Alexander Tatarko

TRUST, COOPERATIVE BEHAVIOR AND ECONOMIC SUCCESS: WHEN TRUST IS THE CAPITAL OF THE PERSON?

BASIC RESEARCH PROGRAM

WORKING PAPERS

Alexander Tatarko[1]

TRUST, COOPERATIVE BEHAVIOR AND ECONOMIC SUCCESS: WHEN TRUST IS THE CAPITAL OF THE PERSON?[2]

This article presents the results of study dedicated to the interrelation of trust, cooperative behavior and the size of the winning prize in the multi-way decision modified prisoners' dilemma. The experiment was organized using a specially designed computer program. The study involved six groups of participants and each group consisted of 7 players. The experiment consisted of a series of 15 rounds and included preliminary and final testing. The study found that cooperative behavior within the members in the group had fallen during 11 rounds, but there was a tendency to improve it. The trust level of an individual and his/her choice of cooperative strategy in the first series of the experiment are interrelated. Generalized trust is a rather stable construct, but it does not remain unchanged with an actual reduction of cooperative behavior.

Key words**:** trust, cooperative behavior, prisoners' dilemma, economic psychology.
JEL Classification: D03.

Introduction

Trust has been studied across several disciplines, including economics (Williamson, 1993), sociology (Gambetta, 1988), and psychology (Rotter, 1971). Trust is the willingness to accept vulnerability based upon positive expectations about another's behavior (Dunn, Maurice, 2005 p. 736).

Currently, in economic psychology and behavioral economics there are quite a few studies documenting the importance of trust in a social environment for the development of the economy as a whole and for the formation of productive economic behavior of people (Helliwell & Putnam, 1995 Knack & Keefer, 1997; Putnam, 2001, Fukuyama, 2002; Woolcock, 1998; Westlund & Adam, 2010). In this case, trust is quite an important psychological factor, without which it is impossible, if talking extensively, to built relationships between people. Trust between people is important in family, friendships, at work, in politics, in the economy. The last of these areas is the focus here.

However, in addition to the trust (as a component of social capital), the other factors of development are *competition* and *rivalry*. Separate individual competition can, for a limited period of time, bring more success than cooperation can.

There are experimental studies that examine the conditions under which trust reduces or increases (Johnson & Mislin, 2011). However, there are quite a few studies that have examined how trust can predict the cooperative orientation of personality (Yamagishi, 1986). Especially, there are no studies showing how much benefit people who adhere to the cooperative orientation. The ability to trust is a great art. People respond to the trust, which helps to establish and maintain relationships, but if a person makes a mistake trusting another, it may cost him/her more. Therefore it is important to distinguish between trust and trustfulness. Credibility requires analysis, understanding relationships, experience, wisdom, trust, and hence it can be seen as a form of a person's social capital.

Research dedicated to the effect of trust on the economy and economic behavior are performed both at the macro (societal) level and at micro (individual) level, studying the impact of trust and social capital on specific types of economic behavior.

Among the studies on the role of trust for the economic development of society, the most cited is the study is Knack and Keefer's article (Knack & Keefer, 1997) demonstrating the correlation of generalized trust with GDP growth in 29 countries from 1980 to 1992. In addition, a positive relation between level of trust and the growth of income was found for 44 states of the USA from 1990 to 2000 (Westlund & Adam, 2010). A high level of trust is related to the efficiency of the judicial system, a higher quality of government institutions, a low level of corruption, and a high level of development in the financial sectors of society (La Porta et al., 1997). Trust in society is important for its development.

Trust can affect the economic behavior of the people. The level of trust is related to investment and financial behavior. In particular, it was demonstrated that in the regions of Italy with a high level of social trust, people more readily invest in stocks, have access to institutional credit and to a lesser extent enjoy informal loans (Healy et al. 2001). The financial behavior of people who have moved from one region to another is to a greater extent determined by the level of trust in the environment they moved to, not where they came from (Healy et al. 2001). Trust is due to the fact that people are beginning to more actively use credit (Knack & Keefer, 1997). The presence of high social capital in society, in particular trust, creates the conditions for the development of entrepreneurship. It is easier to build a network of interaction based on a high level of trust in business, which increases their success and the development of the economy as a whole. In that

way, trust is the most important factor in the economy, economic behavior, the quality of the business environment in a country and business processes in organizations.

