

# Can dictator and ultimatum game predict ethical decision-making?

Research by means of the in-class behavioral experiment

[ Radim Kučera, Pavel Žiaran, Vít Janiš ]

**Abstract**— Objective of the article is to analyze the capacity of economic games dictator and ultimatum to predict ethical behavioral tendencies in the managerial context. The research has been carried out on the basis of the in-class behavioral experiment, using the principles of Gepard (Generator of Economic Behavior in Pedagogic Activities for Research and Development). There were 157 participants; under-graduate students of business. A structural equation model (SEM) was used to test the predictors, which is suitable for non-parametric variables. A three-dimension graphical analysis was used for illustrative reasons. Results show that the combination of both games, dictator and ultimatum, works as a good predictor of the ethical decision-making in the managerial context. The results can find a wide application in the field of HR management, especially recruitment; however a further research is needed.

**Keywords**—ethics, management, decision-making, SEM.

## I. Introduction

Ethics in managerial and business environment is an important factor of its sustainability, what was proved by a series of ethical scandals. In 2001, the world saw the fell of Enron and one of the most reputed auditing and advisory companies, due to unethical behavior of managers (Americ and Craig, 2004; Koehn, 2005). As a consequence, a wide spectrum of regulations and legislation was introduced, with the objective to eliminate unethical practices with its devastating consequences. In November 2014, information appeared in media that the world economic crisis 2008–2009 was caused, once again, by unethical decisions and practices made by individuals, managers and employees of major investments banks in the United States (Taibbi 2014; Tvardzik 2014). The importance of ethical values and attitudes applied in business was proved by many studies, e.g. Flynn (1994) found out that when recruiting new administrative workforce, 60% of managers perceive working ethics as the most important factor. Many other studies show a clear relationship between ethical values of employees and their work performance, not to mention the recent scandals at Volkswagen which re-launched the debate on business ethics and policy of regulations (Financial Times, 2015).

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Objective of this article is to analyze the capacity of the economic games dictator and ultimatum to predict ethical decision-making in the area of human resource management as there is a growing need to assure the quality of ethical decision-making and ethical environment in business.

## II. Theoretical Framework

### A. Economic games dictator and ultimatum

Games of dictator and ultimatum can be described as follows: player, also called allocator, has the task to distribute fixed amount of money between himself and other player, acceptor. Acceptor on the other side has an option to decide between accepting and declining the offer. If the acceptor agrees to accept, the offer is realized as suggested by the allocator. If the acceptor declines to accept, both players get a lower amount, discounted by a factor  $\delta$ , which is also called the power of acceptor. If  $\delta = 0$  and the acceptor turns down the offer, both players get nothing. If  $\delta = 1$ , the offer is realized as suggested by the allocator. When  $\delta = 0$  and the acceptor has a chance to cancel the offer, the game is called ultimatum. If  $\delta = 1$ , the acceptor cannot influence the allocator's offer and the game is called dictator. (Suleiman, 1996).

Research shows that with growing power of acceptor, allocator has a tendency to distribute money more equally, and the acceptor strategically uses a fair approach to ensure that the offer is realized (Van Dijk et al., 2004). In the game ultimatum, equal distribution of money includes two factors; pro-society approach on one side and the fear of cancelling the offer on the other side. Researches also show that in the game dictator, more acquisitive individuals, compared to those motivated by fair play, will realize more selfish allocations when the acceptor is without power, and far smaller allocations in the game ultimatum (Hasselhuhn and Mellers, 2005).

### B. Behavioral experiments in the class and the Gepard principles

Behavioral experiment (or simulating game) in a classroom can, when following appropriate conditions, serve as a source, resp. generator of valuable data for scientific researches in the area of management. Allery (2004) defined stimulating game as a game based on reality, with specific rules and structure, according to which students learn directly and implicitly from the process

of playing and not from explicit academic content. Simulation does not have to have a competitive element.

As long as the stimulation game is according to the requirements of structured experiment, as defined by e.g. Cooper (2007), it may be a platform for creation and verification of managerial theories. A good-quality experiment tries to capture the most important features of reality in simple, carefully monitored environment and is designed to test concrete hypothesis, derive from economic or managerial theory, or from previous observations in experiments or terrain data.

This approach is based on the principle of the Kolb's experimental learning, which is realized in four phases:

1. Activity.
2. Reflection of activity.
3. Generalization into theoretical framework.
4. Practice, resp. improvement of own performance in managerial context.

