Experimental Methods In Measuring Corrupt Behavior

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*EPERIMENTAL METHODS IN MEASURING CORRUPT BEHAVIOR

Jiří Špalek

Abstract
The paper presents possibilities and limits of introducing experimental methods in measuring propensity to engage in and punish corrupt behavior. We are inspired by results of the multicultural experiments run to date. Our experiment is inspired by Cameron et al (2009), which took place in Australia, Indonesia, India and Singapore. It takes a form of a simple sequential game in which three players are involved. The decision of each player has an impact on the behavior and profit of the other players.
Results of the experiment are in line with results of replicated experiment. We found several differences between the behavior of the Czech and Slovak participants. Particularly, the Czechs seem to be less tolerant to corruption behavior they witness.

Key words: Corruption, experiment, game theory

Introduction

Corruption and corrupt behavior are considered one of the major issues of developing or transforming economies. Undoubtedly it is one of the areas in which the newly established democracies of Central Europe differ from their neighbors although they had been united with them through their common political and mainly cultural history.
A logical question can be posed: What are the reasons for significantly higher corrupt behavior rates in the Czech Republic or Slovakia? For instance Austria, we had been united with in one monarchy for several centuries, took the 15th place on the list of the Corruption Perception Index (CPI) of Transparency International[1], while the Czech Republic was on 53rd and Slovakia on 59th rank.
Obviously, the former political regime in the countries of Central Europe had an undisputable impact on the corrupt behavior rate. However, as seen from the CPI list, there are some differences even between the countries experiencing the same communist regime. Both countries under study are more afflicted by corruption than their neighbors (Poland and Hungary). The CPI list also suggests that quite large differences can be found even between the Czech Republic and Slovakia, which split only in 1993.
This difference became one of the main reasons for doing our research. We wanted to explore whether a propensity to corrupt behavior can be 'objectively' measured. Whether some persons can be expected to have a higher propensity for adopting a kind of behavior resulting in some form of corrupt acts among which corruption tolerance in the broader sense can also be ranked.
Our paper does not pretend to be a thorough analysis of reasons that cause a higher rate of corrupt behavior in the two countries. Many studies have been made for this purpose, among which especially Transparency International's publications or works of other authors should be mentioned[2]. The main drawback of the vast majority of such publications is their relatively significant subjectivity. Analyses and description of corrupt acts, particularly their measurement (e.g. using the above CPI index) are based on opinions and experiences of the

[1] See Transparency International (2011a).
[2] A rough overview of publications, which deal with this topic in Czech environment, can be found on pages of Transparency international. See e.g. Transparency International (2011b).

involved or surveyed persons. Due to a typically secretive nature of corrupt behavior it is rather complicated to acquire real data on the number of corrupt acts, let alone motives of persons who commit corrupt acts.
One of the methods how to acquire the necessary data is the application of experimental economics method. Economic experiments make it possible to observe people in situations simulating the conditions of potential corrupt behavior. In such a way reasons that lead individuals to a decision to engage or not to engage in a corrupt act can be studied in laboratory environment. This very approach is the starting point of our presented research, which is based on replication of the experiment carried out by Cameron et al. (2009) in Australia, Indonesia, Singapore and India. The experiment takes a form of a simple corruption game that is run as a sequential game and is based on the behavior of three players. Their payoff depends on decisions of each player that are naturally influenced by behavior of other players.
The first part of our paper summarizes existing approaches to corruption measurement using economic experiments including the most interesting results. The second part explains the methodology applied in our experiment. The third part reviews the selected results of our experiments.

1. Approaches to corruption measurement in experimental environment.

The methodology of experimental economics, devised in the second half of the 20th century, stems from several principles. They try to get as close as possible to experimental research in natural sciences. Economic experiments are guided by two main principles: c**ontrol** and **replicability.** The experimenter should be in full control over the experimental setting but also over preferences of subjects involved in the experiment.[3] The requirement of replicability significantly refers to natural sciences – any experiment, *ceteris paribus*, should yield similar results when repeated by other groups or experimenters.[4]
In connection with the experiments investigating the corrupt behavior rate, it is important to determine their so-called external validity that shows the degree of generalization of experimental results in real situations. The level of external validity in each experiment, particularly experiments on corruption, is a result of a certain type of trade off between external and internal validity. Internal validity refers to the above mentioned repeatability of an experiment and usually results in a relatively great simplification of the studied phenomenon.[5]
As demonstrated by Dušek et al. (2002), the issue of a very low external validity accompanies corruption experiments from the very beginning. As reported by (e.g.) Harrison and List (2004), one of the main threats of corruption experiments is that the sample of subjects participating in the experiment is not sufficiently representative.
As argued by Dušek et. al. (2004), corruption investigation in experimental environment could start off with publishing the paper by Frank and Schultze (2000) and can be divided into two areas:

