity, removable heat plates, heat control lamps and non-stick heat plates), resulting in an unequal transaction from functionality aspects. Participants were therefore presented with a situation in which they would exchange a product with more features in return for one with less, resulting in a disadvantageous deal from a product feature perspective. The “deal attractiveness hurdle” was introduced as a balance to compensate for the initial incentive to simply transact with Sara for the sake of obtaining the needed toaster. This counterbalance aims to reduce the participants’ initial willingness to swap due to the exchange of an “upper-class” product in return for “lower-class” product functionality-wise.

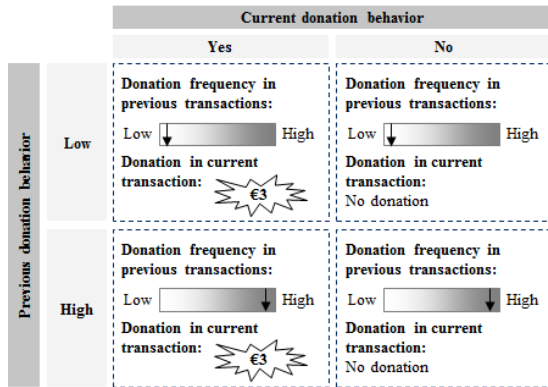


Figure 2. Four experimental conditions (2x2 between-subjects design).

### 3.3 Dependent variables, control variables and manipulation checks

The dependent variable is the proportion of successful deals or transactions in the different subgroups. This proportion acts as a proxy for the likelihood to transact, defined by a point estimator P based on:

$$P(\text{likelihood to transact per outcome}) = \frac{\sum_{k=1}^n x_k}{n}$$

Where n denotes the total amount of participants in the respective outcomes and  $x_k$  is a binary variable which equals 1 when a participant decided to transact and 0 if not. Furthermore, different control variables were included such as age, gender, attitude towards helping people in need, beliefs in reciprocity as well as measurement of altruistic value orientation. In order to measure participants' attitude towards helping others in need, the helping attitude scale (HAS) was employed, which is a 20-item measurement method of respondents' beliefs, feelings, and behaviours associated with helping (Nickell 1998) ranked on a 5-point Likert scale. To assess the participant's beliefs in reciprocity, Perugini et al.'s (2003) personal norm of reciprocity (PNS) questionnaire employing a 5-point Likert scale was used. Participants' altruistic value orientation was measured on a 9-point Likert scale along the extended value items list proposed by de Groot and Steg (2007). Finally, we controlled for whether users received a monetary compensation for completing the survey or not via dummy coding. In addition, participants' deal satisfaction, their likelihood to engage in another transaction with Sara in the future as well as their trust beliefs in Sara were captured on a Likert scale ranging from (1)=very low to (5)=very high as separate items. To measure the participant's trust, selected questions from the trusting beliefs questionnaire assessing vendor trust (McKnight et al., 2002) were employed. Finally, a set of manipulation check questions were included in the questionnaire. The checks were used to ensure that participants correctly understood the information provided on the transaction summary, such as Sara's previous and current donation behaviour, which participants had to assess on a 5-point Likert scale. Also, the participants' answers on perceived degree of realism and overall understanding of the questions stated and information shown was assessed and rated on a 5-point Likert scale.

## 4 Analysis and results

### 4.1 Sample description, controls and manipulation checks

328 participants were included in the final dataset, thereof 247 were recruited via Amazon Mechanical Turk and 81 from social networks. Out of the 389 participants that completed all questions in a realistic time period, 61 were excluded due to suspicious data patterns indicating monotonous click-through without answer variability. The average age of the respondents is 31 years, ranging from 18 to 66. 265 of 328 participants decided to make a transaction, resulting in an overall proportion of 81% across all four subgroups. Table 1 summarizes the descriptive statistics of the data.



