



ASSOCIATION FOR CONSUMER RESEARCH

Labovitz School of Business & Economics, University of Minnesota Duluth, 11 E. Superior Street, Suite 210, Duluth, MN 55802

Reciprocity With Video File Sharing: Experimental Evidence

Christian Schade, Humboldt-Universität zu Berlin

Thomas Nitschke, University of Hamburg

Henrik Sattler, University of Hamburg

ABSTRACT - We report on the findings of a controlled experiment on consumer reciprocity. The experiment resembled a purchasing situation in an online video on demand (VOD) system. All payments and video purchases had real consequences. We find that in a situation without monetary incentives, individuals largely differ in the percentage of videos shared with the other participants. Differences in this reciprocal behavior between individuals are related to a second measurement, proposals in a dual-role ultimatum bargaining game. Implications are discussed.

[to cite]:

Christian Schade, Thomas Nitschke, and Henrik Sattler (2005) , "Reciprocity With Video File Sharing: Experimental Evidence", in NA - Advances in Consumer Research Volume 32, eds. Geeta Menon and Akshay R. Rao, Duluth, MN : Association for Consumer Research, Pages: 58-64.

[url]:

<http://www.acrwebsite.org/volumes/9026/volumes/v32/NA-32>

[copyright notice]:

This work is copyrighted by The Association for Consumer Research. For permission to copy or use this work in whole or in part, please contact the Copyright Clearance Center at <http://www.copyright.com/>.

Reciprocity with Video File Sharing: Experimental Evidence

Christian Schade, Humboldt-Universität zu Berlin

Thomas Nitschke, University of Hamburg

Henrik Sattler, University of Hamburg

ABSTRACT

We report on the findings of a controlled experiment on consumer reciprocity. The experiment resembled a purchasing situation in an online video on demand (VOD) system. All payments and video purchases had real consequences. We find that in a situation without monetary incentives, individuals largely differ in the percentage of videos shared with the other participants. Differences in this reciprocal behavior between individuals are related to a second measurement, proposals in a dual-role ultimatum bargaining game. Implications are discussed.

INTRODUCTION

A growing number of communities and services either depends on reciprocal consumer interactions or at least deeply benefits from them. This interaction or sharing of resources may occur in various fields such as open source programming (e.g., Linux), research communities, car sharing, or knowledge management. The growth of an active online community leads to for example *co-shopping* that facilitates the coordination of consumer groups purchasing in large quantities, *communities of special interests* that share ideas and experiences about products and services, and *peer-to-peer networks*, in particular file sharing such as music and video files swapped in Gnutella, KaZaA, etc.

All these networks depend on consumers who are not only taking from the community but are also giving back. While the motivation to download files for example is easy to understand, the motivation to contribute is less straightforward and becomes the bottleneck of all these networks. Thus, whenever the value of a community or service is increased by consumers' contributions, the (commercial or non-commercial) provider should understand and encourage reciprocal behavior.

Research in consumer behavior has largely neglected the phenomenon of reciprocal interaction. We are only aware of two research streams where reciprocity has been explicitly accounted for: self-disclosure (e.g., Moon 2000) and gift exchange theory (e.g., Joy 2001; Lowrey, Otnes, and Ruth 2004). Another related study was presented at the 2002 ACR conference held in Atlanta. In their contribution, Giesler and Pohlmann (2003) use a qualitative empirical approach and argue that users of Napster are in a situation that is similar to receiving and giving gifts.

The small scientific emphasis on this exciting phenomenon is surprising. At least for the case of file sharing that we chose as an example for our investigation, reciprocal consumer behavior has a clear managerial relevance. With the wide dispersion of broadband internet access and easy-to-use file sharing networks like Napster and its successors, the internet has become a new distribution channel for digital media contents. Despite the shutdown of the non-commercial Napster, file sharing in peer-to-peer networks has become even more popular. For example, in May 2003, more than 900 million files were shared on the KaZaA network by about 4.3 million users (Becker and Clement 2004), mostly in a non-commercial, illegal environment. In such non-commercial systems, only a small fraction of users is contributing the majority of the available content (Adar and Huberman 2000; Saroiu, Gummadi, and Gribble 2003; Becker and Clement 2004). Most recently, the media industry has been working on commercial business models offering digital

media files like music or movies on the internet for sale (e.g., iTunes.com or movielink.com).

Apart from the field of consumer behavior, reciprocity is and has been an important topic in several research fields, in some of them already for many decades. There is a vast number of reciprocity studies in sociology, and a growing number of studies in economics. Also in computer sciences and organization theory, studies that try to better understand online communities, peer-to-peer networks, and contributions to open source software can be found recently. We are going to briefly deal with selected approaches in the theory section and will propose a framework underlying our study.