- experiments exploring the reasons and motives that lead a subject to corrupt behavior;

[3] This assumption is related to Smith's *Induced value theory*, which is in the core of economic experiments. The theory states that the tested subjects can be induced to choose profit or loss values required by the experimenter and dependant on their decisions. Subjects perceive relative payoffs not on the basis of their preferences or experience but according to the experimenter's idea. See more in Smith (1976).
[4] This very property is referred to in our paper. Its main aim is to find out, whether a replicated experiment yields similar results in Central Europe.
[5] Which makes it possible that experiment participants can understand the situation as well as practical feasibility of the experiment, usually using an appropriate game theory model.

- experiments examining relative efficiency of anti-corruption measures and mechanisms.

More attention is usually paid to the second area. The reason might be a simpler interpretation of results as well as a higher potential for their practical use. Study of the corrupt behavior motives approximates to experiments exploring economic theory and general motives of economic behavior or human rationality itself. Nevertheless, even in this area a host of interesting experiments can be discovered. One of the best-known is the approach conceived by Ananish Chaudhuri and Lisa Cameron.[6]

A specific feature of corruption experiments that distinguishes them from other economic experiments is a systematic breaking of the principle of using neutral language. While in the case of experiments with public goods it is vital to avoid any reference to public good (and therefore the notions such as *group account and private account* are used), in the case of corruption experiments the opposite is true. Since their aim is to determine the probability that the investigated subject opts for corruption behavior, the given subject is aware of a potential corruption situation. Thus, setting up of this situation leans on loaded words such as *bribe*, *briber*, *bribe offer* and the like.[7]

Naturally, the economic experiment methodology is not a universal or single source of information in corruption measurement. Corruption experiments differ from other experiments by their nature and so they can give rise to disputes about validity of their results in real-life situations. First the risk which subjects take is purely monetary. In contrasts with a real-life corruption situation, where corruptors face punishment or imprisonment. Second, experiments are usually played as one-shot and absolutely anonymous games, while in a real-life situation subjects are identified and their interaction has far-reaching impacts. Third, the roles in experiments are usually assigned randomly and experiment subjects are usually students, while the roles of real corruptors are determined by internal factors of the situation. Fourth, acts of experimental subjects are monitored and so they can incline to make moral decisions. (Armantier, Boly, 2008).

Presented study of potential country effects in behavior in corruption experiments follows study of the behavior in public good experiments (Špalek, Berná, 2011).

2. Experimental design

Design of our experiment is based on Cameron et al. (2009). Experiment is a simple corruption game decreasing the overall outcome of players in the regime of higher penalties. The corruption game is run as sequential and develops according to behavior of three players. Their monetary payoffs depend on decisions of each of them but they are also influenced by behavior of other players. Payoffs of individual subjects are usually calculated in units of experimental currency (token). At the end of the experiment they are converted to cash at the rate that is known beforehand.[8]

Game participants are randomly assigned roles of a firm's manager, a public official and a citizen. Each role is endowed an initial capital (6000, 3000 and 8000 units of tokens). The game itself is played in three steps:

The game is opened by the act of the firm's manager who is making a decision whether to offer or not to offer a bribe to the official. The bribe can be offered at the level $B = \{400, 500,$