In economic psychology and behavioral economics, trust in economic decision-making is studied experimentally by means of games, which are models of real-life situations. The application of games has revealed a number of factors affecting, in varying degrees, the credibility of a partner in the game. The most popular method is the study of human behavior in terms of social dilemmas. A social dilemma is a situation in which *(a)* each person who takes the decision has a dominant strategy of non-cooperation (the option that provides the maximum gain, regardless of the choice of others), and *(b)* if all choose this dominant strategy, all receive less than they would in the case of their co-operation (Daws, 1980).

In the theory of social capital (Putnam, 1993), generalized trust is regarded as one of the types of capital resources of a group or society (Putnam, 2001), as it reduces transaction costs, makes interaction easier and faster, and facilitates the exchange of information and knowledge. The theory of social capital predicts the increased success of the group or organization in which people trust each other (Nahapiet & Ghoshal, 1998). Can one transfer this logic to an individual level? On the one hand, we may assume that people who trust others and adhere to a cooperative orientation will receive increased financial benefits, as the surrounding people seeing their cooperative orientation would also endeavor to cooperate with them. Relying on these considerations, we propose the hypothesis:

Hypothesis 1: The higher is the trust level, the higher the financial gain in the prisoners' dilemma.

Nonetheless, the reverse outcome is possible as well—if a person holds a competitive strategy, he or she will enjoy the trust of others, and as a result, people who hold a cooperative strategy would lose more.

When a person takes a decision to trust or not to trust a partner, he or she finds himself in a social dilemma. Research of trust by the method of social dilemmas has a long tradition (see Johnson & Mislin, 2011; Yamagishi, 1986). Experiments have shown that the selfish preferences model, which suggests that people are only concerned about their material benefits, cannot explain all of the subjects in these experiments, when they are faced with medium resolution cooperation, coordination, negotiation and trust (Camerer, 2003). The results claim that the basic thesis of purely selfish preferences of the person who was the foundation for a variety of economic models trying to explore social interaction does not fully explain them (Fehr & Fischbacher, 2002).

Nonetheless, trust cannot be regarded as an irrational behavior. A person consciously chooses trust in order to establish a relationship with his/her partner and make them more predictable. That is, trust and cooperativeness may be more advantageous from an economic point of view, than self-interested behaviour, especially in the long term.

In the social sciences, there are two basic understanding of trust. The first assumes that trust depends on the information and experience. Yamagashi (Yamagishi & Yamagishi, 1994) calls it 'knowledge-based trust'. For instance, if two people know each other, they can reach an agreement and cooperate for their common welfare. In other words, trust is a result of the experience of the previous interaction with a specific person. The second type is moralistic trust (Uslaner, 2001). The basic idea behind moralistic trust is the belief that most people share your fundamental moral values and therefore they can be trusted a priori. Moralistic trust is based on an optimistic view of the

world. However, there is a variety of feedback and information from others positive and negative. Our values (and therefore moralistic trust) cannot be changed easily. This is what distinguishes moralistic trust from knowledge-based trust: the latter fluctuates, although it is relatively stable; moralistic trust is a stronger value (Uslaner, 2002). Accordingly, we assume that the generalized trust of the subjects at the end of the experiment has not changed.

Hypothesis 2: The level of generalized trust is a relatively stable characteristic of the person.

Most researchers studying the formation of trust and cooperation in simple games of choice argue that the players make the first cooperative move, and then begin to imitate the moves of another player (Axelrod, 1984). Researchers believe that the willingness to trust other people is one of the factors promoting cooperation (Dirks & Ferrin, 2001). Some studies have shown that there is indeed a relationship between cooperative behavior and generalized individual trust (Yamagishi, 1986). Based on these studies we propose the following hypotheses:

Hypothesis 3: A cooperative strategy in the first round of the prisoners' dilemma is related to the generalized trust of the person.

Hypothesis 4: The total number of cooperative moves is related to generalized trust of the person.

In the present study, cooperative behavior was studied using a modified prisoners' dilemma (Yamagishi et. al., 2008). Classic version of a prisoner's dilemma is as follows: 2 players (prisoners) have 2 options per move each (cooperate or defect) (Table 1). They move independently, i.e. they have no knowledge of the other's move. Values of the variables representing the move may be of any sign, however, the inequality $D>C>d>c$ should be observed.