We will then empirically test our framework in a controlled laboratory experiment that is incentive-compatible in the spirit of experimental economics (e.g., Smith 1976), i.e. the decisions of respondents have real consequences. The videos downloaded and the money spent or saved are *real*, for example the videos downloaded can be used at home. At the same time, our experiment may be called "realistic". The user interface was programmed so as to resemble a real online downloading and file sharing environment as much as possible. Thus, we see the most important contribution of our paper in testing of the predictions of economic theory, sociology, and psychology about reciprocal behavior in a controlled, but realistic buying situation.

The paper is organized as follows: The next section introduces theory. In the subsequent section, the experimental design is explained. The fourth section reports on the empirical findings, and the last section discusses the findings, derives implications, and deals with future research.

THEORETICAL DEVELOPMENT

This section provides the framework we are going to test in our experiment. Specifically, we deal with theories of reciprocity and motivation crowding, and derive consequences for the situation in focus.

"*Reciprocity* is concerned with giving to a community as well as taking from it" (Preece 2001, p. 351). However, some researchers argue that online communities and peer-to-peer groups might be vulnerable to social dilemmas in which most members take from the community without giving back (Kollock 1998). This concern would not be surprising to a neoclassical economist since cooperation between consumers such as file sharing indeed resembles the basic structure of a prisoner's dilemma where "defect/defect" is the Nash equilibrium. From the perspective of normative game theory, cooperation is thus difficult to stabilize unless, for example, the game is repeated *infinitely*. In more realistic scenarios, individuals have incentives to take advantage of individuals who cooperate. If this is anticipated, nobody should even try to cooperate. Specifically, for the case of sharing music files, "(...) there is little mystery as to why tens of millions of individuals have chosen to use the networks to *download* free, high-quality sound recordings. The more puzzling question is why tens of millions of individuals have chosen to *upload* free, high-quality sound recordings to their fellow anonymous users" (Strahilevitz 2002, p. 3).

However, it may already be misleading to describe a peer-to-peer file sharing group or a community as *anonymous*. Although

Gnutella users *are* objectively anonymous, this peer-to-peer group may be *perceived* as a loosely connected “family” by at least some of the individuals. Sahlins’ (1976) *social exchange theory* discriminates between different social distances or so-called tie strengths. In his famous monograph “Stone Age Economics”, he proposes a “balanced reciprocity exchange” as being functional for *middle* social distances.

Reciprocity may also be considered a social interaction *norm* (e.g., Goulder 1960; Ostrom 1998; Fehr and Fischbacher 2003). The idea is straightforward. When A helps B, then B feels obliged to return the favor, either by helping A, or by helping C (a third party who shares some characteristics with A). The norm is not limited to a three-person-interaction but may apply to much larger groups of individuals (Kahan 2002). Some economists explain reciprocity using evolutionary game theory (e.g., Sethi and Somanathan 2003). From the perspective of experimental economics and other empirical economic research, reciprocity is just very frequent: “(...) a pervasive and economically significant phenomenon in human interaction. The tendency to reward generosity and punish opportunism is encountered frequently both in long-term relationships and in sporadic interactions” (Sethi and Somanathan 2003, p. 1). However, as Charness and Haruvy (2002) demonstrate, non-pecuniary motives such as altruism-based, equity-based, or reciprocity-based motives may often simultaneously be relevant for decision making. But reciprocity motives may also be discriminated from other motives. For example, Gneezy, Güth, and Verboven (2000) experimentally demonstrate that for transactions without explicit contracts, reciprocity and trust could often be the more appropriate explanation than gift giving with distributional intention.

Summing up, despite differences between and some open questions in the different approaches to explain reciprocity, and although reciprocity motives may not always be perfectly discriminated from other non-pecuniary motives such as altruism, there are many similarities between the above thoughts adapted from different disciplines (i.e., sociology, anthropology, and *behavioral* economics) and based on different empirical evidence (i.e., field, experimental). Thus, despite economic disincentives, we expect people to cooperate in situations that are not perceived as completely anonymous. We expect them to do so even if they incur costs, and even if their behavior is not rewarded in monetary terms.

There is collected experimental evidence on large individual differences in altruism, sharing, cooperation, or reciprocating behavior (Fehr and Fischbacher 2003). Based on a number of studies, Fehr and Fischbacher (2003) summarize that, for example, the “(...) ultimatum game nicely illustrates that a *sizeable number of people from a wide variety of cultures* (...) are willing to punish others at a cost to themselves to prevent unfair outcomes or to sanction unfair behavior” (p. 785; italicizing by the authors of the current contribution). Although in principle the willingness to share or to reciprocate could be random or could follow difficult to understand but largely situation-dependent patterns, it seems to be more plausible that individuals differ in their tendency to reciprocate. Individuals that reciprocate in situation A may also have a tendency to reciprocate in situation B.