Several one-way ANOVAs were conducted to assess whether the assignment of participants to the different experimental outcomes was random. This was confirmed as no significant difference in gender ( $F=.711$ ,  $df=3$ ,  $p>.05$ ), age ( $F=.529$ ,  $df=3$ ,  $p>.05$ ), helping attitude ( $F=.459$ ,  $df=3$ ,  $p>.05$ ), beliefs in reciprocity ( $F=.997$ ,  $df=3$ ,  $p>.05$ ), altruistic value orientation ( $F=.634$ ,  $df=3$ ,  $p>.05$ ) and survey participation incentive ( $F=.378$ ,  $df=3$ ,  $p>.05$ ) was found between the experimental groups. Thus, participants' demographics and the controls were homogeneous across conditions, and do not confound the effects of the manipulations. Finally, successful manipulations were confirmed by performing ANOVAs to test for significant differences between the conditions, in which both previous ( $F=92.842$ ,  $df=1$ ,  $p<.001$ ) and current donation behaviour ( $F=49.363$ ,  $df=1$ ,  $p<.001$ ) was present. The results indicate that participants rated Sara's previous donation behaviour significantly higher in the high donation behaviour scenario ( $\bar{x}=4.10$ ,  $\sigma=.89$ ) compared to the low scenario ( $\bar{x}=2.85$ ,  $\sigma=1.38$ ). Similarly, if a donation was made in current transactions, participants rated Sara's current donation behaviour significantly higher in the donation presence ( $\bar{x}=3.90$ ,  $\sigma=1.17$ ) compared to the donation absence scenario ( $\bar{x}=3.01$ ,  $\sigma=1.13$ ). As indicators for the external validity of the findings, participants' answers regarding the realism of the scenario were further reviewed. Participants reported high levels ( $\bar{x}=4.32$ ,  $\sigma=.64$ ), therefore it is reasonable to assume that the manipulations worked as intended and the setting was perceived to be realistic.

Construct	Mean	StD	Min	Max
<b>Demographics</b>				
Age	31.2	7.89	18	66
<b>Controls</b>				
Helping attitude	3.95	0.52	2	5
Belief in reciprocity	3.28	0.64	1	5
Altruistic orientation	7.70	1.30	1	9
<b>Dependent variable</b>				
Overall proportion of transactions closed	81%	0.39	0	1
Previous donation behaviour low_Current donation behaviour absent	59%	0.49	0	1
Previous donation behaviour high_Current donation behaviour absent	87%	0.34	0	1
Previous donation behaviour high_Current donation behaviour present	85%	0.36	0	1
Previous donation behaviour low_Current donation behaviour present	90%	0.30	0	1

Means, standard deviation and range,  $N = 328$

Table 1. Descriptive statistics of demographics, controls and dependent variable.

## 4.2 Hypotheses testing

To test the hypotheses, a two stage hierarchical logistic regression was conducted on the dependent variable likelihood to transact (Table 2). While no correlation between the controls and the dependent variable was found, significant correlations among the controls were identified. Therefore, helping attitude, gender and survey participation incentive were excluded and only age, beliefs in reciprocity and altruistic value orientation were included as remaining controls in the model. First, the main effects of prosociality were included, namely previous donation behaviour and current donation behaviour (Model I), and then the interaction effect (Model II) was added. Both models are highly significant ( $p<.001$ ).

Construct	Model I			Model II		
	Coefficient	S.E.	Odds ratio	Coefficient	S.E.	Odds ratio
<b>Intercept</b>	-0.979	1.264	0.376	-1.302	1.278	0.272
<b>Manipulation</b>						
Previous donation behaviour <sup>a</sup> (base case low)	0.786**	0.303	2.194	1.570***	0.403	4.807
Current donation behaviour <sup>b</sup> (base case no donation)	1.103***	0.307	3.012	1.943***	0.425	6.983
Previous*Current donation behaviour				-2.077***	0.628	0.125
<b>Controls</b>						
Age	0.002	0.020	1.002	0.003	0.020	1.003
Beliefs in reciprocity	0.023	0.235	1.023	-0.010	0.239	0.990
Altruistic value orientation	0.191	0.107	1.210	0.203	0.110	1.225
<i>Log likelihood</i>	299.576			288.380		
<i>Nagelkerke's R<sup>2</sup></i>	0.101			0.151		
<i>Omnibus Model <math>\chi^2</math></i>	21.349***			32.545***		