If the number of rounds of the game is greater than 1, the total gain from cooperation is greater in total than the payoff when the other one cooperate, that is $2C> D + c$. Thus, the individually the most profitable strategy is "defect", however, if both players choose it, they lose more than if they had decided to cooperate. The strategy players choose depends on the degree of trust—both basic and mutual.

Table 1. Classical Prisoners' Dilemma

P ╲ Player 2 / Player 1	Cooperate	Defect
Cooperate	C (5); C(5)	c (1), D (10)
Defect	D (10); c (1)	d (2); d(2)

In our study, we use a modified version of the multiplayer repeated prisoners' dilemma (see Table 2).

Our version of the game differs from the classical version by the following.

1)	The benefit from the "red" move is 4 times greater than the gain from cooperation (black). The loss from the "red" move was 4 times less and could compensate for the next move, if the player is faced with a countermove. This benefit of the "red" move at low probability of loss as it provokes people with low trust, or non-cooperative behaviour, to the use their red chips if they do not think about maintaining an atmosphere of cooperation in the group. Using this strategy allows them to win in the short term but in the long term, this strategy leads to mistrust and having lost trust the player begins to lose money. Thus, people with initially low levels of trust may benefit in the short term, but start to lose thereafter. This modification allows us to test hypotheses 1 and 2.

2)	Besides the options of "cooperation" (black) and "defection" (red) we introduce another move - "safety". To implement this, a player chose a white chip. "White" move did not bring anything to the player himself/himself. Player who moves toward with red got 100 rubles by such a combination. The player who played black got 10 rubles. Thus, the "white" move is an additional opportunity for the players, the so-called "defensive" strategy, in which the player has nothing to lose and can completely protect themselves from losses and risks. Such an option allows revealing the progress of players that are not configured neither for co-operation nor the rivalry. This introduction is a completely new option not used anywhere earlier in the game theory. Statistically, this innovation has allowed creating 3-point rating scale of trust: −1 (red move, mistrust and rivalry), 0 (white move, distrust with no competition), 1 (back move, trust and co-operation).

Hence, the move of the white chip allows players to implement a strategy that is intermediate between trust and distrust.

Table 2. Modified Prisoner's Dilemma

P ⟍ Player 2 Player1	**Black**	**Red**	**White**
Black	50, 50	−50, 200	10, 0
Red	200, −50	−50, −50	100, 0
White	0, 10	0, 100	0, 0

In the experiment, we used a multi-user version of the prisoner's dilemma, i.e., players were not two, but five.

Method

1. Participants

The participants were students of 2, 3rd, and 4th years from different faculties of the Higher School of Economics. 6 groups of participants took part in the experiment. Each experimental group contained 7 people.

2. Material

Participants were offered a specially designed computer game in which they play using different colors. The color indicates the degree of risk to which the subject is ready to take. The subject wins with the riskiest move, if the opponents in turn use the highest degree of risk. If the opponent makes a counter move with a color that characterizes a lesser risk, the first player loses, and the second one wins. Depending on the color the opponents plays, the subject makes a profit or a loss. It means that different color combinations entail certain changes in the balance of subjects. For instance, the combination of red-red gives a loss of 100 RUB for each partner, a combination of white-red makes a profit of 50 RUB for the subject who played red, and 0 RUB to the subject who played white. In combinations of white-white the balance of both subjects does not change. The game also used different colors to indicate different combinations of the level of trust that will lead to a corresponding change in the balance of players. The subjects do not know in advance what color will use their opponents to move, i.e. when deciding whether they should rely on their own inner feelings only and as members of the group do not know each other, how much they trust each other. The status of their balance and the colors of their partners in the game are displayed on the screen.

The experimental game has two conditions:

1. The entire game takes place nonverbally. It means that parties may not confer, agree or consult with each other or anyone else.
2. The moves of their partners in the game are unknown in advance. The results of the moves are displayed on the screen only after all participants have played. That is, the sources of decision-making for the subjects are now their own internal norms, thoughts, impressions and initial level of trust in people in general.

3. Procedure

The experiment was conducted using IBM-compatible computers. A special computer web-system was used called 'Dilemma' Automated Information System ("Dilemma" AIS). All computers of the players are connected with the experimenter via the same LAN. Preliminarily each subject received his/her nickname and password to login to the system. Using nicknames for players led to anonymity and allowing the subjects to make decisions more freely.