EXPERIMENTAL DESIGN

The participants took part in a laboratory experiment that was similar to an online video on demand (VOD) system. Participants could choose from a selection of 20 movies (taken from the top 20 DVD rental charts in Germany, summer 2003) for “download”. The whole download situation was simulated in a computer laboratory. Participants were instructed that they would receive a voucher at the end of the experiment that allowed them to watch each movie they successfully “downloaded” during the experiment once. At the

beginning of the experiment, participants were provided with € 10 (approximately US\$ 12.50) on a virtual account. They could keep all the money remaining on their account at the end of the experiment or spend more money and pay the balance. The duration of the experiment was limited to 30 minutes. All downloads had to be finished within the given time. Two providers A and B offered the same 20 movies but on different conditions (price, download time, quality, and sharing incentives).

The experiment aimed at analyzing three research questions: (1) the impact of uncertainty and ambiguity on consumers’ choice in this online buying environment, (2) reciprocity in file sharing activities without monetary incentives, and (3) the influence of monetary rewards on reciprocity. All aspects related to uncertainty and ambiguity as well as the effects of monetary incentives will be dealt with in a subsequent paper. We will thus focus on the aspects of the experimental design relevant to the investigation of sharing behavior without monetary incentives.

In order to make the experiment realistic and to simplify the participants’ decision making process, the graphical user interface was as close to existing video-on-demand applications as possible. The interface for taking decisions still remained simple: participants could i) select for each movie whether or not to download it and from which provider, ii) monitor and cancel downloads if necessary, and iii) decide which movies shall be shared with other players. A typical choice situation for downloading a movie is illustrated in figure 1.

All movies successfully downloaded from provider A could be shared with other players. Participants could decide which of their movies they would like to share (this decision could be revised at any time). A system message reminded the players at the end of each download that the movie could now be shared with other players. The availability level of a movie in file sharing equals the number of the players sharing this file (up to a maximum availability level of 5). Thus, the time needed to download a movie from file sharing directly depended on the sharing behavior of the group [download time=(20 minutes / availability)]. The experiment was conducted in groups of 9 players. To get the process started, two movies were available for file sharing right at the beginning of the experiment.

In non-commercial peer-to-peer networks, the costs for sharing large files are moderate but clearly above zero (e.g., costs for internet connection or opportunity costs for hard disk space and reduced bandwidth; Becker and Clement 2004). Costs for sharing movies were incorporated in the experiment by reducing the participants’ bandwidth (performance). For each movie shared at any given time during the buying experiment, a participant’s performance was reduced [performance=1-(.05 * shared movies)].

Therefore, the effective download time for each movie was increased for the subject [effective download time=(download time / performance)].

The effective download time was always calculated by the software and displayed as “duration” (see figure 1). The actual level of performance was displayed as “available bandwidth” and was constantly visible during the experiment at the top of the screen (see figure 1). Each download consumed bandwidth depending on its level of availability adding up to a total “requested bandwidth” always displayed just below the “available bandwidth”.

Whenever the “requested bandwidth” exceeded the “available bandwidth”, all downloads were slowed down proportionally. Hence, sharing (loss in performance) was more “costly” for those who wanted to download many movies but it was still noticeable for all players.

While still running, all downloads could be cancelled and the money was paid back to the player’s account. The whole download

FIGURE 1
Choice situation within the experiment

Java Applet Window

Welcome to FiSh, User7!

My account: €10 My credit points: 0

Available bandwidth: 100 %

Required bandwidth: 0 %

Remaining time: 30 min.

Search/Select Movies Traffic/Downloads Sharing/My Hard Disk

Provider A

Movies from server

Price per movie: € 2.50
Quality: High and certain
Availability: High and certain

Movie title	Avail.	Duration	Download
The Bourne Identity	5	4:00 min.	<input type="checkbox"/>
xXx - Triple X	5	4:00 min.	<input type="checkbox"/>
JackAss: The Movie	5	4:00 min.	<input type="checkbox"/>
Harry Potter 2	5	4:00 min.	<input type="checkbox"/>
Bowling for Columbine	5	4:00 min.	<input type="checkbox"/>
Minority Report	5	4:00 min.	<input type="checkbox"/>
8 Mile	5	4:00 min.	<input type="checkbox"/>
Matrix	5	4:00 min.	<input type="checkbox"/>

Movies from file sharing

Price per movie: € 1.50
Quality: High and certain
Availability: Depending on the number of sharing partners

