

## MACHIAVELLIAN INDIVIDUALS' RECIPROCATION TEND TO BE SMALLER IN A TRUST GAME

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### ABSTRACT

*Machiavellianism is a combination of a behavioral strategy characterized by the tendency to manipulate and exploit others, and a worldview resting upon cynicism and opportunism. The aim of our study was to explore the extent to which highly Machiavellian people tend to trust others and reciprocate favors. To model everyday relationships, we used the so-called Trust Game: a two-person experimental situation in which participants took part with a stranger as a partner. Eighty university students participated in the study, and played for real money. Their inclination to Machiavellian behavior was measured by the Mach IV questionnaire. Our results showed that there was no significant difference in the deposits made by the first players between high and low Machs; as first players, high Machs tended to trust the other player to the same degree than low Mach participants. We also found that high Machs as second players are less likely than low Mach participants to reciprocate the favors of the other player. From the results, it might be inferred that Machiavellians make decisions in cold blood; they do not trust others and reciprocate rather moderately, regardless of the amount of money they have received from the partner.*

**Keywords:** Machiavellianism, Trust, Cooperation, Reciprocity, Social dilemma.

## INTRODUCTION

Mutual trust and returning favors are crucial preconditions for the subsistence of every society. However, free riders impose serious costs on cooperative individuals. The presence of free rider individuals within a group is likely to drive other group members to withhold their investments, which, in the long run, might cause the collapse of cooperativeness and the miscarriage of common goals (Fehr & Fischbacher, 2003; Gintis, Bowles, Boyd, & Fehr, 2007; Trivers, 1971).

One form of the free rider strategy is “Machiavellianism”. In their seminal work, Christie and Geis (1970) defined Machiavellianism as a behavioral strategy, or a certain type of worldview which involves the manipulation of others for selfish interests. Machiavellians are often suspicious and distrustful towards exchange partners, and sometimes they are not deterred from carrying out unethical, norm-violating or amoral acts (Fehr, Samsom, & Paulhus, 1992; Ináncsi, Láng, & Bereczkei, 2015). They might be best described as cold-blooded; their overall attitude and behavioral strategy is sometimes referred to as the “cool-syndrome” (Wastell & Booth, 2003), since they keep calm and act purposefully even in emotionally demanding situations (Wilson, Near & Miller, 1996; Gunnthorsdottir, McCabe, & Smith, 2002), very like because of their externally oriented thinking style (Jonason & Krause, 2013). Other studies have revealed that Machiavellians have reduced skills in regulating and expressing their emotions (Austin, Farrelly, Black, & Moore, 2007), and a tendency to low self-control (Jonason & Tost, 2010). They also possess a wide range of unique tactics of social influence (Jonason & Webster, 2012; Mesko, Lang, Andrea, Szijjarto, & Bereczkei, 2014). Furthermore, Machiavellianism was negatively associated with Agreeableness and Conscientiousness, and positively with Neuroticism on the Big Five scales (Jakobwitz & Egan, 2006).

The so-called social dilemma situations are especially suitable for studying both the Machiavellians’ characteristic behavior and the underlying motives of their actions. In such situations, hard decisions have to be made every time: should one act for the sake of one’s own good, or in favor of the group's interests? As individual and group interests usually overlap only moderately, these situations are necessarily stressful. Obviously, from the perspective of the individual, a decision based on an egoistic attitude has the highest payoff in the short-term; however, in the long run, cooperation would be the most beneficial for each group member (Liebrand, 1983; Barclay, 2004). In respect to the actions executed in social dilemma situations, mutual trust and reciprocity have a particularly important role.

For the success of social exchanges it is essential to trust others and to have the disposition to cooperate. We have to make a decision at the beginning of every interaction regarding whether or not to trust our partner. Researchers claim that a kind of intuitive engagement helps us prefer cooperation at this stage of the relationship (Kiyonari & Yamagishi, 2000). Ostrom and Walker (2003) define trust as a cognitive phenomenon: a kind of knowledge we have that the other person has a reason to be trustworthy. According to these authors, each confidential relationship involves someone who trusts, and another person in whom the trust is placed, that is, someone who is motivated to be trustworthy.

In evolutionary terms, reciprocity is advantageous for the individual's fitness, since if cooperation is mutually beneficial for the partners, then both can increase their chance to survive and reproduce (Cosmides & Tooby 1992; Trivers, 1971). Hence, it is worth being unselfish during interactions with non-kin, but only if it can be guaranteed that the investment will be returned in a later transaction, and the advantages obtained from the reciprocity exceed the amount of the invested energy (Kurzban, 2003). According to Gouldner (1960), there are unwritten rules based on common knowledge which motivate us to help those who helped us previously, and at the same time relieve us of the responsibility of reciprocation if we are aware that our partner refused to return the favor. This is the norm of reciprocity which guides us in the complex system of everyday exchange relationships. Though age, educational and socio-economic background have an influence on norm enforcement, it seems that the prevalence of reciprocity is universal (Gächter & Herrmann, 2009), supporting the notion of an evolved basis.