Connecting experience in a classroom with the theoretical conceptualization transforms the experience into a structured knowledge usable in real life (Young, 2002). A big advantage of this approach is that it offers students a deep confrontation of life decision-making experience within the classroom activity and at the same time it serves as a source of scientific data (Castilla, 2014). This pedagogic approach integrates the principles of connatural management (Ambrozová and Pokorný, 2015) where objective is to develop natural qualities of the human potential and cultivation of the capacity of humans to discern and distinguish among a wide range of factors influencing organizational environment.

The research was conducted on the basis of the principles of Gepard, which is an abbreviation for Generator of Economic Behavior in Pedagogic Activities for Research and Development. The platform integrates three functions:

1. Innovative inspirational teaching.
2. It creates a valid research data to test managerial theories and to create new ones, based on experimental research.
3. The platform provides structured and scientifically legitimate feedback for students participating in pedagogical activity about their performance and effectivity in the activity.

### III. Objectives, research questions and methodology

Objective of this research is to test the capacity of the economic games ultimatum and dictator to predict behavioral aspects in the unethical situation in the managerial context.

The following research questions were proposed:

1. Does the dictator game work as a predictor of ethical aspects in the managerial context?

2. Does the ultimatum game work as a predictor of ethical aspects in the managerial context?

We analyzed the capacity to predictors in following aspects:

1. Preference for a managerial position in the ethically correct and in the sensitive situation.
2. Preference to be an employee in the ethically correct and in the sensitive situation.

Participants were exposed to the situation where they had to discuss in pairs who would be a manager and who would be an employee, i.e. method of the leaderless group discussion (Waldman et al., 2004; Costigan and Donahue, 2009). After the decision was made, the manager was supposed to decide on the bonuses of the employee and the share of responsibility, in order to make the situation and relations more realistic. Participants were asked to express their preferences for the managerial and employee position on a five-point Likert scale.

There were two rounds with the same questions and process, but in two different situations: ethically correct and ethically sensitive. Between the rounds, the pairs of students changed.

1. The ethically correct situation was given as follows: *A company producing modern wooden ecological toys will implement new information system.*
2. The unethical situation was following these settings: *A company producing natural ecological furniture will dismiss workers - women due to their high level of absences as they were staying at home with their children due to being ill.*

Data was collected in the paper-and-pencil administration of the questionnaire consisting of several parts. The sample consisted of pre-graduate students of Business from Mendel University in Brno (N = 198; age 21–23). Reasons for selecting these groups of participants are as follows:

1. Students in the field of business declare their orientation to become managers; that corresponds to the objective of the research. This group is to a large extent homogenous as regards of their values and interests.
2. Young people are not touched by heterogeneous experiences with different types of business environments. Therefore, they will manifest their primary personal values which are the main subject of this research.
3. Good availability of the group for the research enables high number of observations.

Economic game ultimatum and dictator were a part of a questionnaire, according to Hilbig and Zettler (2009).

Questions were formulated as follows:

1. Dictator game: *How would you distribute 1000 monetary units between yourself and the other person, whom you never met?*

2. Ultimatum game: *How would you distribute 1000 monetary units between yourself and the other person, whom you never met? However, if the other person will not agree with the distribution, both of you will lose the money.*

The results were verified by the method of the structural equation model (SEM), using the bootstrapping method. SEM is a statistical method often used to develop and verify conceptual models explaining behavioral and cognitive aspects in business and management. SEM is based on two aspects. First, a combination of latent variables (constructed from the combination of observed variables), entering the measurement model. Second part is based on the structural regression model that interconnects the latent variables (Kaplan, 2007). The current version of Smart PLS program was employed (Temme et al., 2010). The use of the SEM model is methodologically more convenient than an ordinary correlation analysis due to the nonparametric nature of used variables.

Subsequently, especially for illustrative reasons, the correlation analysis and a 3D graphical analysis were employed, using the method of the least squares.

#### IV. Results and discussion

##### A. General analysis of the predictors by means of the SEM model

The capacity of economic games dictator and ultimatum as predictors was analyzed by means of the SEM method.

