SOCIAL INFLUENCE IN TRUSTORS' NEIGHBORHOODS

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Abstract

The aim of this paper is to ascertain whether trust is affected by contagion and herding in small groups of trustors who can observe each other's choices over time. We account for three important factors of trustors' preferences, namely: risk attitude, generosity and expected trustworthiness. Using our data, we test the basic hypothesis that an individual's propensity to trust recipients in the Trust Game may be affected by the observed behavior of other trustors. Our results confirm that trust is affected by contagion effects. Furthermore, we find that specific types of agents (generous or untrusting) frequently imitate the same type when placed in the same group. Finally, we find that untrusting individuals are less affected by their peers compared to generous individuals, and that they are less prone to imitation when placed in groups of agents who have the same characteristics.

Keywords: trust game, experiments, social influence, imitation
JEL classification: C72, C91

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1. Introduction

Economists have frequently analysed the impact that the diffusion of beliefs and behaviors have on the equilibrium and on the performance of markets. However, there are many real-world situations in which we can observe similar phenomena of imitation and social contagion. The reasons why a specific restaurant suddenly becomes fashionable and trendy although it serves perfectly ordinary food and its prices are outrageous are sometimes beyond our understanding. The general nature of such phenomena points to the fact that people who live in the same social or economic environment tend to be influenced by the choices of their peers, even when there is no direct connection between the economic interests or the tastes of the agents and the group is randomly formed.

Limiting our analysis to the economic literature, there are several examples of the diffusion of behaviors and beliefs in financial market publications as well as in innovation and consumption analyses and in studies of market competition. This phenomenon is of great importance and many empirical and experimental research investigations have attempted to describe its nature and consequences. Recently, a number of experimental papers have focused on imitation and contagion in economic environments which had not previously received any particular attention. To cite some examples, Falk and Ichino (2003) find clear signs of peer pressure between workers engaged in the same task. Mittone and Ploner (2011) find evidence of peer influence and convergence of behavior among trustees in a Trust Game. Gachter, Nosenzo and Sefton (2010) find that information on the reciprocal behavior of peers affects the individual's level of reciprocity in a Gift Exchange Game. Finally, Falk, Fischbaker and Gachter (2009) find that individuals adapt their behavior to the group to which they are randomly allocated in Coordination and Public Good Games. The interesting point made by these studies is not only that price or consumption strategies might be imitated but also that

reciprocity, trust, cooperation and work efforts are affected by "convergence or dispersion of behavior" in social networks and groups of individuals.

Experimentalists and theorists have been interested in two different aspects of the problem. First, it is interesting to determine whether contagion exists and, second, it is important to assess what consequences peer influence has on the economic model to be tested.

For example, Falk and Ichino (2003) prove that workers are conditioned by the observed productivity level of other workers engaged in the same task, even when there are no benefit externalities between the productivity levels of the two agents. The social effect of contagion here is to increase the overall level of productivity, compared to the same level measured in single workers' production processes.

In Mittone and Ploner (2011), the experimental design aims to assess whether reciprocal behavior is imitated in a Trust Game. In their paper, four recipients are connected to the same trustor in a one-shot Investment Game and in one treatment recipients can observe the choices of the other agents. The results show that the individual level of reciprocity tends to decrease as a result of peer pressure.

The observation of peer behavior is also important in determining the selection of an equilibrium in coordination and public good games, as in Falk, Fischbaker and Gachter (2009), where the same individual is allocated to two different neighborhoods and his actions are affected by the choices of the two groups' components. The main results of the paper can be summarized as follows. First, observation of the choices of agents operating in the same group strongly affects the individuals' behavior. Second, after studying the individuals' propensity to be affected by peer behavior, it can be stated that subjects exhibit a more pronounced propensity in the high material incentives context (Minimum Effort Game), and a less pronounced propensity in the moderate material incentives context (Public Good Game).

On the other hand, in the public good game, there is a substantial heterogeneity with relation to individual inclination to display social interaction effects: some subjects are more affected by their neighbors while others are less affected. In general, two classes of

subjects are identified: those whose behaviour is influenced by the behaviour of their co-players and those whose behaviour is independent of the choices of others.[1]

Studies on social influence in strategic settings (the ultimatum game) are conducted in Cason and Mui (1998) and Servatka (2009). In the latter research, the author focuses on the correct identification of social influence (i.e. how the proposer's behavior is determined by the respondent's observed level of generosity), separating this aspect from reputational effects that exist in game theoretical models.

How social interactions impact on tax evasion in a repeated public good game is studied in the experiments conducted by Fortin et al., 2007. Here subjects play a repeated public good game, where there is a probability of auditing, and subjects can observe the behavior of the other components of the group over time.

Finally, the effect of peer pressure on reciprocity is studied in Gachter, Nosenzo and Sefton (2010) who experiment with Gift Exchange Games; the designs are constructed in such a way as to allow two employees to choose their work efforts one after the other so that the second employee can observe the choice of his/her predecessor. The results show that, overall, observation of the peer's choices has a detrimental impact on reciprocity, but there is also a different attitude towards social influence, in the sense that the second player is more affected by a difference in effort and less affected by a difference in salary.

The present paper is motivated by three basic research questions. Our first objective is to determine whether trust is affected by peer influence in groups of trustors engaged in the repeated playing of different Trust Games (i.e., with uncorrelated recipients). Second, if there is convergence of behavior over time, we would like to assess whether social influence produces an increase (or a decrease) in the overall level of trust. Third, analysis of individual risk aversion and social preferences allows us to study whether and how the individual's preference for trust affects the individual's propensity to imitate others' behavior.

Specifically, our experimental design is based on the Trust Game (Berg, Dickhaut, and McCabe, 1995); the subjects who play the role of trustors can observe the behavior of two similar types of agents over fifteen periods of play. We argue that peer effects exist if the number of tokens sent by trustor *i* increases when the number of tokens sent by the observed trustors increases, and nothing else changes. As detailed in Manski (1993), the

[1] For a similar result, see also Glaeser, et al. (1996) and section 4 of this paper.

identification of peer effects involves controlling several confusing factors: i) self-selection of individuals into homogeneous groups: observed correlation in individuals' actions may reflect individuals' similar preferences and not a causal effect of one's action on another; ii) exogenous (contextual) effects: individual behavior may vary according to the socio-economic characteristics of different groups; iii) correlated unobservables might influence all group members in a similar way: individuals in a given group may behave similarly because they have similar characteristics or because they face a similar institutional environment.

Even if several studies based on observational data have made important steps towards the solution of such problems (i.e. Sacerdote, 2001), many authors (Falk and Ichino, 2005; Falk et al., 2009; Hartmann et al. 2007) emphasize the possibility to better determine the existence of peer effects in a fully controlled context with laboratory experiments. The experiment in this paper circumvents the problems related to the identification of peer effects as follows: subjects are randomly assigned to different groups (or neighborhoods), contextual effects do not take place since interactions are anonymous; correlated effects are overcome because subjects face the same context (they all have equal economic incentives and share equal information); moreover, we explicitly control for correlated effects due to experience and strategic learning variation during the Trust Game or to homogenous trustors' characteristics[2].

As in Ashraf (2006), information on subjects' characteristics – i.e. risk attitude, social preferences, socio demographic characteristics, expected trustworthiness - are drawn through i) a dictator game, ii) a questionnaire, and iii) the lottery method suggested by Holt and Laury (2002). Because of the random group formation, these characteristics are exogenous and this also enables us to investigate whether specific types of agents (i.e. generous or untrusting) are more likely to imitate similar types (i.e. because they observe a behavior coherent with their own preferences).

Our findings show that there is a convergence in trusting behavior in almost all groups and the effect of imitation is (in the majority of groups) to significantly reduce the number of tokens sent by trustors in each period. Furthermore, by analyzing imitation within the groups, we find that agents tend to imitate similar types when placed in the

[2] The identification strategy adopted in the analysis is described in section 3.

same group.[3] Indeed, in the few groups with a majority of generous and risk-loving subjects, trust substantially increased over time. Finally, we find that generous and risk-taking types (as opposed to the untrusting and risk averse types) have the highest propensity to be influenced by the behavior of other agents, regardless of the characteristics of their peers.

This paper is organized as follows. In Section 2, we present a review of the Trust Game and the related studies on the effects that risk attitude, social preferences and beliefs of trustworthiness have on the individual propensity of trustors to send tokens to recipients in the game. Section 3 presents our experimental design and the behavioral hypotheses, while Sections 4-5 describe our empirical findings. Section 6 provides some conclusions.

2. The Trust Game and trustors' motivations and preferences

As noted in Fehr (2009), "Trust plays a role in almost all human relationships... Trust also seems particularly important in economic exchanges because it seems obvious that the absence of trust among trading partners severely hampers market transactions..."

The basic question is however to clearly indentify the determinants of trusting behavior in market transactions, since social motivations are here mixed with standard profit motivations that are generally examined in all economic exchanges.

In Berg et al, (1995) the authors find that social history matters in the sense that under particular conditions trust and reciprocity are stronger when individuals can observe the behaviour of peers. Indeed, in the absence of rewards and sanctions, endogenous social norms can emerge if individuals clearly identify with a group: social history, by providing common information on the use of trust within a previous group, may increase social identity.

Berg et al. experimentally find that individuals who participate in the "social history" treatment, and who receive a report summarizing the decisions of the previous experimental subjects, behave differently from the individuals (belonging to the same college) who participate in the "no-history" treatment, without receiving any report. They

[3] We often use the term "neighbourhood" to define our groups of three trustors, borrowing the expression from Falk et al (2009).

find clear evidence of the social norm being internalized (as an effect of social history): the subjects who observe previous peers behave differently from the ones that do not.