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ ,  $N = 328$ ; a Previous donation behaviour was dummy coded with 0 = Previous donation behaviour low and 1 = Previous donation behaviour high; b Current donation behaviour was dummy coded with 0 = No donation in current transaction and 1 = Donation of €3 in current transaction

Table 2. Binary logistics regression.

Model I reveals a significant effect of prosociality on the likelihood to transact as both previous ( $b=0.786$ , Wald statistic (1)=6.732,  $p < .01$ ) and current donation behaviour ( $b=1.103$ , Wald statistic (1)=12.893,  $p < .001$ ) are significant. If users' previous donation behaviour is high, other users are more than twice as likely to transact with them compared to with users whose previous donation behaviour is low in absence of a current donation. The effect on transaction likelihood is even stronger for current donation behaviour. Users are three times more likely to transact if a donation is made in the current transaction if previous donation behaviour is low. Thus, we can conclude that prosociality has a positive effect on the transaction likelihood through both factors, namely previous (H1A) and current donation behaviour (H1B) and that the effect of current donation behaviour is stronger.

Model II shows a two-way interaction of previous and current donation behaviour. The interaction effect is highly significant ( $b=-2.077$ , Wald statistic (1)=10.949,  $p < .001$ ) indicating that both effects on transaction likelihood are contingent on the presence of each other, even though the effect is weak (odds ratio of .125). More specifically, if both prosociality factors are present, the overall likelihood to transact decreases. Thus, the effect of previous donation behaviour on transaction likelihood is weaker in the presence of a donation in current transactions, compared to if no donation was made. In order to further test this relationship, planned contrast comparisons were conducted to examine the effect of current on previous donation behaviour. The results in Figure 3 show that users are more likely to transact if previous donation behaviour is high compared to low in the absence of current donation behaviour (87% vs 59%,  $p < .001$ ). However, the transaction likelihood decreases if previous donation behaviour is high compared to low in the presence of current donation behaviour (85% vs 90%,  $p > .05$ ), thereby explicating an important moderator for the effect of current donation behaviour. This confirms our hypothesis that the effect of previous donation behaviour on the likelihood to transact on non-commercial online sharing platforms is weaker in the presence of a current donation (H2).

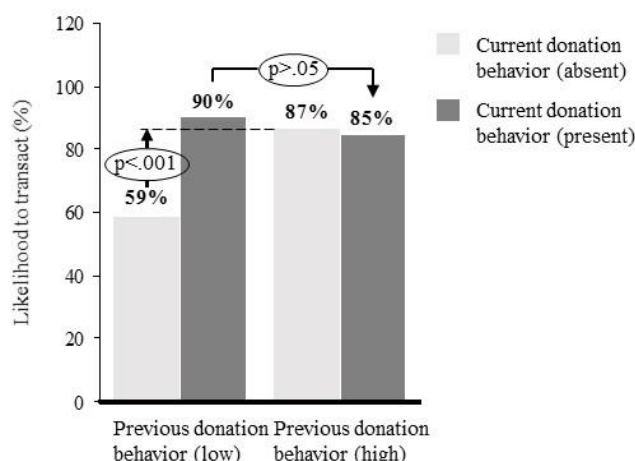


Figure 3. Likelihood to transact for low vs high previous donation behaviour in the absence vs. presence of current donation behaviour.