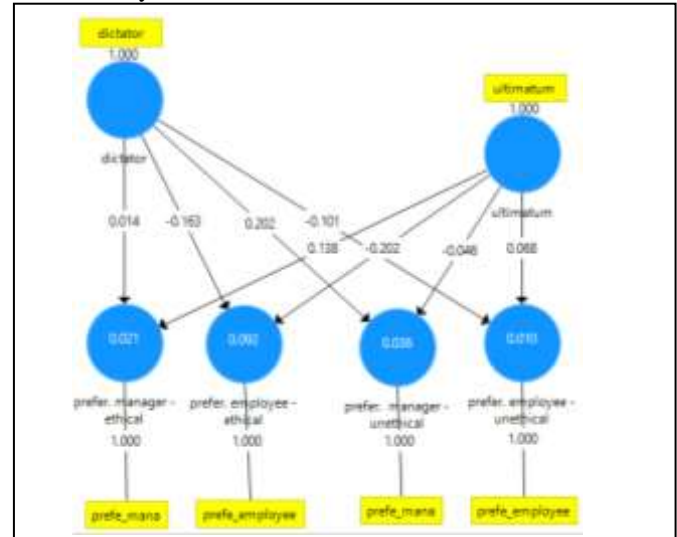
Table 1 displays the correlation coefficients and statistical significance of the variables. Statistically significant variables at the level of 90% (p-value < 0.1) are marked with asterisk.

TABLE I. STATISTICAL SIGNIFICANCES AND CORRELATION COEFFICIENTS OF VARIABLES (SOURCE: AUTHORS)

	Correlation coefficient	T stat	P Values
statistically significant parameters			
<b>dictator</b> -> prefer. manager – unethical situation	<b>0.202</b>	2.414	<b>0.016*</b>
<b>ultimatum</b> -> prefer. manager – ethical situation	<b>0.138</b>	1.820	<b>0.069*</b>
<b>dictator</b> -> prefer. employee – ethical situation	<b>-0.163</b>	1.891	<b>0.059*</b>
<b>ultimatum</b> -> prefer. employee – ethical situation	<b>-0.202</b>	2.568	<b>0.010*</b>
statistically insignificant parameters			
dictator -> prefer. employee - unethical situation	-0.101	1.163	0.245
ultimatum -> prefer. employee –	0.068	0.815	0.415

unethical situation			
ultimatum -> prefer. manager – unethical situation	-0.046	0.577	0.564
dictator -> prefer. manager – ethical situation	0.014	0.149	0.882

Figure 1 shows the equation structural model, depicting the relation between the dictator and ultimatum games and the ethically related behavioral tendencies. The numbers



between the lines present the correlation (or path) coefficients, indicating the strength of the correlation. In this case, statistically significant correlation is relied with the correlation coefficient higher (in the absolute value) than 0.13.

Figure 1. Structural equation model of economic games dictator and ultimatum (source: authors)

##### B. Analysis of predictors of the managerial position

As shown in the Table 1, the dictator game works as a statistically significant predictor for the preference of a managerial position in the unethical situation (positive correlation). On the other hand, the preference of a managerial position in the ethical situation generates significant correlation (positive) with the score in the ultimatum game. This suggests that the preference to be a manager is strongly moderated by the context and conditions of the managerial job. Figure 2 depicts relations between the managerial preferences and the dictator game score. Interestingly, the maxim of dictator game is cumulated at two different points, which clearly confirms the thesis that there are different motivational drivers between the ethical and unethical situation.

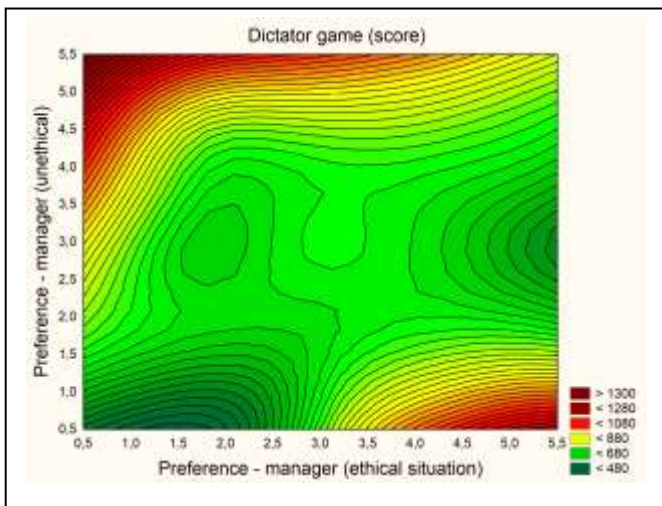


Figure 2. Relations between the managerial preferences and the dictator game score (source: authors)

Table 1 further brings an interesting finding: preference to be an employee in the ethical situation generates a significant (negative) correlation with the dictator game and the preference to be a manager in the ethical situation generates positive correlation, which suggests the fact that if a person prefers to be a manager, he or she does not prefer to be an employee, and vice versa. This finding can be extrapolated for the unethical situation as follows: if a person does not identify oneself with the unethical situation, he or she prefers to be an employee, in other words, employee position in the ethical situation serves as an exit strategy for the person with the strong ethical orientation.

