

Seminar 7 - Trust & Altruism

1) Describe the typical trust game and find the Nash equilibrium.

The trust game is also known as the investment game due to the multiplication factor on the transfer. The amount sent back can be regarded to be the returns from investment.

Game: Sender/Investor chooses an amount X to send out of his endowment. The amount is tripled and the Receiver/Trustee receives $3X$. The Receiver/Trustee then decides how much out of $3X$ to return.

NE: Both play 0. In the second stage sub-game, rationally the trustee will return 0. Knowing this, the Investor should not invest anything.

2) What is the typical empirical evidence from a trust game in a laboratory?

In lab investors/trustor usually transfer non-zero amounts and typically trustees transfer back some money. Usually they send back less than what they received from the trustor. In repeated framework still get people trusting and being trustworthy.

Meta data analysis: amount sent 45-50%, proportion sent back 37%. Typically, the former measure is treated as trust (the willingness to put oneself in a risky interaction because of the belief that others are trustworthy); the latter is regarded as trustworthiness or reciprocity (the willingness to return helpful actions shown by others). This holds even in a one-shot setting, and this is typically related to generalised trust/trustworthiness which is measured in the WVS for example; there are general beliefs about the trustworthiness tendencies of individuals in society.

See: Trust Games, A meta-analysis (Johnson and Mislin 2011)

3) Describe the typical gift-exchange game and find the Nash equilibrium.

Gift –exchange game from Fehr et al. (1993):

The general set up of the experiment represents a labour market where employers compete in the labour market by posting jobs/wages and where workers' effort on hiring cannot be contracted.

Two stage game:

I. One-sided oral auction

- Employers make wage proposals, but cannot choose the worker with which they trade
- If a worker accepts offered wage (p), a binding contract is set up and the two players' involved actions for this stage are terminated
- If p is not accepted, the employer is free to change the bid, but it needs to be higher than the previous highest bid not accepted.
- After 3 minutes the market is closed and those involved that didn't succeed in trading earn zero profits for this period

II. Workers anonymously choose their work effort

Worker's Payoff: $U_j = p_j - c - m(e_j)$

Where $m(e_j)$ is the monetary cost in effort for the workers given by:

| | | | | | | | | | | |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| e | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
| $m(e)$ | 0 | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 15 | 18 |

And c is the monetary cost of providing unit of labour time (i.e. got employed). Notice that the cost of effort is convex here as is usually assumed in standard economic theory.

Note that this is an example of an *induced cost* experiment. The benefits are that it fixes the benefits and costs of effort for different individuals, thus reducing noise. On the other hand, one might think that it is not realistic (as it is too direct?) and does not capture realistically elements of actual work. This reflects the issue of induced vs real effort experiments and there are some papers on this.

The choice of the kind of design one chooses might depend on the issue of being studied. For example, effort may be motivated extrinsically and intrinsically: an induced effort game would not be suitable to capture this as inherently it involves only the choosing of a number which does not have some intrinsic value compared to completing an actual task.

Employer payoff: $\pi_i = (v - p_i)e_i$

The value v corresponds to the number of units of output produced from one unit of effort e_i and sold for the price of 1.

In experiment fixed: $v = 126, c = 26$.

For NE: Since the effort is costly and cannot be punished if low, workers have no monetary incentive to choose any $e > 0.1 = e_{\min}$. Rational employers should realise this and at the same time realise that at $e = 0.1$, the opportunity cost of workers accepting a job is $c = 26$. Wage offers were only available in multiples of 5, hence under these conditions the competitive equilibrium wage would be for $p = 30$. That is, NE: $p = 30, e = 0.1$.

In a sense, the gift exchange captures issues similar to that of the trust game (just that it is framed differently). The payment of a wage above the NE level is a show of trust that the employer has in the worker while the effort the worker puts in demonstrates their trustworthiness/reciprocity. The difference is that the workers' set of effort choices does not depend on the wage that is given: they are thus like 2 independent gifts: hence the term gift exchange.