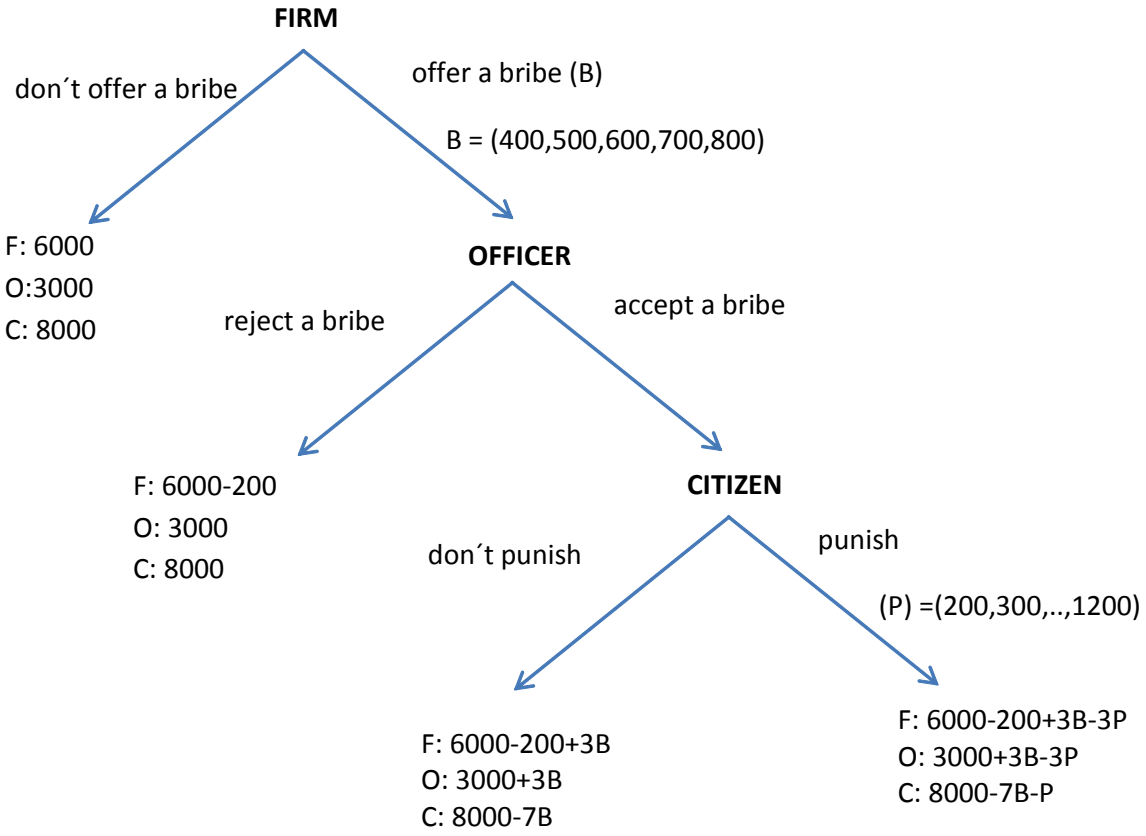
[6] In addition to the experiment replicated by us published in Cameron et al. (2009), it is a case of the study made by Indonesian officials Alatas et al. (2009a), or Alatas et al. (2009b)

[7] These expressions appear in the instructions for the experiment and are also used throughout the game.

[8] Here the authors decided to adapt the experimental design to Czech or Slovak conditions. Instead of the term "token" we used experimental crowns. The experimental structure as well as all mathematic relations are maintained; we implemented only a cosmetic change to bring imagination of players closer to reality.

600, 700, 800}. If the firm offers a bribe, the cost of this behavior equals 200 tokens depending on the official's response.
The game continues with the act of the official who has to decide whether he accepts the bribe or not. If the bribery act is accomplished, i.e. the firm offers a bribe and the official accepts it, the payoff of both players will increase by a triple of the bribe amount (*3B*). However the citizen's payoff will be reduced sevenfold (*7B*).[9]
The citizen can report the corrupt act of the other players and so to punish them by penalties amounting to *P* = {200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200}. If the citizen does so, the payoffs of both the firm and the official will be reduced threefold (*3P*), but will reduce his own payoff too by the penalty amount (*P*).
The Diagram 1summarizes the experimental structure. The amounts shown at individual steps correspond with the setting of experiment in experimental crowns.
The structure implies that while the firm and official benefit from their corrupt behavior (if they are not punished), its punishment (or intolerance) is costly for the citizen. Such setting reflects real costs that an individual reporting corruption incurs (usually referred as a *whistleblower*).
Game settings make it obvious that if people considered only the bribe amounts and deemed the game as an investment game, the subjects acting in the role of citizens should rather tolerate corruption. Such tolerance is further included in corrupt behavior.

Figure 1: *Structure of performed experiment*



Source: authors according to Cameron et al. (2009)

[9] A relatively high harm imposed on a citizen due to bribery of his team-mates indicates here a significant negative impact of corruption on the society.