It remains largely open to debate which driving forces lie behind the change in individual behaviour, both for the trustors and the trustees, and, in the case of heterogeneity across individuals, which individuals (e.g. in terms of risk attitude) are more influenced and which are less influenced by the observations of previous peers' choices.

The trustors' motivations for sending a non-zero amount to trustees are the main topic of Dufwenberg et al (2001), and Cox (2004). These papers provide a comparison between the amount sent in a Dictator Game and the amount sent in a Trust Game. The main result of these papers is that only small amounts of money sent by trustors are due to expectations of trustworthiness. This expectation is measured by the additional difference between what the trustors send in the Dictator and the Trust (Investment) Games. Because of the between-subjects design (the subjects who play the Investment game are not the same as those who play the Dictator game), their results do not control for heterogeneity in social preferences.

The same topic – with a clear distinction between the two motivations for a non-zero investment by the trustors, namely, reciprocity and unconditional kindness – is studied by Ashraf et al. (2006).

According to the reciprocity motivation, the sender - trustor contributes (sends a positive number of tokens) on the expectation of trustworthiness: the main driver of this behaviour can be found in the «calculative trust»[4], meaning the return that the sender expects to have back from the receiver in the Trust (investment) Game.

According to the unconditional kindness motivation, the sender - trustor contributes as a result of either social preferences or psychological benefits: the anticipation of a positive/negative reaction by the receiver (the expected number of tokens sent back by the receiver) does not affect the sender's behaviour: the basic driver of the sender's preference must instead be located in the social and/or individual (psychological) preferences for giving, irrespective of the receiver's future behaviour.

[4] The distinction between "calculative trust" and "personal (unconditional) trust" is given in Williamson (1993). Rabin (1993) defines "kindness" as the common regard for trust (between trustor and trustee) and incorporates a kindness function into subjects' utility: the prime mover's (trustor's) investment becomes the generating force (or *pre*-disposition) for the disposition to reciprocate by the trustee.

In Ashraf et al. (2006) the subjects who play the Dictator game are the same as those who play the Investment game (the authors adopt a within-subjects design), a design that makes it possible to check for heterogeneity in demographic characteristics (the experiment refers to three countries Russia, South Africa, United States), trust attitude and risk preferences. In relation to trustors' behaviour, the authors find that these variables (demographic characteristics, trust attitude and risk preferences) explain little of the variation observed. The main result is that expectation of returns plays a major role but unconditional kindness is also a contributing factor.

A comparison between trust attitude and risk attitude, which include two behavioural risk measures and one survey measure of risk attitudes, is the main topic of the Ecket et al. (2004) paper. These authors find a weak relationship between risk attitude and decision to trust.[5]

In the paper by Houser et al. (2010) trust behaviour - which involves strategic uncertainty, is compared with risk behaviour, which involves state uncertainty. In order to check for trustors' pro-social impulses they run different treatments: in one risky treatment the trustors interact with a computer (instead of a human trustee), in order to exclude a "trust component"; in a second risky treatment the trustors interact with a human trustee, in order to include a "trust component".

They obtain two main results:1) the aggregate investment distribution differs significantly in the trust environment compared to the risky environment; 2) risk attitudes predict individual investment in the risky game but not in the corresponding trust game. These authors find no connection between risk attitudes and the decision to opt out (invest zero) but, conditional on investing a positive amount, they obtain clear evidence that risk attitudes predict decisions in risk treatments.

[5] The decision to trust a stranger is not equivalent to taking a risky bet (Bohnet et al. 2004): trust involves "strategic" uncertainty while risk involves "state" uncertainty. In the absence of social history - information on peers' behaviour - experimental subjects require an additional risk premium to balance the costs of trust betrayal: senders- trustors state higher minimum acceptable probability (MAP) in the trust game than in the (risky) dictator game, where nature determines the outcome. The main focus of our paper is in studying risk behaviour under state uncertainty, thus avoiding any strategic motivation for the trustors. For this reason we do not consider betrayal attitudes.

These results support the view that reasons for trust are not simply connected to risk attitudes, so the authors leave room for (even if they do not check for) emotional explanations, such as betrayal aversion.

The previous results open the door to a more complex explanation of the relationship between risk attitude and trust: different biological and economic foundations (as in Fehr, 2009) can be investigated in order to explain how "strategic" uncertainty and "state" uncertainty act in modifying social preferences.

A variation in "strategic" uncertainty has been studied in Bauernschuster, Falk, Grosse (2010): in their experiment the introduction of competition between trustors reduces trustees' reciprocation.

Another form of variation in strategic uncertainty (Cassar and Rigdon; 2010) can be experimentally created by alternatively introducing competition between trustors and between trustees: by comparing the results under the two different treatments, the authors observe more trust under sender competition (and no receiver competition) compared to receiver competition (and no sender competition). The main conclusion that can be drawn is that trust is comparative and can be changed by manipulating strategic uncertainty via the modification of trustors' (and/or trustees') level of competition.

A variation in "state" uncertainty, can be experimentally obtained through the manipulation of information on peers as in Mittone-Ploner (2011): access to information on choices of peers in the same groups reduces trustee's reciprocation.

Our experimental paper focuses on the role played by the introduction of non-strategic information in modifying trustors' behaviour. In particular, by classifying different types of trustors in term of risk attitude and social preferences, our paper is able provide a better understanding of the greater dispersion of trust data than of risk data, as in Butler et al., (2010).

3. Evaluating social influence

In this section, we report the experimental design and our estimation methodology. Specifically, section 3.1 describes our experiment, section 3.2 explains how the main problems in identifying peer effects have been solved with both the experimental design

and the econometric model, while section 3.3 provides a more detailed description of how we measure individual preferences for trust.

3.1 The Experimental Design and the behavioral hypotheses

The experimental design was based on a standard Trust Game in which two agents acted sequentially. Player A was given an endowment of 600 experimental tokens at the beginning of each period and was required to decide how much of this endowment would be kept and how much he would transfer to player B, who received the amount sent by A multiplied by a factor: $\alpha = 3$. [6] Player B then had to decide how many tokens he would send back to Player A and the game ended.

As in the basic model, therefore, the profit function for player A in each period was:

$$\pi_{At} = G - x_{At} + y_{Bt} \qquad \textbf{(1)}$$

Where G is the per period endowment of 6 tokens, x_{At} are the tokens sent to the recipient and y_{Bt} are the tokens the trustor receives back from the recipient.

While the profit made by player B corresponds to:

$$\pi_{Bt} = \alpha x_{At} - y_{Bt} \qquad \textbf{(2)}$$

Overall, the game lasted for twenty periods, but in every period each player A was matched with a different player B.

The relevant feature of the experimental design was that, starting with the sixth period, each sender was placed in a group of three senders and was able to observe the choices of the other members of the group for the remaining periods of the game. Both in the instructions (see appendix) and in the informal introduction to the sessions made by the experimenters, senders were aware that i) the other trustors, randomly selected in their groups, were playing with different recipients[7], ii) trustors' payoffs were uncorrelated and the neighbors had the same information on the game. Our senders were like "card players" facing one opponent but they were able to observe other players' moves at different tables. We adopted this setting in order to isolate social influence from the possibility of strategic learning that may arise in game theoretical models[8].

[6] The experimental exchange rate was 1 token = 1 Euro cent.

[7] It is important to notice that, in all the sessions, all trustors were re-matched with different recipients in each period, and they were aware that they would not meet the same partner again.

[8] If senders could observe the level of reciprocity of player B, then the imitation of the neighbors' actions might be motivated by strategic reasons such as reputation or the imitation of the best observed strategy

Our main interest is to see whether trusting (or untrusting) behavior is contagious in periods 6-20 of the Trust Game. Specifically, we model the individual decision to trust as follows:

$$x_i = x_i(r_i, g_i, t_i, z_i, \bar{x}_{-j}) \qquad \textbf{(3)}$$

where x_i is the number of tokens sent to an anonymous recipient by trustor *i* in each period, r_i and g_i are measures of social preferences (respectively, individual risk and generosity), t_i indicates the trustee's beliefs (namely, expected trustworthiness) while z_i indicates individual socio-demographic characteristics. Our main interest however concerns the impact on the trustor's decision of variable $\bar{x}_{-j}$, the observed average number of tokens sent by his/her neighbours in the previous period.

We consider the following hypotheses:

H1: $\partial x_i / \partial x_{-j} \neq 0$ Peer influence exists in the sense that senders modify their behavior as a result of their observation of other trustors.

An analysis of individuals' characteristics however allows us to extend our inspection to a further aspect.

H2: How do an individual's characteristics impact on social influence? Is social influence greater (smaller) in groups having homogeneous characteristics or does homogeneity tend to reduce contagion?

Overall, the experiments were composed of four different parts (including the Trust Game), which were randomly presented to the subjects.

In part one, all participants were asked to fill in a questionnaire which contained three types of questions. The first questions were related to the subject's demographic and economic characteristics; then, (following Fehr, 2009), the subject was asked to define

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(see Servatka, 2009). One may argue that the fact that senders faced the same population of recipients (opponents who moved from one table to the other) might have generated strategic learning at the group level, as opposed at the individual level. As we explain in this section, in order to minimize this possibility, we paid the subjects randomly for only one period.

his/her attitude to risk on a scale 0-10. Finally, as in the World Value Survey, we asked questions in order to measure individual trust:

"Generally speaking, would you say that you can trust most people or that one can never be too careful?[9]*".*

The individual risk attitude was also measured in a different part where participants had to indicate their choices in six lotteries (Eckel and Wilson, 2004; Holt and Laury, 2002).

Finally, in the fourth part, participants played a one-shot dictator game, with player A in the role of the dictator. At the beginning of the session, participants were randomly divided into two groups (players A and B) and the recipients played all parts of the experiment, however, they were not placed in groups from the sixth to the twentieth periods.