First of all, the subjects responded to 12 statements designed to assess their generalized trust. Sample statements were: "Most people can be trusted," "I think my work (study) colleagues always act honestly with others", "I agree that, whenever you need it, you can get help from your peers (colleagues at work or classmates)." Cronbach's alpha of the trust scale is 0,84.

After filling out the questionnaire subjects received instructions: "*Please, imagine that your start-up capital is 200 RUB, and you'll have to earn as much money as possible within minimum time. For your capital to grow you make moves to the other participants in return. Every move is made using chips of various colors: white, black or red. You will be given no more than 60 seconds to decide which chips to use. After that, you lose the ability to make a move. If you do not have time to make a move, you will lose 20 RUB. Depending on how your opponents react, your balance will change. Below you can get learn how your opponents status changes subject to the color combinations of chips after you and your opponent have both played:*

1. White white: 0 RUB each.
2. White black: white 0 RUB; black +10 RUB
3. White red: white 0 RUB; red +100 RUB
4. Black red: black -50 RUB; red +200 RUB
5. Black black: + 50 RUB each
6. Red red: -50 RUB each

An important rule of the game is that all decisions are taken individually, one must not consult with the other members".

These rules apply to each pair of players. During the game, each participant plays simultaneously with six other partners. Information about the opponents moves appears on each player's screen after the end of each round. The players do not have the possibility to analyze all the information from the previous round.

The game has 15 rounds. The moderator of the game was an experimenter, who fixed the times of the move for each round.
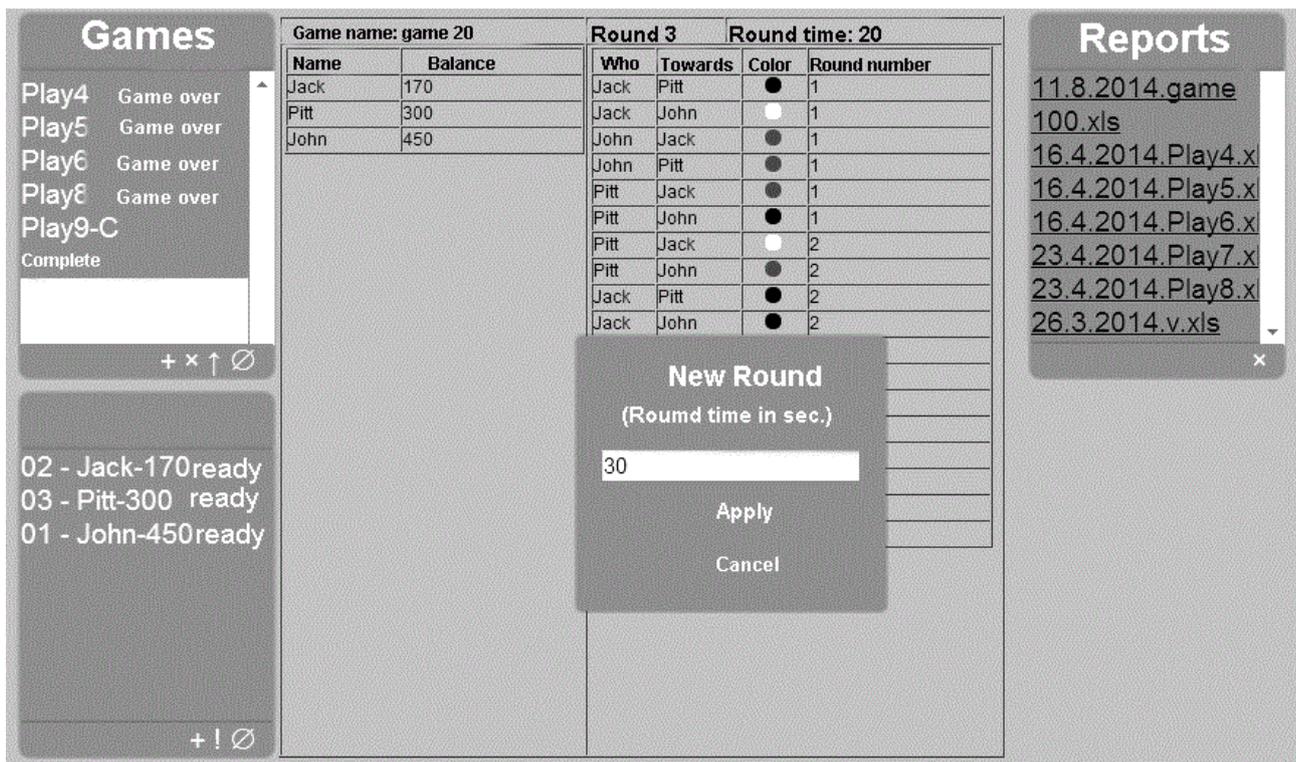

