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1. Introduction

ABSTRACT

We investigate patterns of information transmission and the evolution of behaviour in standard trust games where reputational information can be exchanged between individual agents within a population, but does not become public. We vary the nature of information that could be transmitted (either a subjective rating or the objective details of a transaction), as well as the cost of information transmission (either zero or positive). We find that information transmission is heavily used if it is costless but only moderately if it has positive cost. Objective information effectively increases the average amount sent in the trust game (and thus, efficiency and average profits) as well as the return rate only if transmission is costless and therefore is heavily used. Subjective information (a rating) only increases transfer and return rates in a control treatment where it becomes publicly available, but not for private communication. A detailed analysis of the determinants of information transmission shows a positive influence of (a) the transfer made to a receiver, (b) experience of exploitation, and (c) points to reciprocity in information transmission. © 2015 Elsevier B.V. All rights reserved.

As it is well known economic transactions require a certain amount of trust between exchange partners. This results from the fact that each partner has an incentive to behave opportunistically, e.g. by delivering bad quality. Although contracts allow exchange partners to establish sanctions in case of fraud, there are considerable problems to this kind of safeguard against opportunism. Due to information problems and transaction costs, contracts are necessarily incomplete and hence not able to solve the problem of opportunism in exchange relations completely (Ellickson, 1991; Williamson, 1985, pp. 56–60). One possible solution to this problem is the establishment of trust ex ante by reputation mechanisms which have been extensively analyzed in the management literature and in the context of online trading platforms. It is by now well

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established that reputational information supports trust and reduces opportunism in economic transactions. In the business world "good reputation" implies various competitive advantages for the respective firms, as for example lower production cost, better applicants, or the ability to charge premium prices (see Deephouse, 2000; Fombrun, 1996; Fombrun and Shanley, 1990; Rindova et al., 2005; Turban and Greening, 1997). Hall (1993, p. 616) emphasizes that reputation "should receive constant management attention", and internet trading platforms would presumably not even work without a reputation system. In online transactions typically the parties to a contract do not know each other and sometimes are even based in different countries. In such an environment trust will initially be at a low level and can be significantly increased by the implementation of reputation systems (see e.g. Keser, 2003, among many others). By now there exists a huge literature that aims at evaluating and designing reputation mechanisms for internet trading.

Despite those findings on the effectiveness of reputation, we know surprisingly little about the determinants which allow for the formation of reputation in economic systems. Usually, reputation is seen either as a costless by-product of economic interactions or as a result of institutionalized "reputation mechanisms" specifically designed to establish reputation in a market. The latter is especially relevant in the context of internet trading platforms where people typically evaluate each other using standardized rules and instruments.

Contrary to these research traditions we are interested in situations where people have to produce reputation actively within their social interactions. Hence, the focus of our study is on the formation of reputation in traditional economic transactions, i.e. in environments where no mechanisms exist that make reputational information publicly available. We design experiments that replicate those environments in a stylized way. In our experiments participants interact repeatedly in trust (or, investment) games in alternating pairs within a group of eight players which are distinguishable.³ The outcomes of own transactions can be observed and A-players (investors or senders) may inform other A-players about the outcomes of their transactions with a B-player (receiver). In our treatments we vary (a) the kind of information that may be communicated and (b) the cost of information transmission, which is either zero or positive. Depending on the treatment, A-players can either transmit exact (objective) information about their transaction to another A-player (i.e. the amount sent and the amount returned), or they can transmit only subjective information by ranking the satisfaction with the outcome of their transaction on a 5-item Likert scale. In each period A-players can transmit this information to one randomly selected other A-player. Moreover, we run control treatments where either no information transmission to other A-players is possible or the transmitted information is visible to all other participants within a matching group of eight players.

A comparison of our seven treatments shows that the pattern of information transmission is rather different across treatments, which yields interesting insights into the process of reputation formation. In the absence of information costs the proportion of participants transmitting information is initially at the same very high level of 90% for objective and subjective information, but stays at a much higher level over time if quantitative (objective) information about the transaction can be communicated. In the presence of costs, the proportion of participants who initially transmit information is much lower than without costs (not even half as high). In those treatments roughly half of the participants inform others about their transactions in the first periods, but less than ten per cent transmit information towards the end of the experiment. This holds independently of whether participants could communicate objective or subjective information. Information transmission rates are not significantly higher in control treatments where the information is made known to all members of the group.

With regard to the outcomes of a reputational system, transmission of objective information effectively increases the amount transferred by the A-player only if transmission is costless and therefore is heavily used or if it becomes publicly available. Transmission of subjective information has a significant effect on transfer rates only if the rating is made public. We cannot identify an effect if subjective information is exchanged between agents in private. Those results indicate that objective information, which includes details of the transaction, has the potential to increase efficiency also in case information dispersion is limited. Interestingly, although private information transmission increases the amount transferred to the B-player in some treatments, we cannot identify an effect of the possibility of reputation formation on the share of the received money returned by the responder (the return rate).⁴ Nevertheless, in our setup both parties to a transaction on average benefit from any positive effect of information transmission on the amount transferred by player A, since – on average – the return rate is high enough to justify trustful behaviour.

2. Related literature and focus of our study

Reputation has long been investigated in the management literature and the topic has also received enormous attention in the economics literature, especially since the emergence of internet trading platforms. In this section we briefly review some of the important literature within this field and relate it to the focus of our paper.

In the *economics literature*, reputation has been studied in the context of asymmetric and incomplete information in markets as well as in connection with repeated games. It has been known since the seminal contribution by Akerlof (1970)

³ The trust game (which is also commonly called "investment game") is the most common vehicle to experimentally investigate issues of reputation. In this game between two players the A-player decides how much of his endowment he sends to the responder. The amount sent is tripled by the experimenter and the responder can then decide how much of the received amount is given back to the investor.

⁴ Only if information is made publicly available (in the control treatment mimicking online reputation systems), trustworthiness increases above the level without a reputational system, which is in line with the corresponding literature.

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