All subjects were paid at the end of the experiment. They received a show up fee and were paid on the basis of their performance in the lottery and the dictator games, while, for the Investment game, they were paid only for one period chosen randomly at the end of the session. The sample was composed of 90 subjects (45 senders and 45 recipients), the average payoff of the participants was around €19 and each session lasted for about one and a half hours. The experiments comprised four different sessions, one of which was run in 2009 at the University of Siena and three of which were run in May 2010 at the University of Salerno.

3.2. Experimental and econometric issues in the analysis of social influence.

Our analysis of peer effect relies on a simple framework in which the number of tokens sent by each subject to the trustee depends on their own propensity to trust and on the observed behavior of the other trustors. The null hypothesis of no peer effects predicts a statistically insignificant coefficient from the regression of their own behavior on peers' behavior.

As specified in the introduction, however, the correct identification of peer influence poses several problems that have been extensively addressed in Manski (1993). Following Manski's definitions, such problems arise from: i) self-selection of

[9] A copy of the questionnaire is available on request.

homogenous people in social groups (or neighborhoods); ii) correlated effects; iii) contextual effects. The experimental methodology allows us to take these problems into account.

First, we treated the self selection problem by randomly allocating our subjects to groups in our experiments (for a similar experimental procedure, see Falk et al., 2009; on observational data, see Sacerdote, 2001).

Second, contextual effects do not arise in our game since the interactions among trustors are completely anonymous.

Third, the experiment avoids correlated effects in that the subjects make their decisions in identical contexts: the three subjects in each neighborhood are provided with the same budget, the same incentives and they share equal information (Falk et al. 2009).

Correlated effects however could arise with respect to time: for example, if all subjects decided, for whichever reason, to reduce their trust from one period to the next, then we would find correlation in observed actions and we could misattribute it to causal peer effects (i.e. correlated effects in Trust Games are likely to happen given the variation in experience and amount of learning during the game). We explicitly take such problems into account by regressing the behavior of each trustor on the behavior of a pair of trustors randomly drawn from the sample (not the pair actually observed): if we observed a significant correlation in an agent's actions then we would have to admit the existence of a spurious correlation in our data (see also Sacerdote, 2001).

The availability of panel data also enables us to mitigate problems of unobserved (individual and time) correlated effects via the inclusion of both fixed and random effects accounting for individual heterogeneity (Hartmann et al. 2008).

Interpreting the coefficient obtained by regressing an agent's own behavior on trustors' behavior as a causal peer effect may, however, be problematic because of the simultaneity of decisions: the group's behavior affects the agent's behavior, which in turn, affects the group's behavior (and these problems are even greater in small groups, Moffit, 2001; Krauth, 2002). Following Sacerdote (2001)[10], we also report, as evidence of

[10] Sacerdote (2001) measures peer effects among college roommates by regressing their own outcome (grade point average , or GPA) on peer outcomes. Random assignment of the undergraduate students to dorms and to roommates implies that all the roommate's background variables (i.e. ability affecting individual GPA) are uncorrelated with his/her own background characteristics. This makes it possible to measure a reduced-form effect of student's outcome on his/her roommate j' s background, thus solving the

peer effects, the finding of a significant correlation between an agent's own decision to trust and his/her exogenous neighbors' propensity to trust: an agent's own preference for trust affects his/her decision but it can be a priori excluded from the decision of others in the reference group.

3.3 Measuring individual preferences for trust

The decision of the trustor to send tokens to an anonymous recipient in a one-shot Trust Game, has been explained on the basis of two main motivations (on this point, see section 2): the expectation of monetary returns (or expected trustworthiness) and the unconditional desire to be kind to another human being ("unconditional kindness", "warm glow", "altruism"). Both motivations are mixed every time a subject decides to send part of the endowment to an anonymous recipient.[11]

In the experimental literature, there are several papers which aim to separate the two aspects.

Here, the main research question is to assess whether trust can be affected by contagion, while taking into account the individuals' attitude to trust. For this reason, in each section of the experimental design, we concentrate on measuring the individuals' preferences and adopt a within-subject design (Ashraf et al., 2006).

First, expected trustworthiness is measured using the subjects' answer to the WVS survey question reported above. The experimental literature contains several methodologies that have been used to elicit the trustor's belief on the expected behavior of the recipient. More specifically, experimentalists have often adopted a direct measure of the expected trustworthiness by asking the subject to express his/her own expectation on the recipient's trustworthiness (see Ashraf et al., 2006; Costa-Gomes and Weizsäcker, 2008) [12] .

problem of simultaneity in the observed outcomes. Sat scores and high school class ranks are used as noisy measures for the unobserved students' ability.

[11] In our experiment, as in the majority of (one-stage or repeated) Trust Game experiments, we observe that a significant proportion of subjects sends a part of the endowment to recipients in contrast with the standard equilibrium prediction.

[12] In some cases, to improve the accuracy of the prediction, subjects are rewarded on the basis of the success of the expectation.

In a recent paper, Sapienza et al. (2007), run a modified Trust Game in order to extrapolate the "belief component" from the trustor's actions which are also affected by his/her generosity and risk attitude. Their main finding is that "the sender's expectation of the receiver's trustworthiness is a good predictor of the quantity sent in the Trust game and it is highly correlated with the trust question in WVS" (p. 3).[13] In our design, we adopted the answers to the WVS as a proxy of expected reciprocity for two reasons: first, we run the experiments in two Universities located in two economically and socially different Italian regions, thus our sample has a high degree of heterogeneity in the social and economic background (see footnote 9); second, we wanted to avoid the confusion that a direct elicitation may induce in a complex experimental design.

More conventionally, we measured some preference characteristics of the senders' behavior by using dictators' games, lotteries and self-reported measures of the risk attitude. As regards the individuals' level of altruism and generosity incorporated in the individuals' utility function, several studies (Cox, 2004; Ashraf et al., 2006) have considered the behavior of Dictators as a proxy of the generosity component of the trustors' decision in the Trust Game. Therefore, in modeling the sender's choices, we use the data from the Dictator Game as a measure of individual generosity. Finally, we selected two measures of risk: lotteries, as in Holt - Laury (2004), and self reported measures as in Fehr (2009).

4. The trust game: results

4.1 A descriptive analysis

[13] Specifically, the authors find that the subjects' answers to the questionnaire and their reported beliefs are correlated when the individuals are calculating the expected amount returned especially if they are sending a large amount of money; otherwise, for a small amount of money sent, the belief reflects the "anticipated level of retaliation rather than the general level of trust. This suggests that the WVS question is a good measure of the expectation component of trust in economically-relevant situations". (p. 3). In their concluding notes, the authors also stress that - in order to assess the exact nature of this correlation - it is important to evaluate the level of homogeneity of the population that is the object of the study, in the sense that the correlation tends to be significant in heterogeneous samples.

In the trust game the average number of tokens sent by the trustors varies considerably across the 15 neighbourhoods, from a minimum of 0.15 in the first neighbourhood to 3.60 in the 9th neighbourhood (see table 1). Furthermore, some neighbourhoods exhibit a decreasing trust across the periods (i.e. neighbourhoods 1, 4, 5 and 7), in other cases trust increases (i.e. in neighbourhood 12 and, very slightly, in neighbourhoods 6 and 9), while in others it does not vary significantly (i.e. in neighbourhoods 2, 3, 10). Overall, the prevailing trend is a reduction of trust across the periods.

However, our main interest in the trust game concerns the presence of contagion however, and we find evidence of positive peer effects. In this section, support for this result comes from figures 1-17.

Figures 1 and 2 plot the average number of tokens sent by each trustor as a function of the average amount previously sent by their neighbours in the 5th period (when trustors do not observe their neighbours) and later on, respectively. In the absence of contagion, these graphs should fluctuate around 0. As expected, Figure 1 displays no evidence of contagion while Figure 2 shows that, on average, subjects send a lower (higher) number of tokens after observing their neighbours sending few (many) tokens.

Figures 3-17 look at the trustors' choices from another perspective: for each neighbourhood they display the number of tokens sent by each trustor during the 20 rounds of the game. In the absence of imitation, we should observe similar trends in individual trust before and after the fifth period. On the contrary, in many cases we observe individuals changing their behaviour and converging on similar patterns[14]: overall, at least 20% of our players are clearly affected by others' behaviour[15] while only 7 out of 45 individuals display no contagion effects at all (i.e. they send "0" tokens each time).

Overall, most neighbourhoods (at least 8 out of 15) display contagion effects, with an increasing trust in some of them (in particular, in neighbourhoods 6, 9 and 12), and a decreasing trust in others (i.e. in neighbourhoods 1, 4, 5, 7 and 13).

In order to further investigate individual heterogeneity in imitating, table 2 reports spearman rho correlation coefficients for the 45 trustors during rounds 6-20: only 10

[14] For example, in neighbourhood 1, trustor 1 sends large amounts to his trustee in the first five rounds of the game, but his trust collapses to "0" after observing his neighbours' behaviour; similarly, trustor 27 exhibits an increasing trust thus following his neighbours' behaviour.
[15] See trustors 15,17, 21, 25, 27, 32, 35, 39 and 42.

individuals have a negative (but never significant) coefficient, 7 individuals have a coefficient of exactly "0" and all the others have a positive coefficient. Hence, the most interesting finding here is an ample heterogeneity in individuals' reaction to the observation of other trustors. The main conclusion is that, consistently with previous studies in this field (Glaeser et al., 1996; Falk et al. 2009), it could be argued that two classes of subjects exist, *those whose behaviour is influenced by the behaviour of their neighbours and those whose behaviour is independent of others*.