Fig.1. Experimenter's Interface

The experimenter was able to see all the moves of the subjects and their balance sheets (Figure 1). The experimenter, by adjusting the duration of the move of the game, enables subjects to familiarize themselves with the interface at the beginning of the game, and by reducing the running time, excludes the possibility of analyzing how other participants played. The task of the experimenter was to maximum the extent to which participants to rely on their inner feelings, the initial level of trust and psychological characteristics of the individual, minimizing the role of rational calculation. Player interface appears in Figure 2. The left side of the display is the game

play and the previous round. The right side of the display shows the balance and a reminder of the scoring of the game. In this example, the game involves 3 players: Jack, John and Pitt. Figure 2 shows Jack's interface: the two other players are seen, and under each 3 coloured chips which are played by clicking on the circle corresponding to the colour. After each subject has played, the color of the chips is represented under the name of a partner in the game, according to his/her move, as well as those changes in the balance which resulted from the combination of moves.
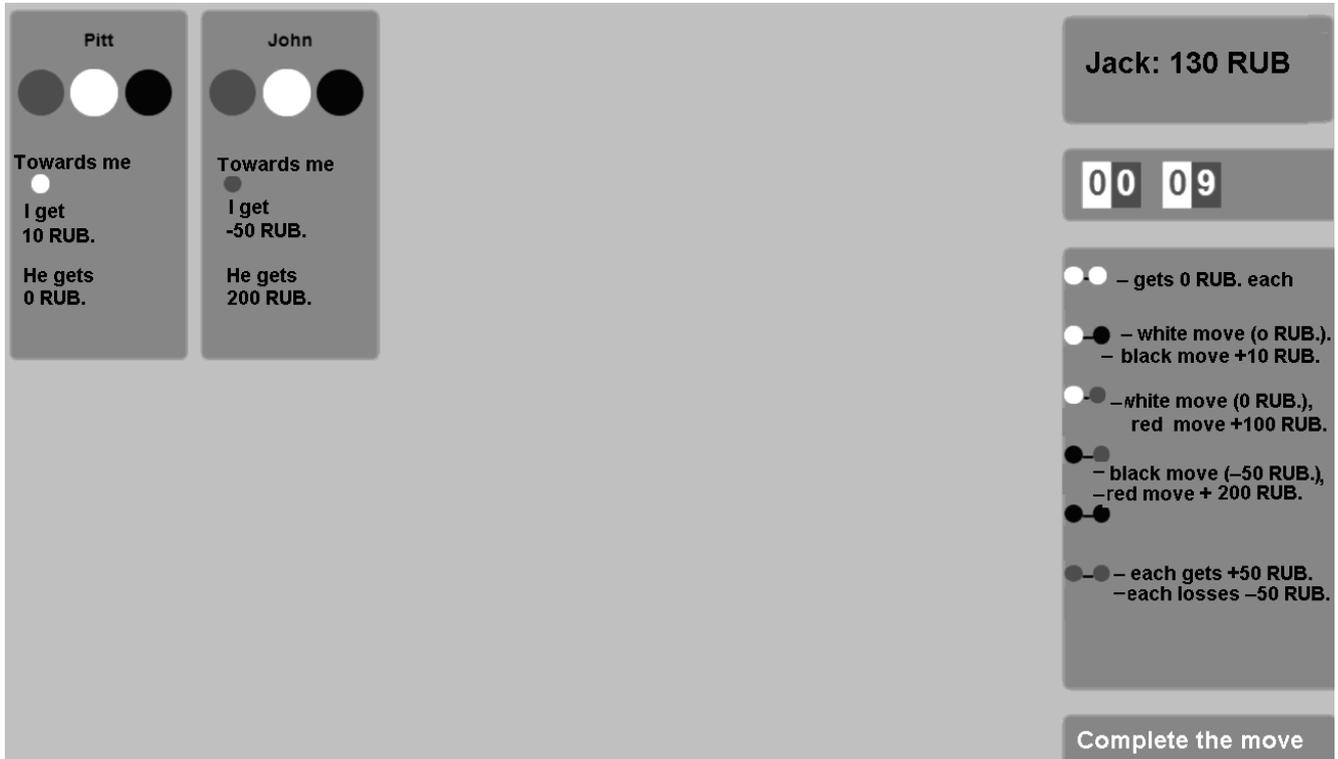
Fig. 2. Participant's Interface

In accordance with the rules of experimental ethics, when the experiment finished, the subjects told the details and purpose of the study. The subjects were also paid for their participation in the game; the payment was proportional to their winnings.