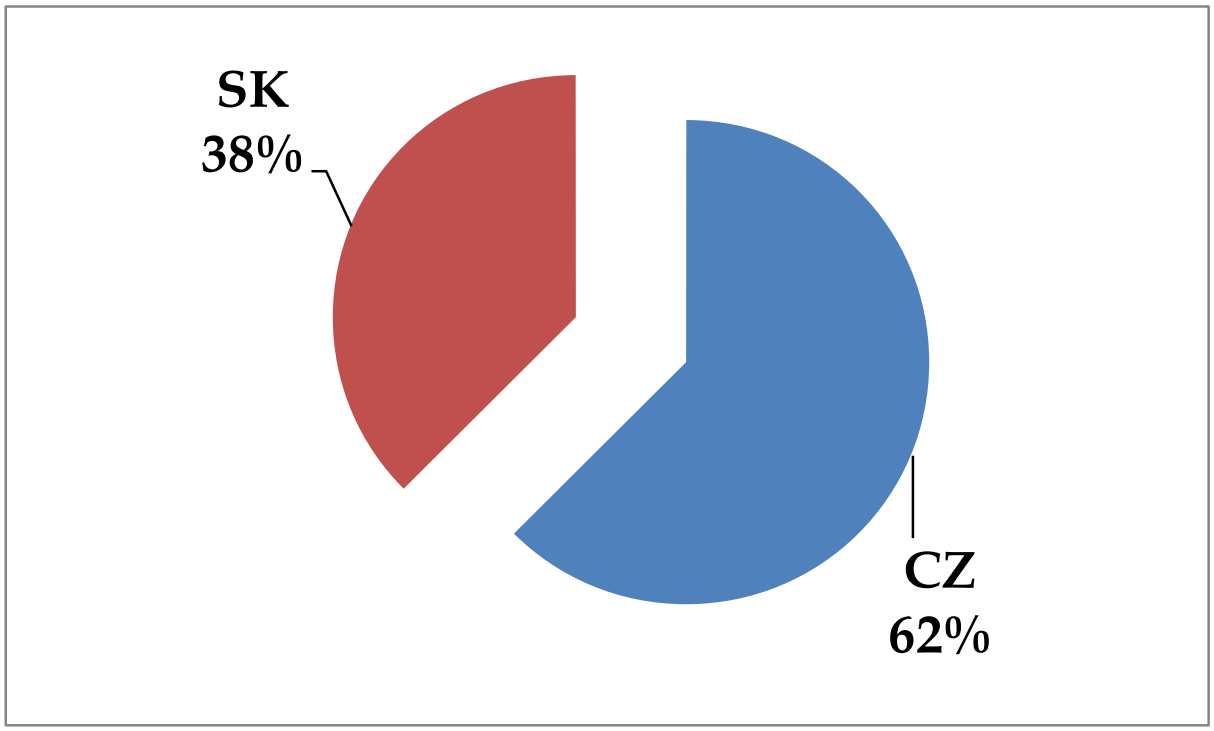
3. Results

Altogether 168 subjects participated in the experiment. They were divided into 56 three-person experimental groups (firm-official-citizen). Individual sessions of the experiment were organized in three stages:

- Two sessions with students and general public from the CR at the Faculty of Economics and Administration of Masaryk University (spring 2010) – 60 participants,[10]
- Three sessions organized at the Faculty of Economics and Administration of Masaryk University on the occasion of so-called Night of Scientists in 2010 (September 2010) – 66 participants
- One sessions with Slovak students and general public at the Faculty of Economics of Technical University in Košice (winter 2010) – 41 participants.

As noted before, the basic hypothesis states that probability of corrupt behavior is affected by cultural and social climate in a given country. In this respect the structure of nationalities is relevant to the research. Although a greater part of experimental sessions took place in the Czech Republic, there were 38 % of Slovak participants.[11] Distribution of participants according to nationality is shown in the following diagram:

Figure 2: *Structure of participants according to nationality*



Source: Authors

[10] While the first session was occupied by students only, the authors decided, after consulting the authors of the experiment Lisa Cameron and Ananish Chaudhuri that in the second session the roles of managers will be played by real businessmen, firm representatives or other subjects from the private sector. The roles of officials were played by real state officials or workers of the public sector. The role of a citizen could be played by anybody except students. The experiment modified in this way could better capture real corruption environment. More in Chasikidisová (2010) of Špalek, Kubák, Chasikidisová (2011).

[11] It is due to the fact that a number of Slovak students are enrolled at Masaryk University in Brno and they took part in both Brno sessions.

Apart from participants' nationality we explored some further characteristics (education, gender, age, work experience, whether the participant is a student, etc.), which could suggest influences that affect corrupt behavior. Since completing the questionnaire was optional, the characteristics could be compared only in some cases (when there were enough answers in individual categories).
Further, we are going to introduce the most interesting results with respect to the main hypothesis as well as with regard to other effects.

4.1 Total corrupt behavior rate

Total number of games played was 56 and the bribe was offered only in 34 cases (61%). The bribery rate differs from the magnitude observed by Cameron et al. in Australia, Singapore, Indonesia and India (86 %).[12]
Among 34 officials, who were offered a bribe, 22 (65%) accepted, which was again less than in the mentioned foreign experiments (87 %). Out of 22 citizens damaged by corrupt behavior of firms and officials 64 % (as compared with 49 % in Cameron, et al.) punished this kind of behavior. Total corrupt behavior rate among participants is summarized in the following table:

Table 1: *Corrupt behavior rate in experiment participants*

Corrupt behavior	Number of cases	% of all participants	% of participants playing the game
Yes	64	38,1	57,1
No	48	28,6	42,9
Total	112	66,7	100
Not involved in the game*	56	33,3	
Total	168	100,0	

* Participants playing the role of officials or citizen, who could be involved in the game since they had not been offered a bribe or had not witnessed the corrupt act of the official.
Source: Authors

A corrupt act, which consists in offering a bribe by a firm, its acceptance by an official or a failure to punish corruption by a citizen, was committed by 64 participants, which is 57% of all subjects who were actively involved in the game.