4.2 Looking at social preferences and beliefs

Information on trustors' generosity is drawn from the dictator game: as in Eckel and Grossman (1998), individuals are classified as "generous" when their donations are greater than the mean donation in the sample (equal to 0.5 tokens). Our measures of risk aversion are based on both questionnaire and laboratory data: in the first case, we use an experimentally validated measure of risk preference (Dohmen et al., 2005; Fehr, 2009) which is based on a question drawn from the German Socio - Economic Panel: *"Are you, generally speaking, a person who is fully prepared to take risks, or do you try to avoid taking risks*?". The respondents answered this question on an 11-point Likert Scale ranging from 0 (very risk averse) to 10 (very risk-seeking). In the second case, we measure risk preferences through the well-known lottery method suggested by Holt-Laury (2002).

According to the evidence reported in table 2, sampled individuals are mainly selfish and risk averse (whichever index we consider) .

In the following, our measures of individual risk aversion rely on the questionnaire data. There are several reasons for our choice: i) lottery choices are inconsistent in 10 out of 45 cases[16]; ii) our questionnaire data provide a higher variability in risk aversion across the different observations; iii) most information drawn from the questionnaire is coherent with the observed behavior in the trust game. On this last point, for example, we observe

[16] In the lottery game, our subjects take 10 decisions between a safe option (option A) and a risky one (option B). The risk neutral choice pattern consists of 4 safe choices (when the probability of a high payoff for both the safe and the risky option is low) followed by 6 risky choices (when the probability of a high payoff for both the safe and the risky option increases to 10/10). When individuals switch to the risky option before the fourth choice, they are considered as risk seeking (symmetrically, they are considered as risk averse when they switch to the risky option after the fourth choice). We observe 10 individuals making inconsistent choices in that they switch back from the risky to the safe option later in the game.

that most players reporting a score higher than 5 (the mean value in the sample) on the risk aversion question are also classified as "risk loving" in the lottery game (we find coherence between the two measures in 68% of cases) and in 75% of cases they exhibit trusting behavior during the trust game (see figures 3-17).

The classification of the risk and generosity characteristics provides a preliminary answer to one of this paper's research questions, that is whether imitation of trusting behavior is an effect of social influence or of individuals imitating similar types. If the second hypothesis prevailed, then we should observe the most generous and less risk averse individuals following only trusting neighbors (and vice versa).

In order to highlight the most significant patterns in the game, on the one hand we consider the individuals classified as risk seeking and generous (that is to say, those individuals who reported a score higher than the mean value "5" on the risk question and a generosity index equal to 1[17]) and, on the other hand, we take into account the "opposite types" [18].

First, figures 3-17 show that only in two cases is the subjects' behavior in the trust game not coherent with the profiles reported in table 2 (see trustors numbered as 16 and 18).

Second, we find that more generous and less risk averse players increase their trust when they meet trusting neighbors, while, in the other cases, they often end up by imitating "distrusting neighbors" (and this happens at least 4 times out of 6). On the contrary, less generous and more risk averse players clearly exhibit contagion effects only in 3 out of 14 cases. These findings are consistent with the observed trust variation across neighborhoods: those characterized by a majority of generous and less risk averse individuals (i.e. neighborhoods 6, 11 and 9) exhibit a higher and increasing trust; the opposite evidence is reported for neighborhoods composed of selfish individuals (i.e. neighborhood 1); the prevailing trend is a reduction in trust across the periods, in line with the evidence of a majority of selfish/risk averse individuals that also affect others' behavior during the whole game.

Finally, let's compare trustors' beliefs about recipients' trustworthiness (elicited through our questionnaire) and trustors' behavior during the game. The majority of our

[17] More specifically, now we are considering the trustors numbered as 9, 15, 17, 18, 25, 27, 32, 33, 34, 39 and 42 in table 2.

[18] These individuals reported a generosity index of "0" and a score below 5 on the risk aversion question (in table 2, they are numbered as 3, 5, 6, 7, 11, 13, 14, 19, 20, 23, 28, 31, 38, 40 and 45).

players (about 74%) reported a score higher than the mean value "5" on the WVS responses[19]; in most cases we find a good correspondence between attitudinal and behavioral measures of trust[20] (for example, see trustors numbered 9, 26 and 34) and, in some cases, we observe such a correspondence only in the first rounds of the game (see trustors 10, 29 and, in particular, trustors 6 and 27).

To sum up, the most important patterns emerging here are: i) many, but not all, trustors are affected by social influence; ii) social preferences are likely to explain, at least in part, individual heterogeneity in imitating: generous and less risk averse individuals display a high propensity to imitate others' behavior and, when they are grouped with similar neighbors, their trust increases; iii) even if social preferences play a major role in explaining trustors' behavior, expected trustworthiness also matters.

5. Estimating social influence

Underlying our econometric analysis is a simple framework in which the trustor's action (the number of tokens sent to an anonymous recipient) in period t depends both on his/her own propensity to trust and on the observed neighbors' actions (the average number of tokens sent by each neighbor to his/her trustee) in period t-1(see 3)). Overall, we consider the fifteen periods in which individuals actually observe their neighbors' actions.

In table 3, we check for potential unobserved correlates through the inclusion of individual and period fixed effects: column (1) shows the Ols regression of his/her own action (in time t) on neighbors' actions (in period t-1)[21]. The coefficient on "neighbors' actions" is 0.208 and it is statistically significant at 1 % level. The null hypothesis of no peer effects would predict no relationship between his/her own action and others' actions,

[19] See section 3 about the correlation between such survey questions and individual beliefs. The index shown in table 2 has been obtained by averaging the scores reported on the two questions : "*Generally speaking, would you say that you can trust most people?" and "generally speaking, would you say that one can never be too careful?".* The index varies from 0 to 10 (higher values indicate higher trust in others).

[20] In 11 out of 45 cases we do not find consistency between questionnaire data and trustors' behaviour (for example, trustors 12, 18, 23, 38 and 43, reported high score on the WVS questions but they sent 0 or few tokens to their recipients in many rounds; the opposite evidence is reported for trustors 1, 24, 32, 33, 39 and 44). In most of these cases individual behaviour is consistent with individual social preferences.

[21] We also run OLS regression between "own action" in time t and "neighbors' type" in time t-1 for each period (with robust standard errors clustered at neighborhood level) and we found significant peer effects in 13 out of 15 cases (only in the 6th and in the 9th were the Ols estimates not significant).

and the data reject that null. Taking into account that a large fraction of subjects sent "0" tokens to the anonymous recipient, estimates in column (2) are based on a tobit model[22]: the coefficient on others' actions is now 0.322 and it is still statistically significant at 1% level so that, once again, the null hypothesis of no peer effects cannot be accepted.

In column (3) of table 3 we check for unobserved correlates (in particular, for time effects) by regressing each trustor's action (in period t) on the behavior of a pair of neighbors (in period t-1) randomly drawn from the sample and, as expected, we do not observe a statistically significant correlation among individuals' choices; similar results based on a tobit model specification - are reported in column (4).

In table 4 we explain individual trust, taking account of individual exogenous characteristics (demographic variables, propensity to risk, generosity and expected trustworthiness). Our estimates add interesting new evidence for the analysis of trustors' preferences and behavior in that decisions to trust are significantly and positively correlated not only with individual generosity but also with risk attitudes (see section 2 for a review of the previous findings in this context). The coefficient estimated on the "expected trustworthiness" variable however is statistically significant at a ten percent level only in the first five rounds of the game[23] (one could argue that beliefs change during the game - when trustors observe neighbors' actions – so that they no longer explain individual behavior).

Finally, in table 5 we investigate the presence of social influence in a Tobit random effects model. We report separate estimates for different periods in order to elicit any variations in peer effects during the twenty rounds: we analyze trustors' behavior in the first 5 rounds (when we do not expect to observe peer effects[24]), in the next 5 rounds (in order to observe whether individuals change their behavior when observing peers' decisions), and, finally, in the remaining 10 rounds.

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[22] In line with the latent linear – in- mean model, the equation for X^*_i – the latent variable for X_i in equation 3), can be written as $x_i^* = x_i^*(r_i, g_i, t_i, z_i, \bar{x}_{-j})$

[23] When we consider the 6th -10th periods, we find statistical significance; however, in this case, the coefficient of "expected trustworthiness" is estimated with the wrong sign and it is not statistically significant when we do not include generosity and risk aversion in the set of explanatory variables.

[24] We also test for spurious correlation in our data by regressing own action on neighbors' actions during the 2nd-5th rounds and, as expected, we do not find statistically significant peer effects (results not reported here but available on request).

In order to measure individual preferences, for simplicity's sake we consider a single index ("own type") obtained by averaging generosity and risk aversion indexes at individual level; gender and age dummies were the only socio-demographic variables significant at least at 10% level, so they are included in the final model specification[25].

In order to check for correlated effects, a variable describing neighbors' generosity and risk preferences is included in the set of explanatory variables[26] (the variable "neighbors' type" has been obtained by averaging neighbors' generosity and risk aversion indexes).

The most interesting finding for our goal is the coefficient on "neighbors' actions", which are large and statistically significant in columns (3) and (7), while the "neighbors' type" variable has a small and insignificant effect. However, when the "neighbors' action" variable is dropped from the model specification in columns (4) and (8), the estimated coefficients for "neighbors' type" are statistically significant at least at 1% level[27]. This result is not surprising given that generosity and attitude to risk significantly predict individual decisions to trust (and, moreover, the coefficients on these variables are not subject to the reflection-or endogeneity – problem). We interpret such findings as supporting the evidence of peer effects (see also Sacerdote 2001).