Movie title	Avail.	Duration	Download
The Bourne Identity	2	10:00 min.	<input type="checkbox"/>
xXx - Triple X	2	10:00 min.	<input type="checkbox"/>
JackAss: The Movie	2	10:00 min.	<input type="checkbox"/>
Harry Potter 2	2	10:00 min.	<input type="checkbox"/>
Bowling for Columbine	2	10:00 min.	<input type="checkbox"/>
Minority Report	2	10:00 min.	<input type="checkbox"/>
8 Mile	2	10:00 min.	<input type="checkbox"/>
Matrix	2	10:00 min.	<input type="checkbox"/>

Provider B

Price per movie: € 0.50
Quality: uncertain
Availability: unknown

Movie title	Avail.	Duration	Download
The Bourne Identity	???	???	<input type="checkbox"/>
xXx - Triple X	???	???	<input type="checkbox"/>
JackAss: The Movie	???	???	<input type="checkbox"/>
Harry Potter 2	???	???	<input type="checkbox"/>
Bowling for Columbine	???	???	<input type="checkbox"/>
Minority Report	???	???	<input type="checkbox"/>
8 Mile	???	???	<input type="checkbox"/>
Matrix	???	???	<input type="checkbox"/>

Starting download

Download!

mechanism was an essential part of the instructions and very similar to real systems the participants were already used to.

In addition to costs for sharing, incentives for sharing were also included in the experiment. Even though there are two incentive treatments, this contribution will only deal with the “low incentives” situation where no bonus points are rewarded for file sharing.

The total of 216 participants (most of them students) was recruited from different schools at a major university in Germany. All participants who chose to participate in the study had to be experienced in file sharing networks (but not necessarily experts) and interested in movies. Experimental data were collected in June 2003. The recruitment activities pointed out that up to eight movie vouchers could be obtained in the experiment and that there would be an initial budget of € 10. Participants were allocated to the two treatments (“with bonus points” and “without bonus points” for file sharing). In each treatment, there were 12 groups consisting of nine players. All participants were sitting in separate booths. Since this contribution focuses on the findings for the “without bonus points” condition, only $n=108$ respondents are underlying our analyses.

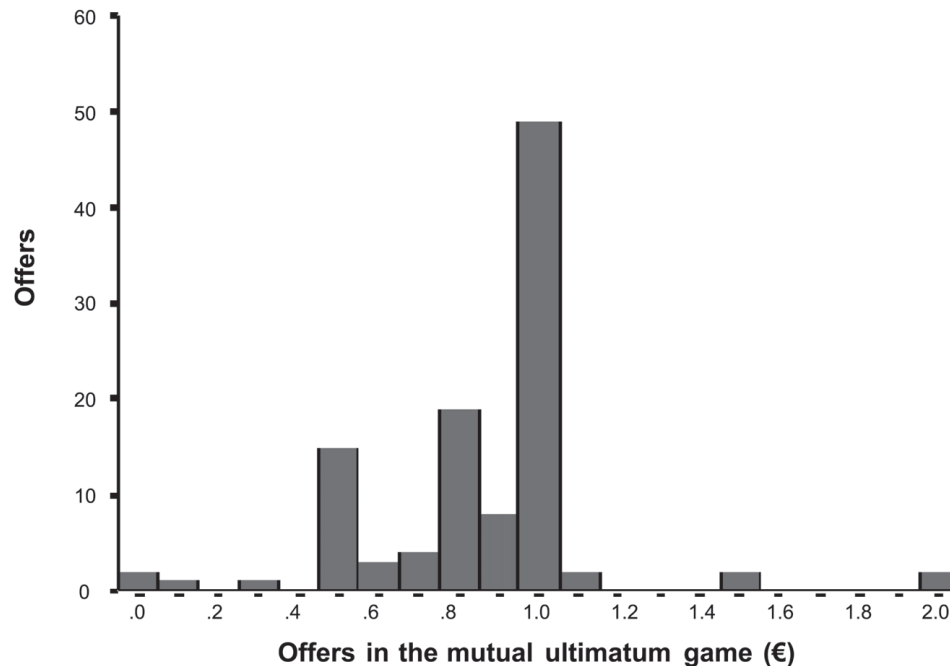
The experiment included an introduction to the software, the 30 minutes computer-based buying experiment, a questionnaire, and an incentive compatible dual-role ultimatum bargaining game with real payments (see below). Manuals with detailed information on all movies and the vouchers were handed out to all participants.

Three instructors and one system administrator were present at all times answering questions.