Results

When processing, a cooperative move (black) was coded as "1". A defensive move, showing a lack of trust and protection (white), was coded as "0". A move showing the distrust (red) was coded as "-1". As noted, the game consisted of 15 rounds and in the processing of data the sum of six moves was calculated in each round (each player had six opponents). Therefore, the magnitude of each of the test values within each round could vary from 6 (in the case of all moves made in black) to −6 (in the case of all moves being in red). In line with this, the degree of cooperative behavior and trust in the other members of the test group was estimated.

Before data processing, the following values were calculated: a) the total value of moves made by each subject in each round; b) the total value for each round in all subjects. This allowed us to track which cooperative or non-cooperative strategies were dominant for each subject, and the tendency to change strategies throughout the game. Figure 3 shows the dynamic strategies selected by the participants.
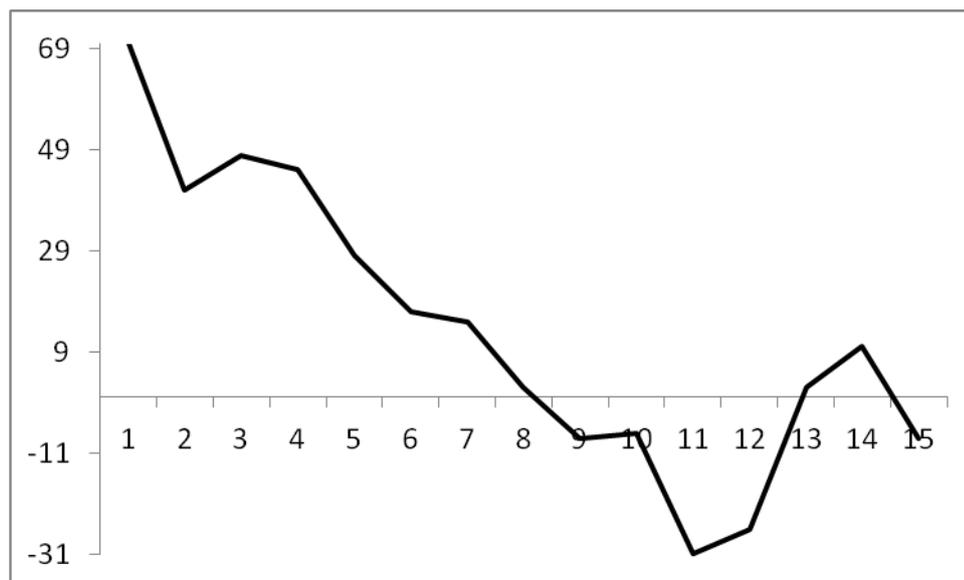
Fig. 3. The Dynamics of Cooperative Strategies of the Participants

Values shown in the graph (Fig. 3) represent the total number of moves by the subjects in each round of the game. Based on the total value, we can judge the degree of cooperatively of the selected strategies in each of the rounds. The graph shows that during the game there is a decline in the number of cooperative moves; nonetheless, by the end of the game, there is a change in this trend.

After calculating the sum characterizing the level of cooperativeness for each round of the game, the number of moves for all rounds for each subject for all games was calculated. This made it possible to evaluate which strategy was dominant, and to use this set of values for the correlation analysis. This analysis was used to test hypotheses 1 (Spearman's correlation coefficient was calculated). The results of the correlation analysis did not find a statistically significant linear relation between the amount of financial gain and the level of generalized trust of the test (Spearman's rho=-0,23; p=0,21; N=42). Therefore, the first hypothesis was not supported by the results.

We can conclude that trust is not related linearly and significantly with the size of financial gain under conditions that allow the subjects to choose a competitive or cooperative strategy. However a negative relation was found between the size of a prize and the total value of all the moves throughout the game (which can be interpreted on the basis of the method of coding the level of cooperative behavior), the correlation was high and statistically significant (Spearman's rho=-0,77; p<0,001; N=42).