Gunthorsdottir et al. (2002) studied the decisions of Machiavellian individuals made in social dilemma situations. They found that, as second players in the Trust Game, they reciprocated less frequently, that is they were less likely to return a portion from the money they had received from their partner. In contrast, there was no difference between high Mach and low Mach participants regarding the offers made as first players. However, the authors did not give an explanation that could be supported empirically. In general, former studies have not analyzed the personality structure of the participants of the social dilemma situations, yet they had the potential to clarify the causes underlying the Machiavellians' decisions. Furthermore, these studies did not investigate whether Machiavellians were more successful, that is whether at the end of the game they disposed of more money than the others.

These issues led us to make the following predictions for the current study:

*Prediction 1:* There is no difference between the offers as first players in the Trust Game made by the participants with high and low scores on the Mach IV test.

*Prediction 2:* Participants with high Mach-scores show less reciprocity – they return less as second players – than those with low Mach-scores.

*Prediction 3:* A negative correlation is expected between Machiavellianism and the Aggression-Hostility variables. This assumption is based on former studies which depicted Machiavellians as emotionally “cold” individuals who act calmly in demanding situations, and make their decisions on cognitive, and not on emotional grounds (Christie & Geis, 1970; Wastell & Booth, 2003).

*Prediction 4:* Machiavellian individuals are less sociable; hence we expect a negative correlation between the Machiavellianism and Sociability variables. This assumption is in accord with former results showing that Machiavellians are less open for relationships with others and they have less need for social contacts (Christie & Geis, 1970; Fehr et al., 1992; Wilson et al., 1996).

*Prediction 5:* Machiavellian individuals are success-oriented; their behavior is motivated by the effort to maximize their own payoff (Czibor & Bereczkei, 2012; Jones & Paulhus, 1992, 2009; Wilson et al., 1996). Accordingly, we expect a positive correlation between the level of Machiavellianism and the profit they gain at the end of the game.

## **METHODS**

### ***Participants***

In our study, 116 university students (64 males and 52 females) between 18 and 32 years of age ( $M = 22.31$ ,  $SD = 2.90$ ) participated, all of them studying in various faculties of the same university. The subjects volunteered to participate in the experiment and received financial remuneration. To enhance the reality of the social dilemmas modeled in the experiment, the amount earned during the game was paid to them.

### ***Trust Game***

The Trust Game is an experimental game designed to study various phenomena occurring during social interactions – such as trust and reciprocity – suitable to be measured and modeled under experimental circumstances (Berg, McCabe & Dickhaut, 1994). The classic form of the Trust Game is designed for two participants who do not get into personal contact except with the help of computer software. The game usually consists of one round. The realism of the game was secured by promising the participants that the amount earned during the game would be paid in real money.

In the first step, Player A is given 1000 HUF (approximately \$4) by the experiment leader in virtual form. Then he can decide whether to give a certain amount to his partner (Player B), varying from paying nothing to remitting the full amount. The amount deposited by Player A is doubled by the computer and is then transferred to Player B. Subsequently, it is Player B's turn to decide whether to return any portion of the doubled sum to Player B. In this experimental game, the strategy of Player A is based on trust, while the strategy of Player B is based on reciprocity. At the end of the game, the players can take home the money they have obtained.

### ***Questionnaires***

#### *MACH IV scale*

The Mach IV questionnaire, developed by Christie and Geis (1970), was used to measure Machiavellianism. The test contains 20 items, and agreement or disagreement with each of them is indicated by the subjects on a seven-point Likert-scale. The total score is calculated by summing up the values marked for each item. Ten statements are added to the total score without any change, while 10 statements are calculated inversely. The minimum score is 40, and the maximum score is 160. As defined by Christie and Geis (1970), a score below 80 means low Machiavellianism, a score between 80 and 120 indicates average Machiavellianism, and a score above 120 shows a high level of Machiavellianism.

#### *Zuckerman-Kuhlman Personality Questionnaire (ZKPQ)*

The first version of the ZKPQ was created by Zuckerman and Kuhlman in 1991. The final version (ZKPQ-III-R) consists of 89 items, and 10 additional items serve to filter out negligent or false answers. The true-or-false statements of the questionnaire are designed to reveal five main personality factors as follows (<http://grupsderecerca.uab.cat/zkpq/en/content/scales-0>):

**Activity(Act):** This scale is divided into two subscales: General Activity describes the need for general activity, that is an inability to relax and do nothing when the opportunity arises; and Work Effort, which refers to a preference for hard and challenging work, an active, busy life and a high energy level.