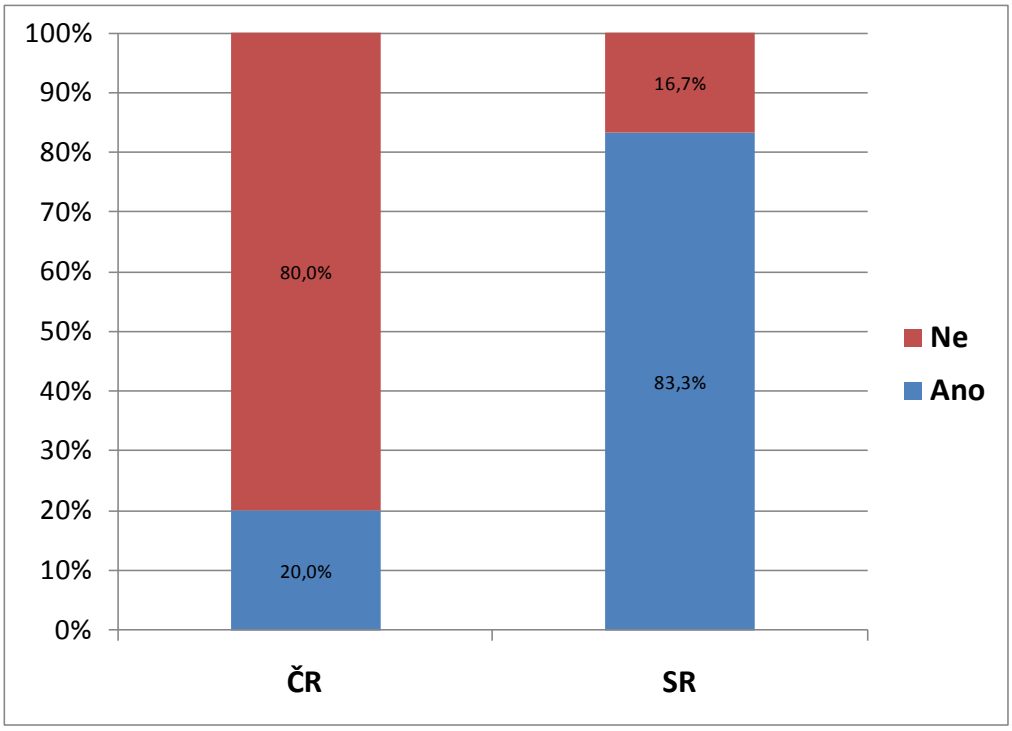
4.2 Cultural differences affecting the probability of corrupt behavior

As we have noted basic hypothesis states that the propensity to engage in some form of corrupt behavior is influenced by the cultural or social climate in the given country. In other words, we suppose that the rate of corrupt behavior will differ in various countries. Our results prove that the Czechs and Slovaks really have different rate of corruption behavior. Only about one half of Czech participants chose some form of corrupt behavior or its tolerance (48%) versus more than two thirds of subjects (68%) among Slovak participants. This difference is caused primarily by completely different behavior of the Czechs and Slovaks in the role of citizens. While 80% of Czech participants in the role of a citizen made a decision to punish corruption, only 17% of Slovak participants did so.[13] In other roles a

[12] We are going to analyze cultural differences in offering a bribe in more detail in section 4.2.
[13] Moreover, the differences are statistically significant (p=0,024).

similar difference was not ascertained (even if corrupt behavior is more frequent in Slovak participants).[14]

Table 2: *Corrupt behavior in the role of the citizen*



Source: Authors

4.3 Other factors affecting corruption behavior rate

In addition to the basic hypothesis we studied other potential influences, which increase (decrease) the observed corrupt behavior rate. Using a questionnaire, which was (optionally) completed by participants of individual sessions, we could follow the following partial hypotheses:

- Corruption behavior rate differs in men and women.
- People affiliated to some religious denomination corrupt less.
- Level of education has an impact on the probability of corrupt acting.
- Students have a higher propensity to take the game as an investment game and therefore they will corrupt more.
- Corrupt behavior rate is growing along with an increasing awareness of corruption.