A further aim here is to understand whether and to what extent social preferences affect individual propensity to imitate others'behaviour. To this respect, in columns (5) and (9) we focus on trustors' and neighbors' characteristics: in column (5) the coefficient estimated on the "trusting" dummy variable indicates that trusting people are more likely to trust when they are grouped with trusting neighbors; the opposite is true when we consider the coefficient estimated on the "untrusting" dummy variable (untrusting individuals reduce their trust when they are grouped with similar types). In the last rounds, the prevailing trend is a reduction of trust but, once again, more generous and less risk averse individuals are willing to trust when they observe trusting behavior.

[25] For analogous reasons we do not include trustors' expected trustworthiness among the regressors.
[26] Similar results rely on the OLS specification (as in the linear model specification by Manski, 1993). The inclusion of neighbors' sex and age does not affect our results in table 4.
[27] In preliminary estimates, we regressed trustors' characteristics on neighbors' characteristics (in order to test whether they were correlated in the sample) and we did not report any significant estimate.

6. Concluding remarks

Might trust be influenced by the observed behavior of other trustors rather than the expectation of monetary benefits? Our research provides a positive answer to this question. Most subjects in our experiments change their behavior from the sixth period onwards, and the change does not set in only at the end of the session, therefore it cannot be attributed to boredom.

Our research reveals interesting aspects of the problem. First, not all people are influenced by peers: some seem to be more inclined to social stimuli than others. Indeed, two categories may be broadly identified: on the one hand, subjects who on average send no tokens from the first period and appear to be ungenerous and risk adverse and, from the sixth onwards, seem to be less affected by the choices of others. On the other hand, there are subjects who have the opposite characteristics and seem to be very sensitive to social stimuli. The latter category of individuals imitate more than the former and, when placed in homogeneous groups, increase the number of tokens sent as a result of imitative behavior.

Second, the social effect here seems to have a negative impact on the average number of tokens sent in the groups, but this result is strictly dependent on the fact that we have a majority of untrusting individuals: the tendency is a decrease in the number of tokens and untrusting individuals do not change their behavior even when they observe a completely different strategy.

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APPENDIX A- TABLES AND FIGURES

Table 1a Average number of tokens sent by the trustors in each neighborhood (std. dev. in parentheses)

	neighborhoods							
period	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	0.7	1.33	0.83	1.67	2,00	1.60	0.68	0.93
	(1.21)	(0.58)	(0.70)	(1.52)	(1.15)	(0.79)	(1.14)	(0.75)
2	0.53	2.35	0.50	1.33	1.50	2.03	1.08	1.10
	(0.84)	(2.29)	(0.80)	(1.15)	(1.15)	(1.72)	(1.83)	(0.36)
3	0.50	2.67	0.63	0.67	2,00	2.72	0.64	1.22
	(0.86)	(2.08)	(1.09)	(1.15)	(1.73)	(1.99)	(1.09)	(0.81)
4	0.50	2.16	0.87	0.67	0.90	2.88	0.38	1.03
	(0.87)	(2.47)	(0.81)	(1.15)	(0.79)	(1.91)	(0.46)	(1.10)
5	0.53	0.6	0.42	0.67	2.45	2.49	1.43	0.96
	(0.84)	(0.53)	(0.72)	(1.15)	(2.36)	(2.17)	(2.31)	(0.81)
6	0.07	0.5	0.53	1.67	1.50	1.83	0.5	0.70
	(0.11)	(0.5)	(0.92)	(0.58)	(0.86)	(1.46)	(0.87)	(0.26)
7	0.02	0.43	0.40	1.17	1,00	2.70	0.83	0.7
	(0.03)	(0.51)	(0.69)	(1.04)	(0.50)	(1.99)	(1.04)	(0.29)
8	0.03	0.6	0.53	1.35	0.98	2.10	0.4	0.73
	(0.06)	(0.53)	(0.92)	(1.12)	(0.92)	(1.15)	(0.69)	(0.21)
9	0	0.67	0.47	1.33	1.23	1.03	1.33	0.67
		(0.58)	(0.81)	(0.58)	(1.55)	(0.61)	(2.31)	(0.29)
10	0.003	0.50	0.60	1.33	0.97	1.65	0.70	0.90
	(0.006)	(0.50)	(1.09)	(1.53)	(0.55)	(1.19)	(1.21)	(0.53)
11	0.006	0.73	0	1.33	0.82	1.78	0.72	0.83
	(0.001)	(0.23)		(1.15)	(0.55)	(0.68)	(1.07)	(0.29)
12	0.012	0.10	0	0.33	1,00	1.96	0.93	0.70
	(0.021)	(0.17)		(0.58)	(1,00)	(0.89)	(1.62)	(0.35)
13	0.01	0	0	1.67	1.33	2.19	0.33	0.90
	(0.017)			(1.53)	(1.53)	(0.70)	(0.58)	(0.36)
14	0.033	0.33	0.4	0.83	1.17	2.80	1.67	0.70
	(0.057)	(0.58)	(0.69)	(0.29)	(0.29)	(1.08)	(2.89)	(0.26)
15	0.003	0.50	0.44	0.50	1.33	2,00	0.27	1.17
	(0.006)	(0.50)	(0.75)	(0.87)	(1.16)	(1.99)	(0.46)	(0.65)
16	0.003	0.27	0.003	1.33	0.67	2.33	0.33	0.97
	(0.006)	(0.46)	(0.006)	(1.53)	(0.58)	(0.58)	(0.57)	(0.15)
17	0.013	0.37	0.37	1.33	1.17	2.83	0.70	0.78
	(0.015)	(0.55)	(0.55)	(1.15)	(1.26)	(1.61)	(1.21)	(0.68)
18	0.02	0.20	0.43	0.33	0.33	2.43	0.66	0.68
	(0.02)	(0.35)	(0.75)	(0.58)	(0.29)	(1.72)	(1.14)	(0.58)
19	0.017	0.33	0.53	1.99	0.84	3.17	0.12	0.67
	(0.015)	(0.58)	(0.92)	(1.05)	(0.76)	(2.02)	(0.20)	(0.47)
20	0.007	0.50	0.50	0.007	1.21	2.54	0.06	0.63
	(0.011)	(0.50)	(0.87)	(0.006)	(1.56)	(2.15)	(0.10)	(0.23)
Tot.	0.15	0.76	0.42	1.08	1.18	2.25	0.68	0.85

Table 1b Average number of tokens sent by the trustors in each neighborhood (std. dev. in parentheses)

	neighborhoods							
period	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**tot.**
1	2.63	0.85	2.00	2.33	1.73	0.83	0.67	1.39
	(1.82)	(0.99)	(2.64)	(2.66)	(2.83)	(1.04)	(1.15)	(1.43)
2	2.83	1.17	2.66	2.50	1.70	1.00	0.5	1.52
	(1.82)	(1.59)	(2.52)	(2.29)	(2.86)	(1.73)	(0.5)	(1.62)
3	2.60	2.40	2.33	2.57	1.68	1.33	0.17	1.61
	(2.08)	(2.42)	(2.25)	(2.40)	(2.87)	(1.15)	(0.28)	(1.72)
4	3.08	1.60	0.83	2.00	2.00	0.67	0.33	1.31
	(1.66)	(2.08)	(3.33)	(2.65)	(2.64)	(1.15)	(0.58)	(1.61)
5	3.46	0.67	2.67	3.20	1.67	1.00	1.36	1.64
	(1.47)	(0.41)	(2.52)	(2.70)	(2.89)	(1.73)	(2.29)	(1.88)
6	3.83	0.48	1.67	3.50	2.33	0.67	1.01	1.41
	(0.65)	(0.45)	(2.89)	(1.32)	(2.31)	(1.15)	(1.72)	(1.57)
7	3.86	0.90	1.33	3.83	2.33	0.33	0.69	1.39
	(0.11)	(0.98)	(2.31)	(1.25)	(2.31)	(0.58)	(1.13)	(1.61)
8	4.03	0.90	1.00	3.83	2.00	0.33	1.00	1.36
	(0.15)	(0.95)	(1.73)	(1.04)	(2.65)	(0.58)	(1.00)	(1.51)
9	3.93	0.37	2.33	3.33	2.00	0.33	1.00	1.25
	(0.40)	(0.23)	(2.52)	(1.26)	(2.65)	(0.58)	(1.73)	(1.50)
10	3.56	1.23	1.50	2.83	1.67	0.33	0.69	1.31
	(0.49)	(1.54)	(2.60)	(2.25)	(2.89)	(0.58)	(1.14)	(1.52)
11	4.17	1.10	2.67	3.67	2.00	0.50	0.33	1.28
	(0.72)	(0.85)	(2.52)	(1.89)	(2.65)	(0.87)	(0.58)	(1.58)
12	4.27	1.97	2.50	3.83	2.00	0.33	0.67	1.38
	(0.47)	(1.84)	(2.50)	(1.61)	(2.65)	(0.58)	(1.15)	(1.72)
13	3.70	1.23	2.00	4.50	2.00	0.50	0.33	1.42
	(1.18)	(1.39)	(2.64)	(0.50)	(2.65)	(0.87)	(0.58)	(1.76)
14	3.80	1.77	2.50	3.83	0.33	0.33	0.35	1.40
	(0.46)	(1.43)	(2.50)	(2.02)	(0.58)	(0.58)	(0.57)	(1.73)
15	3.33	1.37	1.33	2.36	0	0.50	0.67	1.15
	(1.36)	(1.20)	(1.26)	(1.76)		(0.87)	(1.15)	(1.40)
16	3.58	0.68	1.83	4.33	0.33	0.33	0.34	1.10
	(0.52)	(0.76)	(2.75)	(1.15)	(0.58)	(0.58)	(0.57)	(1.43)
17	4.35	1.75	2.50	3.86	0.33	0.50	0.35	1.36
	(0.64)	(2.39)	(2.50)	(0.79)	(0.58)	(0.87)	(0.57)	(1.67)
18	4.19	0.50	2.33	2.99	0.33	0.33	0.67	1.11
	(0.84)	(0.87)	(2.50)	(1.71)	(0.58)	(0.58)	(1.15)	(1.54)
19	3.35	1.23	2.33	3.80	0	0	0.33	1.36
	(1.28)	(1.96)	(2.50)	(2.08)			(0.58)	(1.74)
20	3.30	2.20	1.67	4.58	0.07	0.07	0.67	1.24
	(0.72)	(2.52)	(2.88)	(3.70)	(0.11)	(0.11)	(1.15)	(1.72)
Tot.	3.60	1.28	2.05	3.38	1.39	0.62	0.61	1.35