**Aggression-Hostility (Agg-Host):** This describes a readiness to express verbal aggression, rude, thoughtless, or antisocial behaviour, vengefulness and spitefulness, having a quick temper and impatience with others.

**Impulsive Sensation Seeking (ImpSS):** The first subscale, Impulsivity, involves a lack of planning and a tendency to act impulsively without thinking. The second, Sensation Seeking, describes the seeking of excitement, novel experiences, and the willingness to take risks for the sake of these types of experiences. The ImpSS items are general in content and do not describe specific activities such as drinking or sex.

**Neuroticism-Anxiety (N-Anx):** This scale describes frequent emotional upset, tension, worry, fearfulness, indecision, lack of self-confidence, and sensitivity to criticism.

**Sociability (Sy):** This scale also contains two subscales: Parties and Friends describes the number of friends one has, the amount of time spent with them and outgoingness at parties. Isolation Intolerance includes items regarding the preference for being with others as opposed to being alone and engaging in solitary activities.

### ***Procedure***

In the first stage of the experiment, the participants completed the ZKPQ and the Mach IV scale without time limit. This was followed by a two-round Trust Game. The experiment leader led each participant into a laboratory separately where they could play the game via a computer network. Before being given detailed instructions, they were informed that their participation was anonymous, they were not going to meet with their partners and no information would be shared about them either before or after the game, and the sum earned during the game would be paid to them. In fact, they played with the experiment leader, so the amount returned by the virtual partner could be controlled.

In the first round of the two-round Trust Game, each participant took the role of the first mover (Player A) and, in the second round, the role of the second mover (Player B). In the first round, the amount of deposit and, in the second round the amount of reciprocity was measured.

### ***Data analysis***

As it is shown in the results presented below, the boundaries of high and low Machiavellianism may change depending on the minimum and maximum scores in the particular sample. In the first phase of data analysis, the total score on the scale was treated as a continuous variable. In the further analyses, the participants were divided into three groups on the basis of their Mach-scores, similar to the method described in previous research (Burks, Carpenter, & Verhoogen, 2003; Christie & Geis, 1970; Gunnthorsdottir et al., 2002). Taking the lower and the upper one-third of the

continuous distribution into account, the participants with a score lower than 91 were grouped in the low Mach (LM) category, and those with a score above 103 into the high Mach (HM) category. As a result, we qualified 51 participants as LM and 57 participants as HM individuals.

## RESULTS

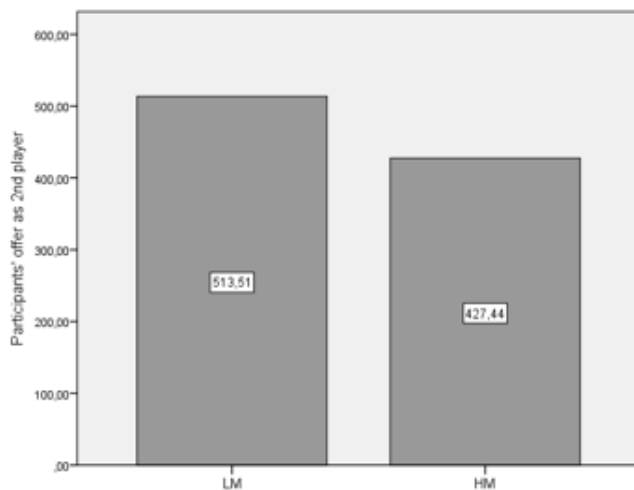
### *Prediction 1*

We did not find any significant correlation between the degree of Machiavellianism and the offer of the participants as first players ( $r = -0.005$ ,  $p > 0.05$ ).

Differences in the behavior of LM and HM persons as first movers were analyzed further, using an independent samples t-test. We did not find significant differences in the offers made by LM ( $n = 37$ ) and HM ( $n = 39$ ) people ( $M = 547.30 \pm 154.54$  vs.  $532.05 \pm 167.60$ ,  $t = 0.412$ ,  $p = 0.682$ ).

### *Prediction 2*

Correlation analysis showed a negative and significant correlation between the level of Machiavellianism and the monetary returns of the participants as second players ( $r = -0.205$ ;  $p = 0.027$ ). Analyzing our data with an independent samples t-test, we found a significant difference between LM ( $n = 37$ ) and HM ( $n = 39$ ) individuals for the second move. The LM persons reciprocated a significantly lower amount as second movers ( $M = 513.51 \pm 166.10$  vs.  $427.44 \pm 179.59$ ,  $t = 2.166$ ,  $p = 0.034$ ) (Fig. 1).