To have a second observation of participants’ willingness to reciprocate, we used a modified (details are provided below) ultimatum bargaining game (e.g., Güth, Schmittberger, and Schwarze 1982; Roth, Prasnikar, Okuno-Fujiwara, Zamir 1991; Henrich et al. 2001; Camerer 2003). In an ultimatum game, one player (“proposer”) makes an offer on how to divide an amount of money with another player (“responder”). There are no negotiations, so the responder can only either take the offer—both players will earn what the proposer suggested—or leave it. In the latter case, both players will end up empty-handed. If the responder maximizes his or her monetary pay-off, any positive offer should be accepted. Anticipating this, a profit-maximizing proposer should offer only very little. But we know from several experiments that the mean offer is 30–40%, median and modal offers are 40–50%. Many proposers offer half the money. Small offers are typically rejected half of the time (for an overview see e.g., Fehr and Schmidt 1998; Camerer 2003).

In this study, participants were supposed to propose how to divide € 2. Contrary to the normal setting in ultimatum bargaining games, we did not split up the group in proposers and responders. Instead, every participant in the group had to make an offer to one other, randomly assigned respondent in the group, i.e., the offers were forwarded to another player of the group by the computer server. In a second step, every subject was in the role of the

FIGURE 2
Offers in the dual-role ultimatum game (n=108)



responder and had to decide—again simultaneously—whether or not to accept the offer they just received from a different person via the server. Thus, every participant was able to earn money twice in this game: First, by making an offer which is accepted by another group member, and second, by accepting the offer they received.

No player responded to the same player who had received the own offer, so there were no “partners”, and participants were informed about this fact. Instead, as in the file sharing part of the experiment, the whole group was the unit of reciprocal behavior. Specifically, respondents were provided with a written description of the situation and an oral instruction before every dual-role ultimatum game. Note that this procedure does not alter either basic structure or normative solution of the ultimatum game described above. However, from a behavioral perspective, this was supposed to strengthen reciprocal considerations. We felt that such a dual-role ultimatum bargaining game might somehow reflect an individual’s tendency to reciprocate in a group situation. While thinking about how much to offer as a proposer, participants knew that they would be in the role of the responder a moment later. What will be the minimum amount they are going to accept in this situation? What do they expect the other to give? Is there any behavioral norm existing? So, how much should they offer?

Dual-role ultimatum games require some reflection on self-interest, fairness, and (negative) reciprocity and the payoff could induce some information on other peers’ (non-)reciprocal behavior. To avoid any potential bias from the dual-role ultimatum game on sharing behavior in the laboratory experiment, we always started with the file sharing simulation first. The possible vice versa effect of sharing behavior on the dual-role ultimatum game offer is expected to be lower and was additionally reduced by the 15 minutes break for filling out the questionnaire.