Figure 3 presents the preferences to be a manager in both situations in relation with the score in the ultimatum game. The highest score in the ultimatum game have those participants who prefer to be managers in the ethical situation and at the same time they do not prefer to be managers in the unethical situation. This confirms the above mentioned suggestion, that ethically oriented people use the position of employee in the unethical situation as an escape strategy from the managerial position where they would have to assume the responsibility for the unethical practices.

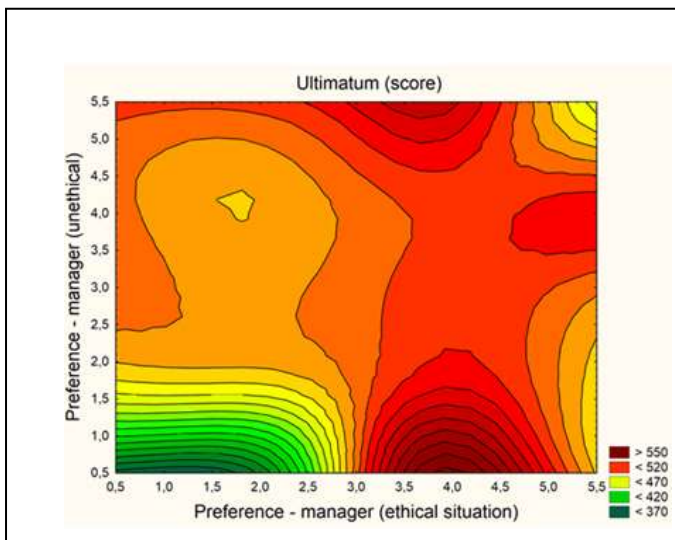


Figure 3. Relation between preferences to be a manager in both ethical and unethical situations (source: authors)

Figure 2 presents two local maximums, hence, it suggests, that the dictator game is rather ambiguous as a predictor of ethical tendencies. On the other hand, figure 3 generates only one local maximum where the participants prefer to be managers in the ethical situation and at the same time they do not want to be managers in the unethical situation.

The fact that the highest score in the ultimatum game also suggests that those people have the highest trust in other people as they are not afraid that the counter-part would refuse their offer, even if their offer is relatively higher than the offer of all the other groups. This confirms the empirical expectation that the pro-ethically oriented managers have higher trust in people in general.

### C. Discussion on the general validity of results

Within the discussion on the validity of the hereby presented results, it is important to point out that the validity of this research and level of threshold values is strictly based on the group of participants on which the experiment was conducted. The question is whether the results would be valid for other demographical and socio-professional groups. There is a strong presumption that with respect to the character of predictors, other groups would react in a similar way. Eventually, it would not be without an interest to create a database of results to determine the boarder values for specific groups to be used for a wider range of socio-professional groups.

Another question arises if the behavioral experiment (in this case in the form of a leaderless group discussion) can bring the results of the same quality as a research among the real managers and businessmen. Results from the real business would probably bring a deeper informational value; on the other hand an in-class experiment allows an accurate control over the majority of variables and environmental settings which provides more consistent information.

## v. Conclusions

In this article, the capacity of economic games dictator and ultimatum to predict results of ethical decision-making was analyzed. As was subsequently confirmed, notably, the combination of results from the dictator and ultimatum game is eligible to predict ethical decisional outcomes in the managerial context.

As an important finding may be considered the fact, that the score in the dictator game has an ambiguous nature; notably, it gives statistically significant correlation with the preference to be a manager in the unethical situation, hence it predicts unethical behavioral tendencies. On the other hand, it correlates with a completely different group of preferences to be a manager in the ethical situation, hence it predicts the tendencies to dominate or lead other people,

however in a strictly ethical setting. Hence, the ultimatum game serves as a better way to distinguish between the two tendencies mentioned above.

An interesting contribution of this article is the fact that it demonstrates the advantage of employing two independent methods, notably, structural equation model and three-dimensional graphical analysis based on the least squares method. The combination of the methods helps to reveal important structures and phenomena that probably would not be identifiable otherwise.

The research demonstrated a capacity of the in-class behavioral experiments to generate scientific data for testing and developing managerial theories. This may be perceived as another contribution of the article.

There is a strong potential for the application of these methods and processes in the field of HR management, especially recruitment as well as the usage of the above mentioned methods in a further research.

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