Table 2: Individual generosity, risk preferences and expected trustworthiness

neighborhood	trustor	ρ[a]	Generosity	Expected trust.	Risk aversion	
					Questions	Lottery method
	1	0.45 *	0	2	5	n.c.
1	2	0.29	0	5	4	Stay in bed
	3	"000"	0	1	3	Very risky averse
	4	0.66 **	0	3	5	Risk averse
2	5	0.04	0	4.5	4	Highly risky averse
	6	"000"	0	7	4	Risk averse
	7	"000"	0	3.5	3	Very risk averse
3	8	"000"	0	3	5	Very risk averse
	9	-0.14	1	5.5	7	Highly risk loving
	10	-0.6***	0	5.5	5	Risk neutral
4	11	-0.04	0	3	3	Risk averse
	12	0.17	0	6	5	Risk neutral
	13	0.35°	0	1.5	2	n.c.
5	14	0.02	0	3	4	Risk neutral
	15	0.16	1	4	7	n.c.
	16	0.50**	0	3	3	Risk averse
6	17	-0.24	1	6.5	6	Risk loving
	18	-0.003	1	6	6	Risk averse
	19	0.33	0	4	2	Very risk averse
7	20	"000"	0	4	8	Risk averse
	21	0.29	0	5	10	Slightly risk averse
	22	0.21	0	3	5	n.c.
8	23	-0.04	0	7	7	Slightly risk averse
	24	0.13	1	3.5	2	Very risk averse
	25	-0.5***	1	5	8	Very risk averse
9	26	0.37°	1	5.5	3	Very risk averse
	27	0.91***	1	3	6	Risk averse
	28	0.85***	0	5	8	n.c.
10	29	-0.01	0	7.5	10	n.c.
	30	-0.17	0	5	5	n.c.
	31	"000"	0	5	2	Risk averse
11	32	0.79***	1	2.5	7	Slightly risk averse
	33	0.46 *	1	2.5	5	Risk averse
	34	-0.11	1	6	10	n.c.
12	35	-0.03	0	3.5	7	n.c.
	36	0.34	0	4	4	n.c.
	37	0.18	0	2	4	Very risk averse
13	38	0.28	0	5.5	3	Risk averse
	39	0.44	1	3	5	Very risk averse
	40	"000"	0	3	7	Risk neutral
14	41	"000"	0	1.5	4	Stay in bed
	42	0	1	4	5	Highly risk averse
	43	0.30	0	5.5	4	Risk averse
15	44	0.43*	0	3	6	Highly risk averse
	45	"000"	0	5	2	Risk averse

***statistically significant at 1% level; **statistically significant at 5% level; *statistically significant at 10% level; °statistically significant at 20% level. [a]When individuals do not send any token, we report "000".

Table 3- Ols and two-limit Tobit fixed effect estimates

	Ols estimates 6^{th} -20^{th} periods	**Tobit estimates[a] 6^{th} -20^{th} periods**	**Ols estimates 6^{th} -20^{th} periods**	**Tobit estimates[a] 6^{th} -20^{th} periods**
Variables[b]	(1)	(2)	(3)	(4)
Neighbors' action	0.208***(0.059)	0.322 (0.087)***	-0.00059 (0.0006)	-0.0009 (0.0008)
Log- lik.	-827.333	-731.085	-839.69	-738.082
n. of observations	675	675	675	675

***statistically significant at 1% level. Std. errors in ( ). Time effects included. [a] Lower and upper limits: 0,6. [b] Neighbors' action: average number of tokens sent by the neighbors in the previous round.

Table 4 –Tobit estimates of individual trust – random effects

Variables[a]	**2^{nd} – 5^{th} periods**	**6^{th} – 10^{th} periods**	**11^{th}- 15^{th} periods**	**16^{th} – 20^{th}periods**
	Coefficients	Coefficients	Coefficients	Coefficients
	(1)	(2)	(3)	(4)
Age	-0.636	-0.356***	-0.391***	-0.207***
	(0.096)	(0.061)	(0.100)	(0.076)
Sex (male=0)	0.146	-1.114	-1.686***	-0.912***
	(0.396)	(0.214)***	(0.444)	(0.312)
Generosity	1.721***	2.487***	2.727***	2.991***
	(0.303)	(0.210)	(0.505)	(0.429)
Risk aversion	0.310***	0.451***	0.529***	0.586***
	(0.091)	(0.059)	(0.098)	(0.092)
Expected trustworthiness	0.169*	-0.110*	0.030	-0.027
	(0.104)	(0.058)	(0.139)	(0.137)
Log-lik	-254.179	-266.817	-289.012	-282.317
Restr. L. L.	-297.775	-337.526	-333.525	-338.580
n. observ.s	180	225	225	225

Constant and period dummies are included but not reported. ***statistically significant at 1% level; **statistically significant at 5% level; *statistically significant at 10% level; °statistically significant at 20% level. Std. errors in parentheses.

[a]Generosity: index for trustor's generosity drawn from the dictator game (dummy= 1 if generous, 0 otherwise). Risk aversion: risk aversion index drawn from our questionnaire data (lower values indicate higher risk aversion). Expected trustworthiness: index drawn from the WVS question on trustworthiness (higher values indicate higher trustworthiness).

Table 5 – Tobit estimates of peer effects – random effects

	2nd - 5th periods[a]	**6th – 10th periods**				**11th- 20th periods**			
Variables[b]	Coefficients (1)	Coefficients (2)	Coefficients (3)	Coefficients (4)	Coefficients (5)	Coefficients (6)	Coefficients (7)	Coefficients (8)	Coefficients (9)
Age	-0.061	-0.221***	-0.241***	-0.254***	-0.0312	-0.072*	-0.071	0.017	-0.177
	(0.101)	(0.036)	(0.047)	(0.047)	(0.051)	(0.042)	(0.049)	(0.077)	(0.055)***
Sex (male=0)	-0.871**	-1.065***	-1.139***	-0.527***	-0.939***	-0.742***	-0.732***	-1.061	-1.054
	(0.448)	(0.159)	(0.165)	(0.164)	(0.233)	(0.159)	(0.191)	(0.315)	(0.212)***
Own type	2.747***	1.815***	1.837***	2.342***	0.806°	2.211***	2.285***	2.572***	2.169***
	(0.671)	(0.234)	(0.294)	(0.240)	(0.537)	(0.219)	(0.240)	(0.408)	(0.713)
Neighbors' action	0.653	0.576***	0.698***			0.399***	0.296***		
	(0.646)	(0.056)	(0.085)			(0.052)	(0.069)		
Neighbors' type			-0.690	0.804***	-0.507		0.689	1.719***	-0.034
			(0.489)	(0.279)	(0.746)		(0.424)	(0.571)	(0.999)
Untrusting					-1.128***				0.254
					(0.485)				(0.516)
Trusting					2.127***				2.082***
					(0.605)				(0.709)
Log-lik	-258.107	-268,752	-266.133	-275.369	-1.128	-520.530	-517.959	-523.135	-518.361
Restr. L. L.	-310.494	-345.832	-345.780	-352.845	2.127	-664.117	-662.552	-673.769	-666.654
n. observ.s	180	225	225	225	225	450’	450	450	450

***statistically significant at 1% level; **statistically significant at 5% level; *statistically significant at 10% level; °statistically significant at 20% level. Std. errors in parentheses.

[a] Estimates in columns (2)-(5) are related to the 6th- 10th periods; estimates in columns (6)-(9) are related to the 6th- 10th periods.

[b] Neighbors' action: average number of tokens sent by the neighbors. Own type: average index for generosity and risk aversion at individual level (generosity and risk aversion are dummy variables equal to 1 when the individuals are, respectively, more generous and less risk averse, 0 otherwise). Neighbors' type: average index for generosity and risk aversion at neighborhood's level. Trusting: dummy equal to 1 when both the variables "own type" and "neighbors' type" are above the mean value in the sample (so that less risk averse and more generous individuals are grouped with agents with similar characteristics). Untrusting: dummy equal to 1 when both the variables "own type" and "neighbors' type" are below the mean value in the sample.

Figure 1: Number of tokens sent in the fifth period by each trustor as a function of neighbors' choices in the previous period.