In order to verify the second hypothesis, the level of generalized trust of the respondents was crosschecked both before the start of the experiment and after. To assess the significance of differences a nonparametric Wilcoxon-test was used. The results showed that a statistically significant shift occurred (Z=-2,4; p=0,02). Therefore, the second hypothesis was not supported by the results.

The relation of generalized trust and participant strategies used in the first round of the game (hypothesis 3) was evaluated using a correlation analysis. The relationship was found, but it was at the level of a trend (Spearman's rho=0,30; p=0,09; N=42). The third hypothesis can be accepted

with certain reservations. It is possible that the correlation could be higher and statistically significant with a larger sample.

To verify the fourth hypothesis the value of all the moves in all rounds of all the participants was calculated. We calculated the sum of codes of all moves by each participant, obtaining a cooperativeness value for each of the participants. After counting these values we evaluated their correlation with the level of generalized individual trust. A statistically significant correlation was not found (Spearman's rho=0,16; p=0,36; N=42), therefore the fourth hypothesis was not supported. We can conclude that during the game the participants were more focused on the current situation, rather than on their own internal values and beliefs. For their first move they rely on their internal representations of human nature, in this case, on their generalized trust.

Discussion

Initially, in a competitive environment most participants choose a cooperative strategy, but this preference start to drop, which is consistent with existing research (Axelrod, 1984; Dirks, Ferrin, 2001). In our study, this trend persisted until the 11th round when cooperative strategies started to be used. It is likely that participants in the experiment began to understand that the use of non-cooperative (red) or protective (white) strategies led them to losses and they little-by-little begin using a cooperative strategy. However, the use of cooperative strategies in a competitive environment is dangerous and only basic trust, allows individual participants to overcome their mistrust and take the risk of trying to implement cooperative behavioral strategies. Using the resource of trust at the individual level leads to the formation of trust at the group level, which further allows them on the basis of trust to achieve a greater success.

Despite the negative correlation between the size of a prize in the competition and the preference for a cooperative strategy, it is still the 11th round where the turning point occurs. Notably, the participants begin to realize that the non-cooperative strategy only leads to losses and gradually begin to change strategy.

The correlation analysis did not reveal a statistically significant linear correlation between the amount of financial gain and the level of generalized trust of the participants, although the existing studies found relatively high linear positive relationship between the level of trust in society and economic performance (Knack & Keefer, 1997). It is impossible, therefore, to directly extend the results obtained in studies using macro-level data to the behavior of individuals. Societies with more trust are also more successful in economic terms, but it is generally not true for individuals. It is also important to take into account characteristics of the society or group in which individual is present. Possibly, the absolute level of trust of the person is not important, but the compliance between the level of trust of the person and the average level of trust in the society or group. Again, it is not obvious that if people start to trust each other, they will constitute more successful, richer and happier society either individually or as a whole. However, it is possible that the correlation could be statistically significant if the sample size were increased. Individual trust with no clear benefit to the person, however, creates at a group or societal level a psychological atmosphere that allows all members of that group or society to be more successful and happy. Yet, to help this psychological atmosphere develop, everyone must adhere to the same norms or, figuratively speaking, "play by the same rules."

The experimental data allowed us to partially confirm the hypotheses. In general, the experimental results lead to the following concluding observations.

1.   In economic decision-making in groups of strangers, the level of trust and cooperation initially decreases gradually, but nevertheless, at some time, there is a turning point, and the group members begin to use cooperative strategies of behavior.

2   The trust level is not related significantly to the size of financial gain/benefit of the test or a focus on cooperation. The rate of winning depends on the manner in which a subject manipulates strategies of cooperation and competition in the game.

3.   The level of generalized trust is correlated with a focus on cooperation in the implementation of the first move. Participants with higher levels of generalized trust often prefer to start the game with the use of cooperative strategies. In other words, in a situation of uncertainty the test is based on their internal values and beliefs when deciding which strategy to choose.

4.   Trust of the person can be considered as his/her social capital only if all group members follow certain rules and, above all, the rule of reciprocity. Otherwise, trust in dealing with members of the group begins to fade rather quickly, meaning that a person ceases to use his/her psychological trust resource in his/her relationships with the members of the group.