4) Briefly analyse the two main results from the gift-exchange game paper of Fehr, Kirchsteiger and Riedl (1993).

Fehr et al. (1993):

Hypothesis **I**: The effort level is increasing in the wage

Hypothesis **II**: Wages to be above market clearing wage should not converge to clearing wage after repetition. **To test whether there are indeed persistent reciprocal expectations over time given a fair wage.**

Hypothesis **III**: Average effort per period will be above e_{min} .

Results:

- Hypothesis **I**: Effort is found to be increasing with wage offers (see figure 1 in slide 11).
- Hypothesis **II**: (see slide 14) Average relative overpayment (r), never converges to 0 indicating that wage offers do not fall down to the market clearing wage with repetition.
- Hypothesis **III**: Effort remains greater than the NE prediction even with repetition.

Idea: is there an efficiency wage? E.g. In order to raise effort by workers, employers pay higher wages and indeed this is reciprocated by workers. Positive evidence would illustrate that people behave unlike that predicted from standard rational theory. The proposed mechanism is that offering higher “fair” wages to people induces them to reciprocate to this by choosing a quality which is in line with this “fairness”.

Furthermore, the conditions of the experiment may also hint at where this is important: jobs where monitoring and thus contracting is not easy (non-factory line work?).

Here the scenario was a one-sided market, where only employers played a role in the market, workers cannot actually compete for jobs. Perhaps if workers are able to compete, these fairness notions might change? In Fehr and Falk 1999, they utilise double auctions such that workers are also allowed to bid for jobs by stating a wage level they wish to work at. If fairness perceptions disappear, one might expect that, excess unemployed workers will bring down wages to equilibrium levels (over time) by undercutting the wages of employed workers (since they want a job). But results show that firms are reluctant to do so because these workers provide less effort and are less profitable, so fairness notions do seem to persist.

On the other hand, being employed (despite undercutting by others) might increase worker’s perception of what would be a fair effort to reciprocate with. An interesting comparison would thus be to compare elasticity of labour (how effort changes with the agreed wage) in the one-sided market with the double-sided market with similar parameters (I am not sure if this has been done before). This might give a clearer indication of how competition amongst job-seekers influences fairness/reciprocal norms.

Thus, we have that in both cases that fairness perceptions and reciprocity are important in determining wages in labour markets with incomplete contracts.

This has a wider range of implications ranging from micro to macro: wage rigidity, wage setting in organisations etc.

5) Briefly define other regarding preference, trust and reciprocity and analyze why there might be confounding in a typical trust game.

Other-Regarding Preferences /Social Preferences /Distributional Preferences:

These are the types of preferences revealed when individuals sacrifice their own payoffs to increase payoffs of others, and this is done with no reciprocity (**I think he means desire for reciprocity**) or strategic behaviours. One can define these types of preferences as “ways that people’s utility depend directly on the well-being, motives and beliefs of others”

Note: that distributional preferences seem to be more concerned with payoffs rather than how these payoffs come about (motives/beliefs).

Trust: belief that someone or something is reliable, good, honest, effective (from Merriam- Webster Dictionary)

Reciprocity: a situation or relationship in which two people or groups agree to do something similar for each other, to allow each other to have the same rights, etc. : a reciprocal arrangement or relationship (from Merriam-Webster Dictionary).

In my opinion, the definitions of trust and reciprocity are supposed to be less dependent on payoffs of others and instead associated more with the intentions/beliefs of others (trust: belief that others are trustworthy; reciprocity: repaying the perceived actions/kindness of others).