The results, including distribution to individual sessions, are summarized in Table 2. The table demonstrates that the above difference between Czechs and Slovaks in the citizen's role was not specific for the session in Košice only. In the Czech sessions, Slovak participants showed (statistically significantly) higher tolerance of corruption than their Czech colleagues. An interesting finding, which has no explanation yet, is the fact that women showed a higher corruption behavior rate than men. The marked difference is visible in the participants playing a role of a firm, where (statistically significantly) more women offered a bribe (81 % women compared to 50 % men).

Our hypothesis that religion can influence the probability of corrupt acts completely failed. The proportion of corrupting believers and atheists was the same across all sessions.

[14] In this case, however, the differences are of the order 1-2 percentage points and are not statistically significant.

On the contrary, the presumption that students have a greater propensity for corrupt acts than other participants of the experiment was confirmed. We believe that the chief cause is that students perceive less the context of this situation (i.e. corrupt behavior), which is in agreement with the feedback from the subjects participating in the experiment. Students understood the situation rather as an investment game and used a strategy, which was consistent with the game theoretic solution.

Table 3: *Corrupt behavior rate according to monitored characteristics*

Factor	role	Corrupt behavior rate according to factor category					p-value
Session		ESF	Night of scientists	Košice			
	firm	55%	64%	64%			0,808
	official	73%	64%	56%			0,726
	citizen	13%	33%	80%			0,047
	total	51%	58%	64%			0,566
Gender		man	woman				
	firm	50%	81%				0,054
	official	64%	58%				0,567
	citizen	40%	56%				0,5
	total	53%	68%				0,146
Nationality		ČR	SR				
	firm	52%	67%				0,241
	official	59%	60%				0,637
	citizen	20%	83%				0,24
	total	48%	68%				0,053
Religion		religious denomination	atheist	do not know			
	firm	67%	67%	50%			0,896
	official	100%	67%	0%			0,303
	citizen	33%	33%				0,774
	total	60%	60%	33%			0,665
Education		primary	apprenticeship	apprenticeship leave certificate	secondary	university	
	firm	50%	100%	67%	64%		0,821
	official	100%	50%	40%	83%		0,397
	citizen	100%		100%	25%	0%	0,131
	total	67%	100%	67%	47%	60%	0,768
Status		single	married	divorced			
	firm	62%	100%				0,636
	official	67%	50%				0,604
	citizen		38%	0%			0,667
	total	59%	67%				0,478
Student		student	non-student				
	firm	71%	48%				0,07
	official	67%	62%				0,522
	citizen	33%	44%				0,472
	total	63%	51%				0,156
Worked for public sector		Yes	No				
	firm	50%	67%				0,589
	official	50%	63%				0,667
	citizen	50%	33%				0,7
	total	50%	62%				0,456
Number		0%	1-3	4-6	7-9	10 and	

of times they heard about corruption						more	
	firm		100%	75%	100%	60%	0,287
	official		50%	100%	100%	33%	0,111
	citizen	0%		33%	100%	25%	0,453
	total	0%	83%	75%	100%	45%	0,052

Source: Authors

The answer to the last research question is rather unambiguous. The results suggest that generally greater awareness about corruption leads to a higher corrupt behavior rate (negative examples also lead). However, a group of participants, who filled in the questionnaire the highest possible score on corruption (10 and more), deviates most from this trend. On the contrary their corrupt behavior propensity is the lowest of all participants (45 %).[15] A possible explanation is a relatively higher number of non-students among the participants who were familiar with corruption. Alternatively, students are not so interested in actual corruption rate in the country and they follow less the news about corruption. Other subjects, however, who either face corruption themselves or hear about it, can have some reasons not to accept it. No difference at all was found in other monitored potential impacts between the subjects who have some work experience in public service and the subjects without it. Equally, no systematic difference could be observed depending on the education level. Subjects with secondary education have a lower proportion of corrupt behavior propensity (25 %) as well as university-educated subjects (0 %) playing the role of a citizen compared with less-educated subjects (here the proportion amounts to 100 %).[16]

Conclusion

To find the potential factors that influence the propensity to engage any form of corrupt behavior is very demanding task This is particularly true in the context of Central Europe, where there is a tangible difference between the countries of the formed visible Eastern bloc and traditional Western democracies. Our paper is aimed at contributing to the debate why Czechs or Slovaks commit some kind of corrupt acts more often then people in the West.
For this purpose we have used methods of experimental economics and have studied the behavior of several groups of subjects in a relatively simple experiment. The most important conclusion from our experiments is statistically significant and so systematic difference in tolerance of corruption between the Czechs and the Slovaks. While only 20% of Czech participants did not punish corrupt acts they witnessed, among Slovak participants 80% of subjects did not punish such behavior. This conclusion is in full agreement with the results of the experiment run by Cameron et al. in 2005 in Indonesia, Singapore, India and Australia. Their results did not show major differences between the behavior in the role of a firm or an official. But it is the role of a citizen where the Australians substantially differ (53 % of them punish corruption) from the Indians (only 23 % of them punish corruption).
The results suggest that a significant difference between the countries, where the corruption rate is relatively lower (e.g. as measured by the CPI index) and the countries, where this rate is higher, can be rather observed in lower willingness to report corruption and so in a higher tolerance of such behavior. This conclusion is confirmed by some recent cases in the Czech

[15] Reported differences are statistically significant at the level of 95 %.
[16] Differences are statistically significant at the level of 90 %.