We are also interested in the effect of prosociality on further transactional aspects, namely deal satisfaction, likelihood to engage in future transactions with the same user as well as perceived trust level. Möhlmann (2015) developed a framework on the determinants of choosing a sharing option again on the commercial online accommodation sharing platform Airbnb. The author found that satisfaction and the likelihood of choosing a sharing option again to be predominantly explained by factors serving users' self-benefit. While this is in line with commercial platform participation motives, we expect that the inclusion of prosociality will yield additional insights in the context of non-commercial online sharing platforms. The effect of prosociality was tested on the three factors by conducting an OLS regression with deal satisfaction (Model I), likelihood to engage in future transactions with the same user (Model II) and finally trust as dependent variables (Model III). Results are depicted in Table 3 and show that prosociality has a significant effect on all three aspects. In Model I (adj.  $R^2=.079$ ) both previous ( $b=.356$ ,  $p<.01$ ) and current donation behaviour ( $b=.261$ ,  $p<.05$ ) are significant, suggesting that deal satisfaction is on average higher if some form of prosociality is present. While the coefficient of the interaction effect is negative, it is not significant. This holds for all three models. Model II (adj.  $R^2=.076$ ) suggests that the likelihood to engage in future transactions with the same user is significantly higher if this user has previously engaged in high donation behaviour ( $b=.290$ ,  $p<.05$ ), whereas the effect of current donation behaviour is insignificant. Finally, Model III (adj.  $R^2=.120$ ) indicates that both previous ( $b=.385$ ,  $p<.001$ ) and current donation behaviour ( $b=.207$ ,  $p<.05$ ) significantly affect perceived user trust. Altruistic value orientation is significant in all three models and consistent with previous findings that altruism is a motivational factor to participate in the SE. Individuals with altruistic value orientation are likely to value prosociality on non-commercial online sharing platforms to a greater extent compared to individuals without altruistic participation motives. Thus, we can conclude that the presence of prosociality has a positive and significant effect on all three dependent variables, however the effect is mainly driven by previous donation behaviour and not donations made in current transactions.

Construct	Model I: Deal satisfaction		Model II: Future transaction likeli- hood with same user		Model III: Trust	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
<b>Intercept</b>	2.002***	0.415	2.075***	0.404	1.868***	0.330
<b>Manipulation</b>						
Previous donation behaviour <sup>a</sup> (base case low)	0.356**	0.134	0.290*	0.131	0.385***	0.107
Current donation behaviour <sup>b</sup> (base case no donation)	0.261*	0.131	0.142	0.127	0.207*	0.104
Previous x current donation behaviour	-0.312	0.189	-0.176	0.183	-0.242	0.150
<b>Controls</b>						
Age	0.007	0.006	0.008	0.006	0.003	0.005
Beliefs in reciprocity	-0.003	0.074	0.040	0.072	0.081	0.059
Altruistic value orientation	0.181***	0.036	0.173***	0.035	0.163***	0.029
<i>Adjusted R<sup>2</sup></i>	<i>0.079</i>		<i>0.076</i>		<i>0.120</i>	

\* p<.05; \*\* p<.01; \*\*\* p<.001, N = 328: a Previous donation behaviour was dummy coded with 0 = Previous donation behaviour low and 1 = Previous donation behaviour high; b Current donation behaviour was dummy coded with 0 = No donation in current transaction and 1 = Donation of €3 in current transaction

Table 3. OLS linear regression.