Confounds:

Remember, the amount sent is often interpreted as trust, while the amount sent back is interpreted as reciprocity (as defined above). But are these the only motives? If not, then we are not getting an accurate measure? The problem is that (other) aspects of social preferences may overlap with that of trust and reciprocity:

In the trust game:

Player 1 could be sending money through because she trusts Player 2, but at the same time it could be because she is altruistic and cares about increases Player’s 2 payoff. Typically, Player 2 has an endowment of 0, this means that Player 1 could be giving to Player 2 due to concerns about his low wealth (other-regarding; could be inequality aversion / altruism, we are agnostic to its source). By equalising the endowments, these direct altruistic effects may be reduced. Then, Player 1 may instead give due to a combination of altruistic and efficiency concerns.

Similarly, Player 2 could be sending money back because of reciprocity considerations, but also the rationale could be coming from altruism/inequality aversion (i.e. other-regarding preferences).

Essentially the trust game cannot separate between reciprocity, trust and other-regarding preferences or altruism.

6) Discuss how Cox (2004) managed to identify the effect of trust/reciprocity and altruism.

Cox (2004) recognises the confounding present in conclusions drawn from the trust game. To separate the two effects a three-game experiment is utilised.

Treatment A:

Each individual in the first mover group is endowed with \$10 and given the choice of transferring to their paired individual none, some or all of her \$10. Anything transferred is tripled by the experimenter and then each second mover individual is given the opportunity to return some, all or none of the tripled money received. **This is the standard trust game with the second mover having \$10 as well.**

Treatment B:

A dictator game where second mover individuals have no decision to make; hence no opportunity to return any transfers back. **This thus removes the trust element from the equation.**

Treatment C:

Now first movers have no decision to make. Second movers receive an endowment of \$10 and first movers receive an endowment equal to the amount kept by first movers in treatment A. The second movers additionally receive the equivalent amounts received by second movers in treatment A. A table informed subjects of the inverse relationship between the amounts endowed for first and second mover groups. Subjects are not aware though how these endowments depend on decisions made in treatment A to avoid indirect reciprocity.

Issues?

This implies that Treatment C is run after Treatment A. This means that individuals in Treatment C are treated as if they are exactly equivalent to those in Treatment A; note that this might mean that their sample size may not have been sufficient: given that the endowments shown to them are almost like a treatment themselves, this might involve a lot of noise (For treatment A to be equivalent to treatment C, the types of players who receive an amount Y need to be the same). Supposedly they could/should have done this multiple times in Treatment C (e.g. within individual treatment).

Discriminating trust or reciprocity and other-regarding preferences:

Since in treatment B second movers have no decision to make, the transfers made by first movers have no trust motivation and are purely a result of other-regarding preferences. Thus, the difference between transfers in treatment A and B can shed light on the level of transfers motivated by trust.

In treatment C, first movers cannot send any money to second movers, hence transfers back cannot be motivated by positive reciprocity (**i.e. the desire to repay others positive intentions**). Therefore, the difference between money transfers from second movers in treatments C and A can shed light on the level of positive reciprocity motivations.

Results:

In treatment A they find some participants playing the subgame perfect equilibrium of no transfers but generally they find money transferred from first movers and money returned by second movers.

In treatment B 19 out of the 30 first movers send positive amounts indicating evidence of unconditional other-regarding preferences. Mean transfers in Tr. A are 5.97 and in Tr. B are 3.63 which is significant difference ($p=0.010$) hence indicating that subjects did exhibit trust when playing the trust game.

In treatment C, 13 out of 32 second movers 'returned' positive amounts indicating evidence of other-regarding preferences.

Mean return transfers in Tr. A were 4.94 and in Tr. C were 2.06 which is a significant difference ($p=0.018$), hence indicating that subjects did exhibit positive reciprocity when playing the trust game. This is also confirmed by the Tobit regression presented in Table 1 of the paper.

Additional comments:

While the results above demonstrate trust and reciprocity is important in that beliefs and intentions may matter, it does not provide the exact mechanism behind them. Current research has looked at the role of kindness intentions, guilt aversion as a possible motivator for reciprocity.