Republic, where so-called whistleblowers have been scandalized or bullied after reporting (even if evidentiary) corrupt acts.
As we noted above, there are several doubts about external validity of the results. One possible way how to improve it is usage of more complicated game structures. This refers to *contextual games* (see e.g. Valenčík, 2010) or the concept of hyper-corruption.

References:

ALATAS, V., CAMERON, L., CHAUDHURI, A., ERKAL, N., GANGADHARAN, L. (2009a). Subject pool effects in a corruption experiment: A comparison of Indonesian public servants and Indonesian students. *Experimental Economics*, vol. 12(1), p. 113-132.

ALATAS, V., CAMERON, L., CHAUDHURI, A., ERKAL, N., GANGADHARAN, L. (2009b). Gender, Culture, and Corruption: Insights from an Experimental Analysis. *Southern Economic Journal*, vol. 75(3), p. 663-680.

ARMANTIER, O., BOLY, A. (2008). *Can Corrruption Be Studied in the Lab? Comparing a Field and a Lab Experiment* [online]. Montreál : Cirano, Septembre 2008 [cit. 2010-04-05], 25 s. Dostupné z WWW: <http://www.cirano.qc.ca/pdf/publication/2008s-26.pdf>

CAMERON, L., CHAUDHURI, A., ERKAL, N., GANGADHARAN, L. (2009). Propensities to engage in and punish corrupt behavior: Experimental evidence from Australia, India, Indonesia and Singapore. *Journal of Public Economics*, vol. 93, Issues 7-8, August 2009, p. 843-851.

DUŠEK, L., ORTMANN, A., LÍZAL, L. (2005). Understanding Corruption And Corruptibility Through Experiments. *Prague Economic Papers*, Vol 2, 2005, p. 147-162.

FRANK, B., SCHULZE, G. G. (2000). Does Economics Make Citizens Corrupt? *Journal of Economic Behavior and Organization*, vol. 43, p. 101-103.

HARRISON, G. W., LIST, J. (2004). Field Experiments. *Journal of Economic Perspectives*, Vol. 42, pp. 1009-1055.

CHASIKIDISOVÁ, H. (2010). *Laboratorní zkoumání korupce*. Brno: Masarykova univerzita, 2010. [Bakalářská práce].

SMITH V. L. (1976) Experimental Economics: Induced Value Theory. *The American Economic Review*, Vol. 66, No. 2, Papers and Proceedings of the Eighty-eighth Annual Meeting of the American Economic Association (May, 1976), p.274-279.

ŠPALEK, J., BERNÁ, Z. (2011). *Prague Economic Papers*, Praha : Oeconomica, 2011, 3, p. 250-267.

ŠPALEK, J. KUBÁK, M., CHASIKIDISOVÁ, H. (2011). Měření korupce v experimentálním prostředí: Zkušenost z ČR a SROV. *Proceedings of international conference Public Economy and Administration*, Ostrava: VŠB-TU, 2011.

TRANSPARENCY INTERNATIONAL. (2011a). *Index vnímání korupce (CPI) v roce 2010*. Dostupné z <http://www.transparency.cz/doc/publikace/indexy/cpi_2010/CPI2010_tabulka_CZ.pdf>.

TRANSPARENCY INTERNATIONAL. (2011b). *Přehled publikací s tematikou korupce*. Dostupné z <http://www.transparency.cz/publikace-analyzy/>.

VALENČÍK, R. (2011). Redistributions Systems and Kontextual Games. ACTA VŠFS. Volume 7, 2011, No. 3. Praha : VŠFS, 2011.