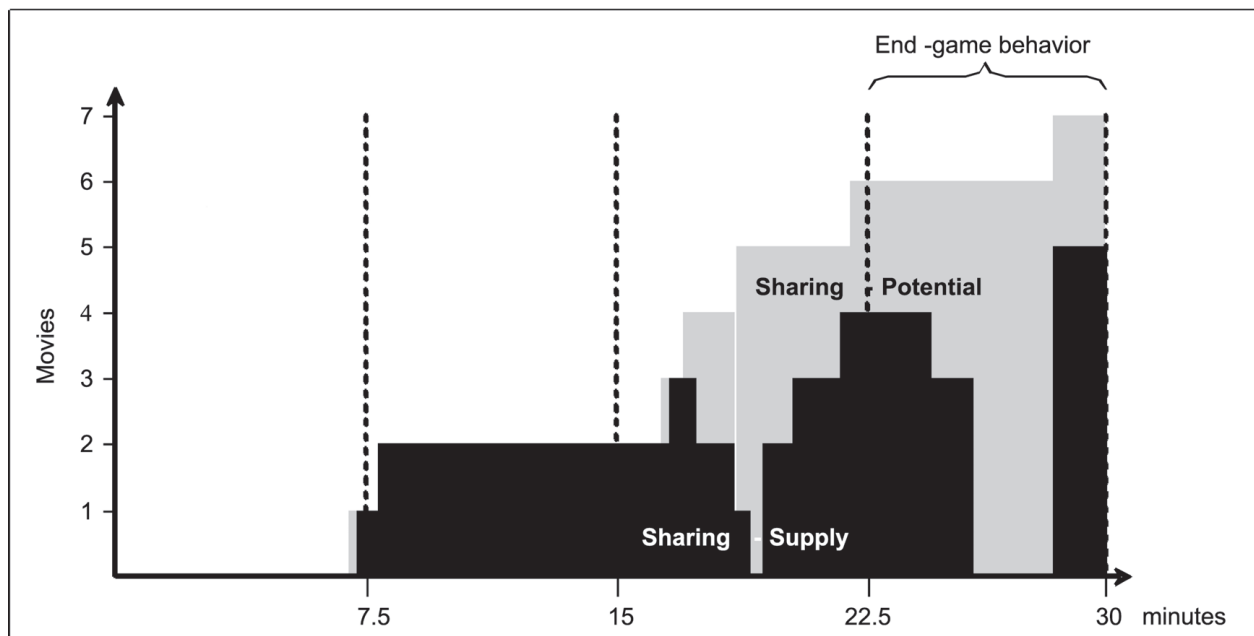
EXPERIMENTAL FINDINGS

At the end of the experiment, participants received their payoff in form of movie vouchers and the remaining of the € 10 initial budget on their accounts. In the non-bonus group, underlying our analyses, participants bought on average 5.9 movie vouchers. File sharing had an average market share of 47 % providing a large number of observations on sharing behavior. In our study, reciprocal behavior was measured in two different situations: in the dual-role ultimatum game and in the buying situation.

The distribution of the offers in our dual-role ultimatum game (see figure 2) is somewhat consistent with typical findings in “normal” ultimatum games (see e.g., Fehr and Schmidt 1998; Camerer 2003) where the median and the modal offer range from 40–50 % (in this study: median 49.5 %; modal 50 %). There are hardly any very low offers or offers in the “hyper-fair” category of 51–100 % (in this study: 2.8 % of all offers are below 20 % and 5.6 % are “hyper-fair” offers). However, 46 out of the 108 participants offer exactly 50 % (€ 1) and the mean value (42.7 %) exceeds the range reported by Camerer 2003 (30–40 %). Also, with 84 % the rejection rate is higher than typical rejection rates (50 %).

Both, the large number of 50 %-offers and the high rejection rate for low offers underline that our dual-role ultimatum game setting fosters reciprocal thinking. If participants believe that reciprocity is an accepted “norm” within the group, a 50 %-offer would ensure a “fair” outcome of € 2 for everyone. From this reciprocal point of view, someone offering less than 50 % (€ 1) is somehow trying to make an extra profit. Offers below € 1 are being rejected by 38 % of those who offered € 1 or more (only 9 % among those who offered less than € 1). Participants who believe that the group members are profit maximizing, would anticipate that (at least) moderate offers will be accepted. They might therefore offer

FIGURE 3
Sharing potential and sharing supply for user 117



significantly less than 50 %. We will distinguish between participants with a reciprocal offer ≥ 1 (“reciprocals”, $n=52$) and those offering less (“non-reciprocals”, $n=56$).

Our dependent variable is file sharing. For every download that had been completed in the buying experiment, participants were able to choose whether or not to share the movie with other players. This decision could be revised at any time, and it was also possible to share only a fraction of the movies one could have potentially shared.

An example of a real sharing pattern is illustrated in figure 3.

Even though we can observe participants’ sharing behavior during the entire experiment, there is no obvious way to measure “sharing”. One rather simple approach would be the maximum or average number of movies being shared by an individual. This measure would be highly dependent on the number of movies bought in the experiment. It would even be dependent on the distribution channels since they differ in download speed. Sharing 100 % of few available movies shows a stronger willingness to reciprocate than sharing a small fraction out of a larger number of files. Therefore, we will measure the sharing intensity by the ratio of the individual sharing supply and the total sharing potential aggregated over time.

$$(1) \quad \text{sharing ratio} = \sum_{\text{time}} \frac{\text{movies being shared}}{\text{movies available for sharing}}$$

This sharing ratio, scaled between 0 and 1, will be the dependent variable for most of the following analyses. The distribution of the sharing ratio is shown in figure 4.

According to figure 4, there are large individual differences in participants’ sharing behavior. Only a minority of participants shares nothing or little. This free riding group is small (9 % sharing zero and 16 % with a sharing ratio $< .1$). Hence, despite sharing being costly and without any incentives being provided for sharing,

participants still share significantly more than 0 % of their movies (p -level: .000; t -test, two-sided).

As within the dual-role ultimatum game, differences in participants’ revealed sharing behavior could be based on the individuals’ level of intrinsic, reciprocal motivation. If this is an explanation for both high offers and high sharing ratios, we expect a positive correlation between participants’ behavior in both situations. Therefore, we will analyze the revealed sharing behavior of the “reciprocals” and “non-reciprocals” as identified before based on the offers in the dual-role ultimatum game.