## 5 Discussion

The objective of this paper was to shed some light on the effect of prosociality on the transaction likelihood on non-commercial online sharing platforms. In addition to testing the effect of prosociality via previous and current donation behaviour individually, the goal was to assess the moderating effect of donations in current transactions on the effect of previous donation behaviour on transaction likelihood. The results confirm that prosociality is rewarded through a greater likelihood to transact on non-commercial online sharing platforms. More specifically, users are more than twice as likely to engage in transactions with users whose previous donation behaviour was high compared to low. This implies that other users are willing to incur a cost by engaging in an unfavourable transaction in terms of product features, thereby rewarding other users for their prosocial behaviour. Similarly, results also indicate that users are three times more likely to transact if a donation is made by the other user in a current transaction. Users are able to unlock a donation by forgoing proprietary benefits by exchanging a product with superior features into a product with less favourable product features. Interestingly, the effect of current donation behaviour on the likelihood to make a transaction is stronger than for previous donation behaviour. This might be explained through a greater degree of indirect reciprocity when donations can be directly unlocked by users in current transactions. Despite these differences in effects, the study was able to prove that prosociality, via previous and current donation behaviour, is rewarded on non-commercial online sharing platforms. Furthermore, results show that the combined effect of both prosociality factors is weaker compared to if individually present, but still stronger compared to no prosociality at all. Current donation behaviour acts as a moderator reducing the effect of previous donation behaviour on transaction likelihood. One potential explanation could be that users penalize extreme cases of prosociality due to scepticism of excessive donation behaviour resulting from the additional donation in the current transaction. Users may allege excessive donors of following extrinsic transaction motives (e.g., economic motives) rather than altruistic ones, false claims regarding donation behaviour or fraudulent funding of donations. Finally, the study highlights some additional benefits of prosociality in addition to higher transaction likelihood on non-commercial online sharing platforms. In the presence of prosociality deal satisfaction increases, users are more likely to transact with the same user in the future and

perceive their transaction partner as more trustworthy. Particularly the latter part is consistent with previous research showing that cooperative acts which are truly altruistic can be a costly signal of social preferences and make altruistic individuals more trustworthy interaction partners in social exchanges (Fehrler and Przepiorka, 2013). However, these three findings are largely driven by previous donation behaviour, which is contrary to our findings on transaction likelihood. One potential explanation could be a greater credibility level of previous donation behaviour compared to a single donation in current transactions due to an accumulation of donations over a greater period of time. Prosociality is therefore not only rewarded by others in current transactions, but may also bring future benefits to the person engaged in such behaviour.

## **5.1 Implications for research**

This study reveals important implications for researchers particularly in the field of non-commercial online sharing platforms, but also in the SE in general. First, it shows that behavioural components such as prosociality qualify as behavioural traits influencing user behaviour, amongst several other factors (e.g., trust-enhancing items such as user reviews, the ability to deliver goods, etc.), on non-commercial SE platforms in the IS space. The experiment indicates that if such features are included, other users are much more likely to transact with them. Thus, this study contributes to the understanding of behavioural patterns in the SE, confirming previous research showing that ideological motives such as altruism may influence user behaviour and are consequently rewarded on non-commercial online sharing platforms. Second, the results provide a new perspective on the interplay of previous and current donation behaviour. Specifically, the findings suggest a non-complementary effect of these two factors on non-commercial online sharing platforms. Donations in current transactions only have the potential to increase the likelihood of transacting only if previous donation behaviour is low. This is contrary to the findings of Khadjavi (2016) who found a complementary effect of indirect reciprocity and charitable giving in the context of donations. Tipping at a hairdresser increased significantly if the hairdresser voluntarily collected donations to charity or unconditionally engaged in donation activities before customers could. One explanation could be that donation behaviour in Khadjavi's (2016) experiment might be distorted by emotional or other personal factors relating to the personal, face-to-face encounter. Given the more anonymous setting of non-commercial online sharing platforms, behaviour may follow a much more objective rationale under such conditions with limited user information. Third, the results contribute to existent literature around trust-enhancing features in peer-to-peer marketplaces (e.g., Benlian and Hess, 2011). Transactions on non-commercial online sharing platforms are typically characterized by asymmetric information and economic risks. Resnick and Zeckhauser (2002) showed that businesses have developed reputation mechanisms to establish a trust basis among the parties involved. While online reviews of the seller by other users have been identified as the most common mechanism, the findings may provide further insights into additional mechanisms. Introducing behavioural cues such as charitable engagement may positively contribute to user perception on such platforms, thereby increasing users' reputation and resulting trust levels.