References

Axelrod R. The Evolution of Cooperation. New York: Basic Books, 1984

Camerer, C. Behavioral game theory: Experiments in strategic interaction. Princeton University Press, 2003.

Dawes, R. M. Social dilemmas. Annual review of psychology. 31(1). 1980. P. 169-193.

Dirks K. T., Ferrin D. L. The role of trust in organizational settings. Organization science, 12(4), 2001 P. 450-467.

Dunn, J. R., & Schweitzer, M. E. (2005). Feeling and Believing: The Influence of Emotion on Trust. Journal of Personality and Social Psychology, 88(5), 736-748.

Fehr E., Fischbacher U. Why social preferences matter – the impact of non-selfish motives on competition, cooperation and incentives. The economic journal. 112(478). 2002. P. 1-33.

Fukuyama F. Social capital and development: The coming agenda // SAIS Review. 2002. V. 22. N 1. P. 23–37.

Gambetta, D. (1988). Can we trust ? In D. Gambetta (Ed.), Trust: Making and breaking cooperative relations (pp. 213–238). New York: Basil Blackwell.

Healy T., Côté S., Helliwell J., S Field S. The well-being of nations: The role of human and social capital. Paris: Organization for Economic Co-Operation and Development (OECD), 2001.

Helliwell J., Putnam R. Economic growth and social capital in Italy // Eastern Economic Journ. 1995. V 21. N 3. P. 295–307.

Johnson, N. D., Mislin, A. A. Trust games: A meta-analysis. Journal of Economic Psychology. 32(5). 2011 P. 865-889.

Johnson, N. D., Mislin, A. A. Trust games: A meta-analysis. Journal of Economic Psychology. 32 (5). 2011. P. 865-889.

Knack S., Keefer P. Does social capital have an economic payoff? A cross-country investigation // Quarterly Journal of Economics. 1997. V. 112 N 4. P. 1251–1288.

La Porta R., Lopez-de-Silanes F., Shleifer A., Vishny R.W. Trust in large organizations // American Economic Review 1997. V. 87 N 2. P. 333–338.

Nahapiet J., Ghoshal S. Social capital, intellectual capital, and the organizational advantage // Academy of Management Review. 1998. V. 23. N 2. P. 242–266.

Putnam R. Social capital: measurement and consequences // Canadian Journal of Policy Research. 2001. V. 2. N 1. P. 41–51.

Putnam R. Social capital: measurement and consequences // Canadian Journal of Policy Research. 2001. V. 2. N 1. P. 41–51.

Putnam R. Making democracy work: Civic Traditions in Modern Italy, Princeton, NJ: Princeton University Press, 1993.

Rotter, J. (1971). Generalized expectancies for interpersonal trust. American Psychologist, 26, 443–452.

Ssewamala F., Karimli L., Chang-Keun H., Ismayilova L. Social capital, savings and educational outcomes of orphaned adolescents in sub-Saharan Africa // Children and Youth Services Review. 2010. V. 32. N 12. P. 1704–1710.

Uslaner E. M. Volunteering and social capital: how trust and religion shape civic participation in the United States // Dekker P., Uslaner E. M. (ed.) Social capital and participation in everyday life. 2001. P. 104-117.

Uslaner E. M. The moral foundations of trust. Cambridge University Press, 2002.

Westlund H., Adam F. Social capital and economic performance: A meta-analysis of 65 studies // European planning studies. 2010. V.18. N 6. P. 893–919

Williams, S., & Voon, Y. W. W. (1999). The effects of mood on managerial risk perceptions: Exploring affect and the dimensions of risk. Journal of Social Psychology, 139, 268–287.

Woolcock M. Social capital and economic development: toward a theoretical synthesis and policy framework // Theory and Society. 1998. V. 27. N 2. P. 151–208.

Yamagishi T. The provision of a sanctioning system as a public good //Journal of Personality and social Psychology. 1986. 51. N. 1. P. 110-116.

Yamagishi T., Mifune N., Liu J. H., Pauling J. Exchanges of group-based favours: Ingroup bias in the prisoner's dilemma game with minimal groups in Japan and New Zealand. Asian Journal of Social Psychology. 11(3). 2008. P. 196-207.

Yamagishi, T., Yamagishi, M.   Trust and commitment in the United States and Japan. Motivation and emotion. 18(2). 1994. P.129-166.

Alexander Tatarko

National Research University Higher School of Economics (Moscow, Russia), associate professor, atatarko@hse.ru