**Figure 1:** HM and LM participants' offer as a second player

### *Prediction 3*

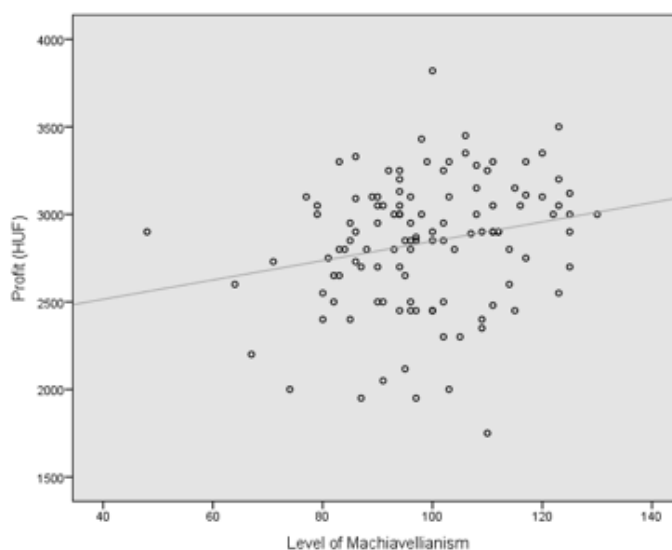
We did not find any significant correlation between the degree of Machiavellianism and the total score for Aggression-Hostility ( $r = -0.201$ ,  $p > 0,05$ ).

#### **Prediction 4**

We did not find any significant correlation between the degree of Machiavellianism and the total score for Sociability ( $r = -0.002$ ,  $p > 0,05$ ).

#### **Prediction 5**

Correlation analysis showed a positive and significant correlation between the level of Machiavellianism and the participant's payoff at the end of the game ( $r = 0.218$ ;  $p = 0.019$ ) (Fig. 2). Analyzing our data with an independent samples t-test, we found that HM individuals ( $n = 39$ ) gained a higher profit at the end of the experimental game compared to the LM participants ( $n = 37$ ) ( $M = 2927.69 \pm 361.95$  vs.  $2754.86 \pm 388.08$ ,  $t = 2.166$ ,  $p = 0.037$ ).



**Figure 2:** Profit gained by the players at the end of the Trust Game.

## **DISCUSSION**

In accord with our assumption (Prediction 1), no significant relationship could be revealed between the offers made by the first movers and the level of Machiavellianism. In fact, as first movers, high Mach and low Mach individuals deposited approximately the same amount. These data are consistent with the results of previous research. Some authors explain the lack of connection between the sum of the deposits and the Mach-scores with the high risk-taking behavior of Machiavellists (Gunthorsdottir et al., 2002). The latter assumption is not confirmed by our results as we could not find any relationship between the scores of Machiavellianism and ImpSS.

Another result of this study shows that there is a significant negative correlation between the level of Machiavellianism and the sum returned by the second mover; subjects with high Mach-scores reciprocated less, compared to those with low scores. This result confirms those of former studies (Wilson et al., 1996; Gunthorsdottir et al.,

2002): Machiavellians, who are generally described as exploiting and opportunistic individuals, make decisions according to their own selfish interests, which leads to a basically profit-oriented strategy. Consistently, it was found that Mach-scores correlated with their profit; high Mach subjects ended the game with a higher amount of money than the others.

Contrary to our Prediction 3, no correlation between the level of Machiavellianism and the variable of Aggression-Hostility was found. Our assumption that Machiavellians – in accordance with their emotional coldness – experience less emotion towards others was not supported by the data. However, this finding could be interpreted in the light of a recent study that found that Machiavellians do experience more negative emotions but they cannot express these emotions as subtly and precisely as others, and they are much worse at identifying and differentiating their own emotional states (Szijjártó & Bereczkei, 2013). Their weak ability to identify and comprehend their own emotions may help them stay detached from the emotional temperature of a situation, while the difficulties in expressing their emotions enable them to disguise their true intentions from their partners. Besides, this result echoes the distinction made by Jones and Paulhus (2010) who noted that those high on Machiavellianism, unlike those high in psychopathy, are able to see others' perspectives, which, however, does not prevent them from acting selfishly. Psychopaths are also more characterized by delinquency and the engagement in violent and antisocial entertainment, whereas for Machiavellians no overall association with aggression, revenge, or violence was found (Williams & Paulhus, 2004).

Similarly, we found no significant correlation between Machiavellianism and the scores obtained on the Sociability dimension. The hypothesis that Machiavellians show lower levels of sociability, have less friendly relationships, and enjoy social events less than non-Machiavellians, remained unsupported. However, several studies have revealed that Machiavellians can easily behave in a friendly manner and show even generous attitudes when this is in their interest (Bereczkei, Birkas, & Kerekes, 2010, Wilson et al., 1996). It is possible that their antisocial character is counterbalanced by their pretended motivation to group-oriented behavior, and this might have led to the insignificant correlations in our study. Future studies should investigate the role of personality factors in the decision-making processes, and their relationships with the situational variables demonstrated in experimental games.

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