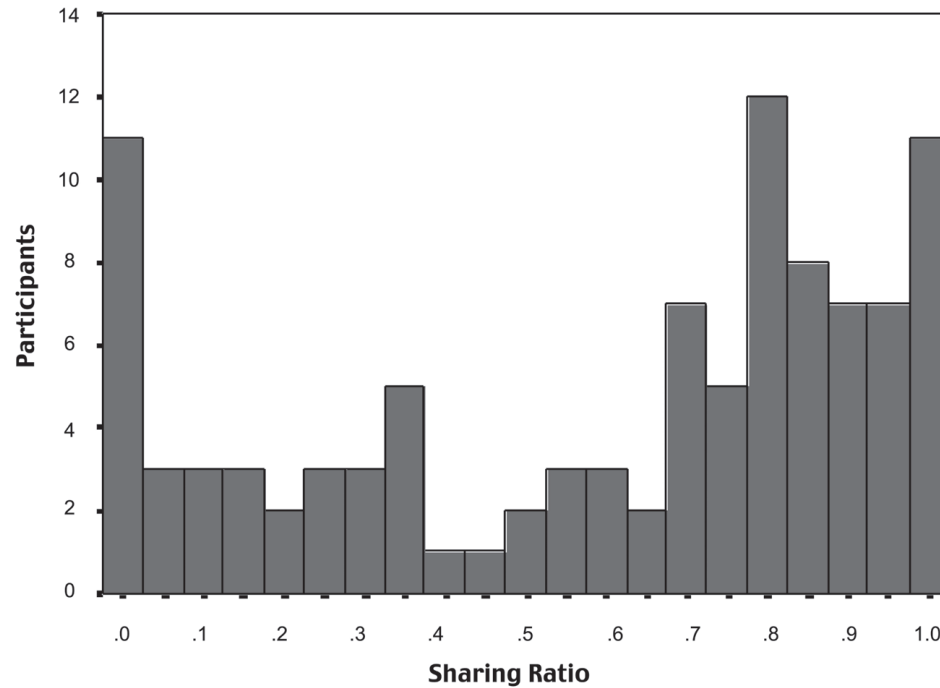
For the empirical test of this proposition, we will first look at the no bonus point treatment avoiding any potential impact of monetary incentives. Without an additional extrinsic motivation for sharing, participants with a reciprocal offer in the dual-role ultimatum game are expected to share more. We find that the reciprocals’ sharing ratio is 24.5 % higher than the one of non-reciprocals (mean sharing ratio .53 vs. .66). This difference is significant (p -level: .042; t -test, two-sided). So indeed, even though the effect is small, the observation from our dual-role ultimatum game is related to sharing behavior in a realistic buying environment.

DISCUSSION AND IMPLICATIONS

We have evidence that, although there are no monetary incentives and although this activity is costly, individuals engage in file sharing. This is consistent with earlier findings on reciprocal behavior. Consistent with real life observations, we also find large individual differences in participants’ sharing behavior. Furthermore, we are able to relate this behavior to proposals in a dual-role ultimatum bargaining game. Thus, there is evidence that sharing is not a situation dependent activity or random. Rather, individuals seem to differ in their general tendency to share and to reciprocate.

Our findings are important for two reasons. First, the replication of the real life phenomenon of the voluntary uploading of files

FIGURE 4
Sharing ratio in the computer-based buying experiment (n=102)



in peer-to-peer networks in a controlled experiment is important because real life observations may be organized by alternative explanations. For example, the related activity of contributing to open source software has often been “rationalized” by potential motives such as gaining reputation as a programmer, signaling skills, etc. by several authors. Although more difficult, it is possible that similar explanations could be “invented” for uploading activities. Our controlled experiment has the advantage that it does not allow for alternative interpretations outside the reach of the experimental situation.

Second, our experiment partially solves the puzzle of the large differences in individuals’ sharing activities. Individuals may differ in their tendency to reciprocate. Future research is necessary to substantiate these findings, for example based on alternative measures of the tendency to reciprocate. If there are stable groups, the propensity to share may be an interesting segmentation criterion in markets where this behavior plays a role.

Another interesting aspect to be investigated in further research is whether the tendency to reciprocate is a solid personal trait variable such as extraversion or risk aversion.

Future research should also address the relevance of monetary incentives in the context of sharing and reciprocity. Does reciprocal behavior and monetary incentives add up, or do we have to expect a more complex relationship? We are partially able to deal with this question based on our experiment but this question was beyond the scope of this paper.

Future research should furthermore focus on alternative environments where reciprocity plays a role such as joint buying environments, etc.