## **5.2 Implications for practice**

From a practical point of view, this study provides valuable insights for both users as well as online sharing platform operators. Users might leverage our findings to increase their likelihood of becoming active transaction partners on non-commercial online sharing platforms. Users may thereby access a broader product portfolio offered by others and create new opportunities to exchange or swap products. This can be achieved by adding prosociality cues on their user profile. However, users should consider the different effects of prosociality features. Adding cues of either previous or current donation behaviour to user profiles may increase the likelihood of being selected as transaction partner. However, if users have engaged in both previous and current donation behaviour they should opt only for donations in current transactions as the effect on transaction likelihood is stronger. If both features are used simultaneously the overall transaction likelihood decreases. Users should therefore carefully consider the

interplay of different prosociality features when adding such cues to their user profile to avoid penalization of excessive prosociality. The findings also provide useful insights to platform providers. Results show that donations in current transactions have a positive effect on the likelihood of transacting. Platform operators could introduce a scheme that incentivizes transactions by adding a donation function to their platform, thereby benefitting from increased transaction volume. Users would then not merely exchange products but pay a small donation for each successful transaction collected by the platform which could channel this to organizations involved in charity work. Findings also show that both user satisfaction as well as the likelihood to conduct a transaction with the same user increased if prosociality was present. Therefore, platform operators may leverage prosocial cues on user profiles to increase user satisfaction and thus the likelihood to continue using the platform in the future, a critical objective of most online sharing platforms.

### **5.3 Limitations, future research and conclusion**

The research findings should be interpreted in light of some noteworthy limitations, which simultaneously might represent future research avenues. First of all, the results were obtained within an experimental setting and therefore do not represent actual transaction behaviour. Hence, adaption and perceived realism of the scenario were controlled. It would be interesting to test the effect of prosociality in a field experiment on real non-commercial online sharing platforms (e.g. DieTauschbörse.de, swapstyle.com). The second limitation is the number of moderators included in the model. Only one moderator was included, namely current donation behaviour represented by a donation of €3. Further studies should explore additional factors or a modification of current donation behaviour. Additional factors may include a variation of prosociality components such as non-monetary donations (e.g., blood donations, membership in charitable organizations). Modifications of the donation factor in current transactions may entail a differentiation in the source of the donation (e.g. by the user vs the platform) or monetary donation thresholds. Particularly the latter part could provide further insights from which monetary threshold onwards donations are rewarded by other users. Also, platform functionalities used in the current experimental design are limited as several control mechanisms have been omitted. Future research should include additional features as well as trust-building variables such as user reviews to account for additional influencing factors. Another limitation relating to that is that indirect reciprocity could not be explicitly measured in the experiment. Instead, only its concept was applied to the development of the hypotheses. Given that indirect reciprocity represents a critical explaining factor for transaction behaviour in the experiment, future research should include this mediator to explicitly test the effect. Finally, the product as well as its features were kept constant in the experiment. In reality products are likely to be in different categories and it would be interesting to assess whether the effect of prosociality on transaction likelihood differs by category. For example, a differentiation between utilitarian or hedonic goods due to different monetary or emotional value perception of goods could be insightful. Recent developments in ICT and the digitization have brought forward new business models disrupting traditional ways people consume products and services. Despite the rapid growth of commercial online sharing platforms in the SE, the role of non-commercial platforms has received scant research attention so far. This study highlights the importance of prosociality on non-commercial online sharing platforms, where altruistic motives have emerged as a significant driver for user participation. Users who exhibit high donation behaviour in previous transactions or donate in current transactions on non-commercial online sharing platforms are more likely to close transactions successfully. However, if previous and current donation behaviour are simultaneously present, their joint effect is not complementary. Instead, they crowd each other out, reducing the overall transaction likelihood. Finally, the study showed that prosociality bears significant benefits for the user such as a greater deal satisfaction, higher future transaction likelihood with the same user well as a greater degree of perceived trust level.

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