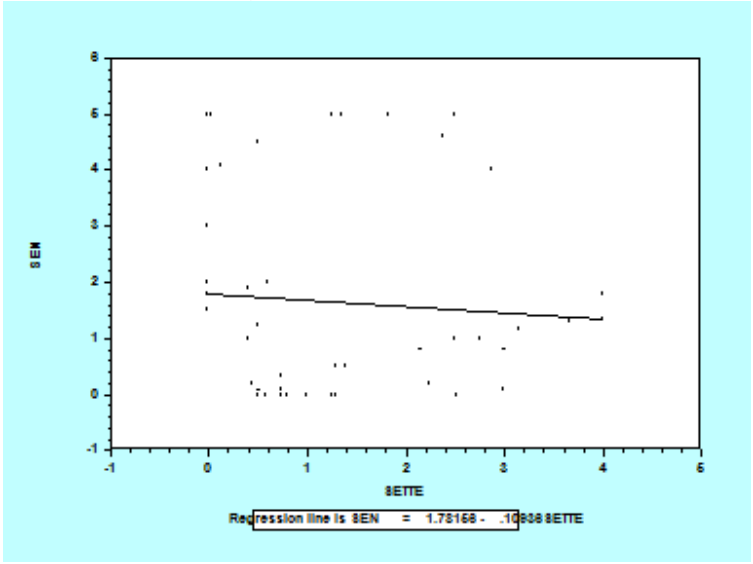
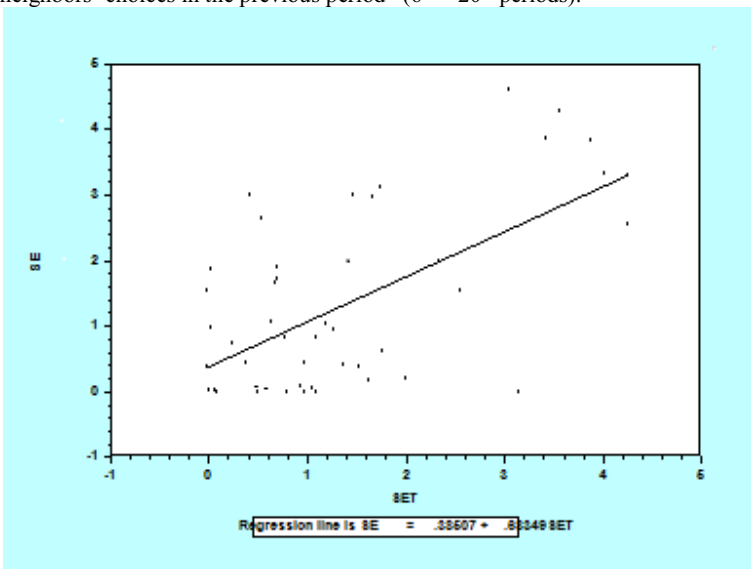


Figure 2: Average number of tokens sent by each trustor as a function of neighbors' choices in the previous period (6^{th} – 20^{th} periods).