REFERENCES

- Adar, Eytan and Bernardo A. Huberman (2000), “Free riding on gnutella,” *First Monday*, Vol. 5, 10 (October).
- Becker, Jan U. and Michel Clement (2004), “The Economic Rationale of Offering Media Files in Peer-to-Peer Networks,” Proceedings of the Hawai’i International Conference on System Sciences, January 5–8, 2004, Big Island, Hawaii.
- Camerer, Colin F. (2003), *Behavioral game theory: experiments in strategic interaction*, Princeton, NJ: Princeton Univ. Press.
- Charness, Gary and Ernan Haruvy (2002), “Altruism, Equity, and Reciprocity in a Gift-Exchange Experiment: An Encompassing Approach,” *Games and Economic Behavior*, Vol. 40, 203-231.
- Fehr, Ernst and Urs Fischbacher (2003), “The Nature of Human Altruism,” *Nature*, Vol. 425, 785-791.
- Fehr, Ernst and Klaus M. Schmidt (1999), “A Theory of Fairness, Competition, and Cooperation,” *The Quarterly Journal of Economics*, Vol. 114 (August), 817-868.
- Giesler, Markus and Mali Pohlmann (2003), “The Anthropology of File Sharing: Consuming Napster as a Gift,” in *Advances in Consumer Research*, eds. Punam Anand Keller and Dennis W. Rook, Provo, UT: Association for Consumer Research, Vol. 30, 2003.
- Gneezy, Uri, Werner Güth, and Frank Verboven (2000), “Presents or Investments? An Experimental Analysis,” *Journal of Economic Psychology*, Vol. 21, 481-493.
- Gouldner, Alvin W. (1960), “The Norm of Reciprocity: A Preliminary Statement,” *American Sociological Review*, Vol. 25, 161.

- Güth, Werner, Rolf Schmittberger, and Bernd Schwarze (1982), "An Experimental Analysis of Ultimatum Bargaining," *Journal of Economic Behavior and Organization*, Vol. 3, 367-388.
- Henrich, Joseph, Robert Boyd, Samuel Bowles, Colin Camerer, Ernst Fehr, Herbert Gintis, and Richard McElreath (2001), "In Search of Homo Economicus: Behavioral Experiments in 15 Small-Scale Societies," *American Economic Review*, Vol. 91, 73-78.
- Joy, Annama (2001), "Gift Giving in Hong Kong and the Continuum of Social Ties," *Journal of Consumer Research*, Vol. 28 (September), 239-256.
- Kahan, Dan M. (2002), "The Logic of Reciprocity: Trust, Collective Action, and Law," Yale Law School, *The John M. Olin Center for Studies in Law, Economics, and Public Policy Working Paper Series*, Working Paper No. 281.
- Kollock, Peter (1998), "The Economics of Online Cooperation: Gifts and Public Goods in Cyberspace," in *Communities in Cyberspace*, eds. Marc Smith and Peter Kollock, London: Routledge, 220-239.
- Moon, Youngme (2000), "Intimate Exchanges: Using Computers to Elicit Self-Disclosure from Consumers," *Journal of Consumer Research*, Vol. 26 (4), 323-339.
- Lowrey, Tina M., Cele C. Otnes, and Julie A. Ruth (2004), "Social Influences on Dyadic Giving over Time: A Taxonomy from the Giver's Perspective," *Journal of Consumer Research*, Vol. 30 (4), 547-558.
- Ostrom, Elinor (1998), "A Behavioral Approach to the Rational Choice Theory of Collective Action," *American Political Science Review*, Vol. 92, 1-10.
- Preece, Jenny (2001), "Sociability and Usability in Online Communities: Determining and Measuring Success," *Behavior and Information Technology*, Vol. 20, 347-356.
- Roth, Alvin E., Vesna Prasnikar, Masahiro Okuno-Fujiwara, and Shmuel Zamir (1991), "Bargaining and Market Behavior in Jerusalem, Ljubljana, Pittsburg and Tokyo: An Experimental Study," *American Economic Review*, Vol. 81, 1068-1095.
- Sahlins, Marshall D. (1976), "Stone Age Economics," 2nd paperback edition, Chicago.
- Saroiu, Stefan, Krishna P. Gummadi, and Steven D. Gribble (2003), "Measuring and Analyzing the Characteristics of Napster and Gnutella Hosts," *Multimedia Systems Journal*, Vol. 9, 170-184.
- Sethi, Rajiv and E. Somanathan (2003), "Understanding Reciprocity," *Journal of Economic Behavior and Organization*, Vol. 50, 1-27.
- Smith, Vernon L. (1976), "Experimental economics: Induced value theory," *American Economic Review*, Vol. 66 (2), 274-279.
- Strahilevitz, Lior J. (2002), "Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Swapping Networks," The Law School, The University of Chicago, John M. Olin Law and Economics Working Paper No. 162 (2nd series).