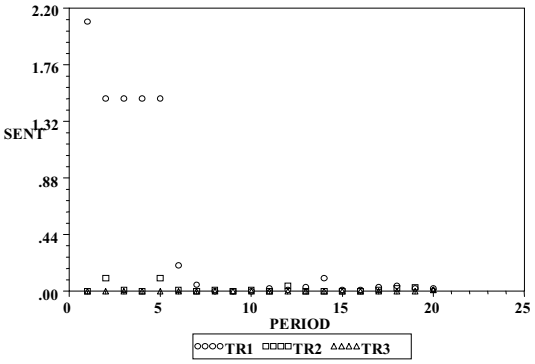


Figure 3: Neighborhood 1

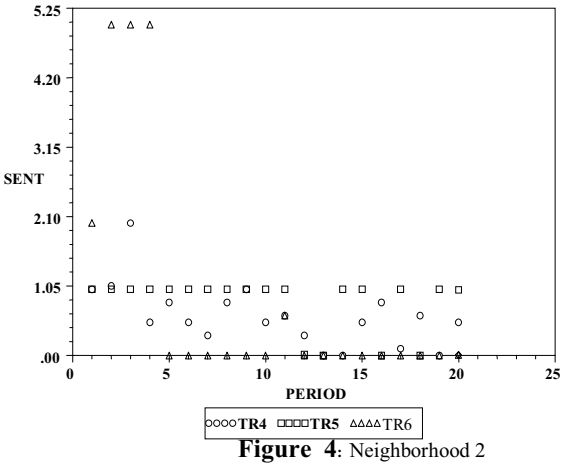


Figure 4: Neighborhood 2

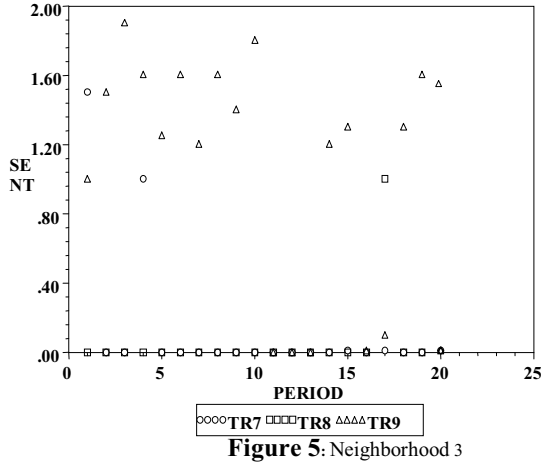


Figure 5: Neighborhood 3

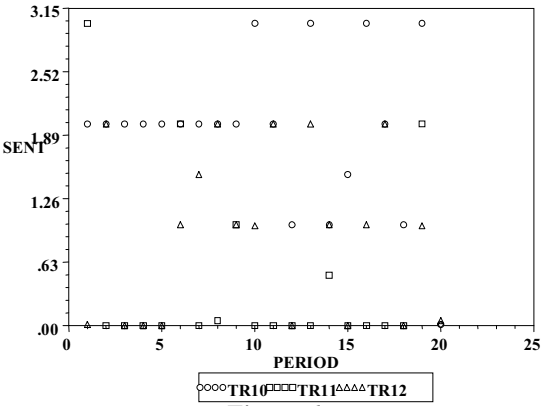


Figure 6: Neighborhood 4

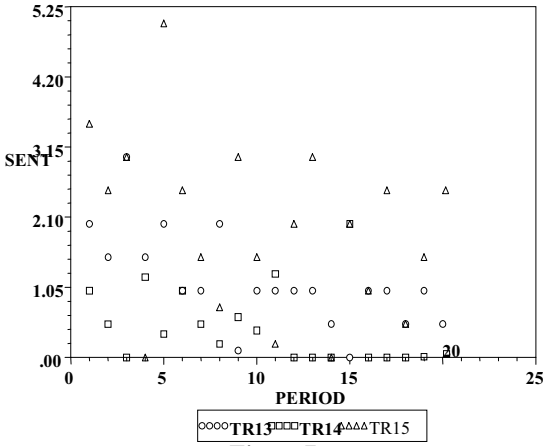


Figure7: Neighborhood 5

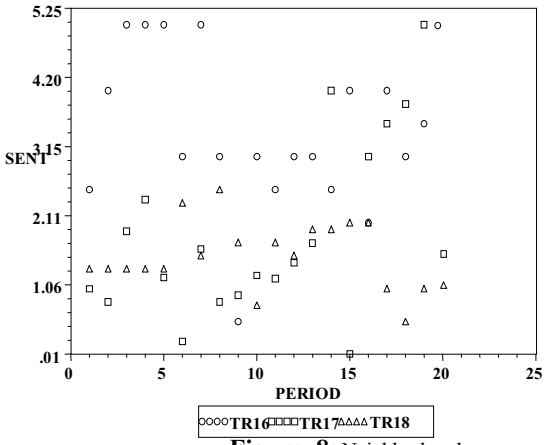


Figure 8: Neighborhood 6

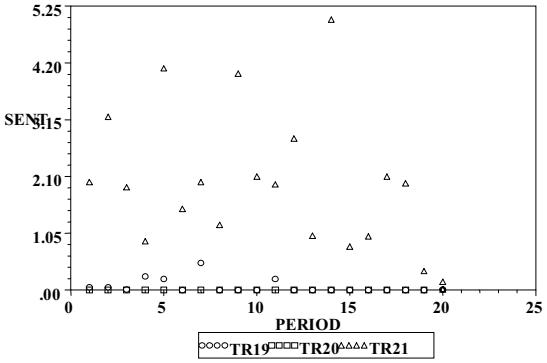


Figure 9: Neighborhood 7

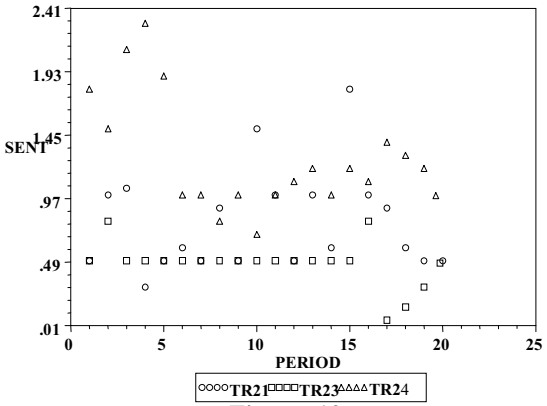


Figure 10: Neighborhood 8

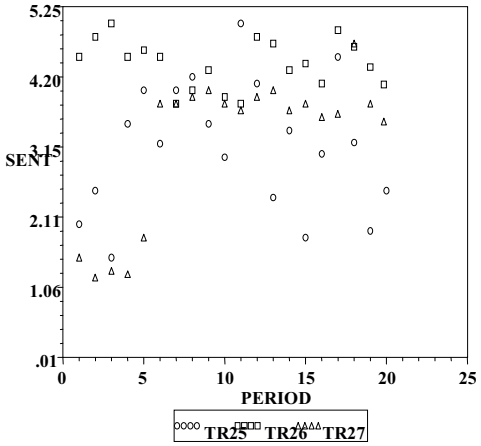


Figure 11: Neighborhood 9

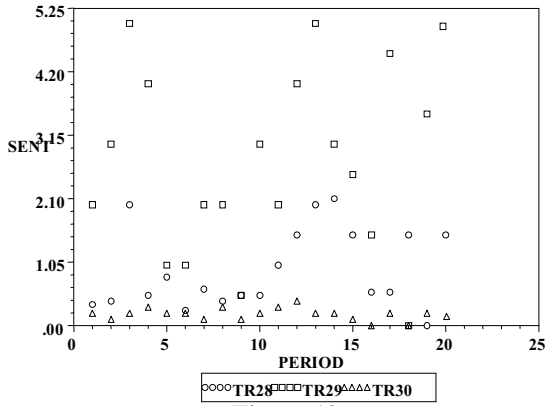


Figure 12: Neighborhood 10

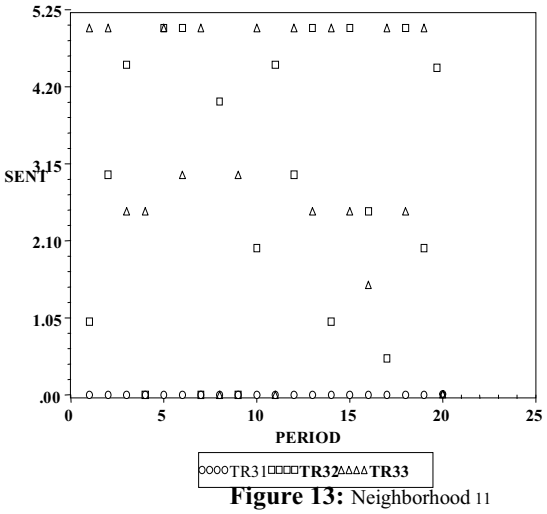


Figure 13: Neighborhood 11

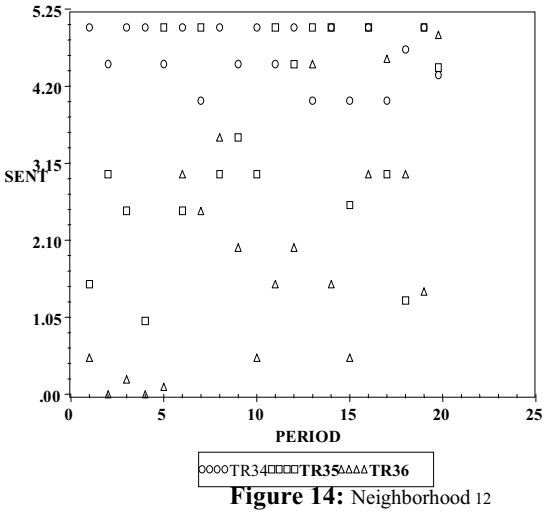


Figure 14: Neighborhood 12

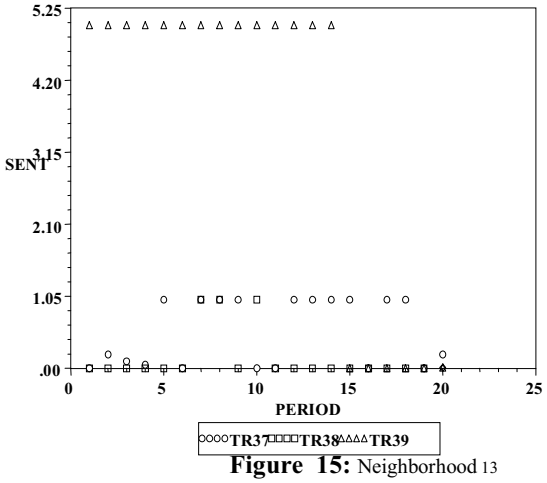


Figure 15: Neighborhood 13

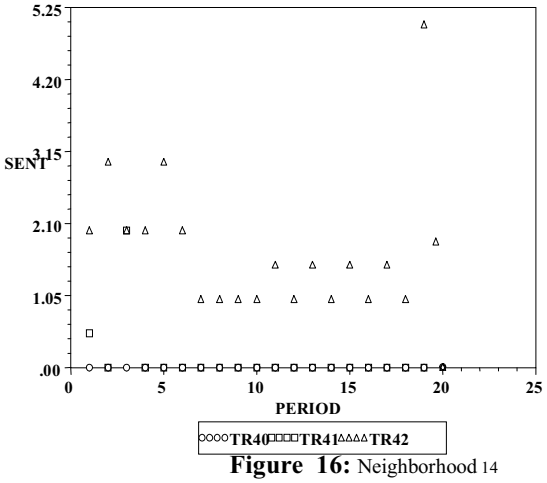


Figure 16: Neighborhood 14

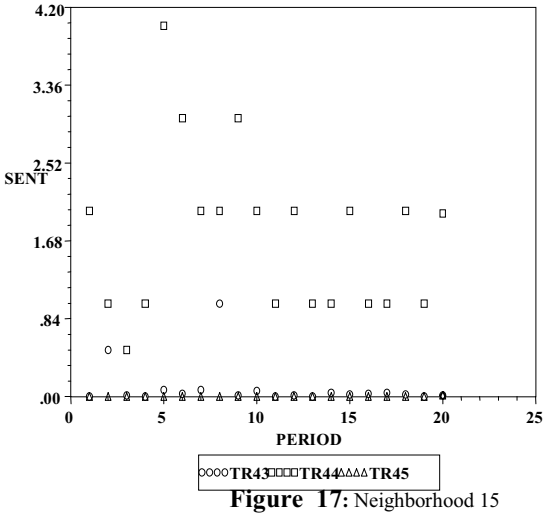


Figure 17: Neighborhood 15

APPENDIX B: THE INSTRUCTIONS

Please note that subjects read the Instructions directly on the computer screen and each part was presented separately. Before the experiment started, all they knew was that the session would take between one hour and one hour and a half and the experiments comprised different parts. We here report the Instructions for Player A. The Instructions for player B differed for the Dictator and the Trust Game. While playing as recipients in the Trust Game, player B was not allocated to groups.

Instructions for Player A

Welcome to our experiment! Today you are participating in an economic experiment that will help our research and will enable you to earn a fair amount of money. The experiment comprises several parts, and the Instructions for each section will appear on your screen when a part of the experiment is completed by all the subjects. Read these Instructions carefully and do not hesitate to ask if you find them unclear. Please do not communicate with other subjects in the room.

General Information

Earnings: You will receive a 2 Euro participation fee. During the experiment, you will receive tokens (Exchange rate 1 token = 1 Euro cent). The experiment is divided into four parts, one of which is a simple questionnaire. You will not be paid for filling in the questionnaire. As for the remaining parts, you will be paid according to your decision in the part where a single decision is required. In the two remaining parts where a series of choices are required, the computer (at the end of the session) will randomly select one single period and you will be paid accordingly. Please note that at the end of the experiment, the payment scheme, i.e. the table summing up your earnings for each decision in the three parts of the experiment will be presented on your screen; then, the computer will select the period to which the payment is referred and you will be paid immediately after.

The roles: At the start of the experiment, the computer will divide all the participants into two groups: A and B. You will be told in the next screen which role you are playing: please bear in mind that, once the role is selected, it will be kept throughout the four parts of the experiment: if you are A, you will play that role for the entire session.

The Questionnaire

Please fill in the questionnaire that will appear on your screen (see Appendix III)

The Dictator Game

The organizers are allocating 200 tokens to you; you have to decide how many tokens you are keeping for yourself and how many tokens you wish to send to an anonymous player B who received nothing. Your will keep the remaining tokens. for yourself

The Trust Game

This part is composed of 20 periods (decisions). From the 5th period onwards, you will be placed in a group with two other players A. The composition of the groups is fixed: for fifteen periods you will therefore be in the same group.

In each period, the organizers allocate 600 tokens to you; you have to decide how many tokens you want to keep for yourself and how many tokens you want to send to an anonymous player B who has no endowment. Player B receives the tokens sent by you multiplied by three. For example, if you send 200 tokens, he\she will receive 600 tokens; if you send 100 tokens, he\she will receive 300 tokens, and so forth. Player B with whom you are paired is informed on the number of tokens he received; then, he is asked how many tokens he wants to return to you. You will be informed on player B's decisions only at the end of the experiment, when a table appears on the screen reporting - for each stage - the tokens sent and the tokens returned.

You will be asked to take 20 decisions on the number of tokens to send to the different player B.
PLEASE NOTICE THAT, FROM THE FIFTH PERIOD TO THE TWENTIENTH (THE PERIODS IN WHICH YOU ARE PART OF A GROUP) YOU WILL BE INFORMED OF THE NUMBER OF TOKENS SENT BY THE OTHER TWO A PLAYERS WHO ARE IN YOUR GROUP: the screen display will make this information clear.

Summing up: a) in each of the 20 periods you receive 600 tokens; the decision you have to take is always the same: how many tokens you want to keep for yourself and how many tokens you send to a player B who receives the amount multiplied by three and is then asked if he wishes to return tokens to you. Player B varies from period to period; b) from the fifth to the twentieth period, you will be in a group with two more players B and you will be informed of their choices for that period; at the end of the experiment, when the payment is computed for each part, a table will appear on your screen summing up your 20 decisions and the decisions of the player B with whom you were paired for that specific stage.

READ THESE INSTRUCTIONS CAREFULLY: DO NOT HESITATE TO ASK FOR EXPLANATIONS IF YOU FIND THEM UNCLEAR.

The lotteries

The table that will appear shortly on your screen asks you to choose between a "X" and a "Y" option for ten different choices. Please indicate your decision for each of the ten options.

The payment stage

Welcome to the payment stage! We remind you that you earn a 2 Euro participation fee.

1) Payment for the Dictator Game: You earn 200 tokens less the amount of tokens sent to the B player.
2) Payment for the lotteries: your screen will display the table summing up your ten choices. Now the computer randomly selects one of the ten choices and then the card will be turned up and you will be paid accordingly.
3) Payment for the Trust Game: your screen will display the table summing up your twenty decisions and the twenty decisions taken by the specific B player to whom you were paired for that specific period. Now the computer randomly selects one of the twenty decisions and you will be paid accordingly.

***Appendix**

Click here to download Appendix: APPENDIX A.docx