Appendix 3: Instructions for participants of the experiment

General game's instructions:
You have become a participant of an economic experiment in economics on "strategic decision-making". The research is financed by the Faculty of Economics and Administration of Masaryk University. Instructions are quite simple. If you read them carefully, you can earn money which will be paid out in cash at the end. Please do not talk to other participants during the experiment.
In today's experiment you will be a part of a group consisting of three players. You will participate in a real-life situation, in which you will randomly be assigned a role of a manager of a firm, a state official or a citizen. Your personal answer sheet indicates your role in the experiment. Try to identify yourself with your role and make decisions in the same way as if it was a real-life situation. You do not know who the other players in your group are.
The money earned during the experiment will be called payoff. The payoff is calculated in an experimental currency. At the end of the experiment it will be converted into cash in CZK using the following conversion rate: 1000 units of experimental currency = 10 CZK.
Individual participants will make their decisions one by one. First those playing the role of the firm will make up their minds whether or not to offer a bribe (B) to the official. If the firm decides not to offer a bribe, the experiment will end. If the firm decides to offer a bribe, then it has to choose a bribe amount. If the firm offers a certain bribe amount then the official has to decide, whether to accept it or to refuse it. If he/she decides not to accept the bribe, the experiment will end. If the official accepts the bribe, the game continues by acting of the citizen. The citizen has two possibilities: to punish/report or not to punish/report the firm and the official for giving and accepting the bribe. If the citizen opts for not punishing the corrupt act, the experiment will end. If the citizen chooses to punish the act, then he/she has to choose a punishment/penalty amount (P).
Diagram 1 shows an overview of the described experimental structure. Diagram 2 illustrates a concrete example, which should assist you in understanding the experiment as well as the payoff mechanism. Nevertheless, before these examples are explained, you should proceed to detailed instruction for each type of participant.

Detailed instructions – firm:
If you represent a firm in today's experiment, you have to make up your mind, whether or not to offer a bribe to the official. If you decide not to offer a bribe, the experiment will end and individual participants will receive these amounts: firm = 6000, official = 3000 and citizen = 8000. If you decide to offer a bribe, then you have to choose an appropriate bribe amount. By offering a bribe you will incur costs at the level of 200 regardless of the fact whether the official accepts or refuses. The bribe can be offered at the level of B (bribe), where B is an integer rounded off to hundreds from 400 to 800, thus B = {400, 500, 600, 700, 800}. Please, write your decision in your answer sheet, which will be then collected by the experimenter. If you, as a firm, choose to provide a bribe, the experiment will continue and the appropriate official will receive your decision. However, the payoff is dependent on decisions of other players in your group.

Detailed instructions – official:
The experimenter will distribute the decision of the firm in your group. After reading it you have to make up your mind, too. If the firm in your group offers a bribe at the level B, you have to choose, whether to accept it or refuse it. If you do not accept the bribe, then the experiment will end with these payoffs: firm = 5800, official = 3000 and citizen = 8000. If you accept the bribe your payoff amount will depend on the citizen's decision. If the citizen

chooses not to report/punish corrupt behavior, then the participants will receive the following payoffs: firm = 6000-200+3B, official = 3000+3B and citizen = 8000-7B, where B is the bribe amount offered by the firm. If the citizen chooses to punish corrupt behavior, you will get the following payoffs: firm = 6000-200+3B-3P, official = 3000+3B-3P and citizen= 8000-7B-P, where P is the punishment amount chosen by the citizen. The payoffs indicate that the bribe amount B offered by the firm **tripled** if you decide to accept the offered bribe, but it will reduce the citizen's payoff sevenfold. If the citizen wants to punish the corrupt act, the penalty amount will also be **tripled**. Please, write your decision in your answer sheet, which will then be collected by the experimenter.

Detailed instructions – citizen:
If you got a role of the citizen in today's experiment, the experimenter will distribute the decisions made by the firm and the official in your group. If both the firm and the official opt for corrupt behavior (i.e. the firm offers a bribe amount and the official accepts it), your payoff will automatically be reduced by **7 B** (seven times the bribe amount B). It is the damage you sustained as a result of the bribery act. If you want, you can report/punish them. If you choose to report/punish them, you have to determine the punishment amount P, where P is an integer rounded off to hundreds from 200 to 1200, thus P = {200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200}. The penalty amount you choose will be **tripled** and the payoffs of the firm and the official will be reduced by the tripled amount. **Your payoff will be reduced by the amount P, i.e. by the penalty amount that you choose.** The exact payoff amount then will look like this: firm = 6000-200+3B-3P, official = 3000+3B-3P and citizen = 8000-7B-P. If you decide not to punish the corrupt act, the payoffs will amount to: firm = 6000-200+3B, official = 3000+3B and citizen = 8000-7B. Please, write your decision in your answer sheet that will later be collected by the experimenter.

Diagram 1 describes the game's general structure and the chain of decisions made by individual players. Diagram 2 outlines a concrete example – what would happen and what your payoffs would be if the firm offers a bribe with the value of 800, the official accepts and the citizen opts for punishing both for the corrupt behavior by the penalty amount of 400. In this concrete example the payoffs of the firm and the official are reduced by the amount of 1200, while the citizen's payoff is reduced by 400.

Figure 3: *Experimental structure*

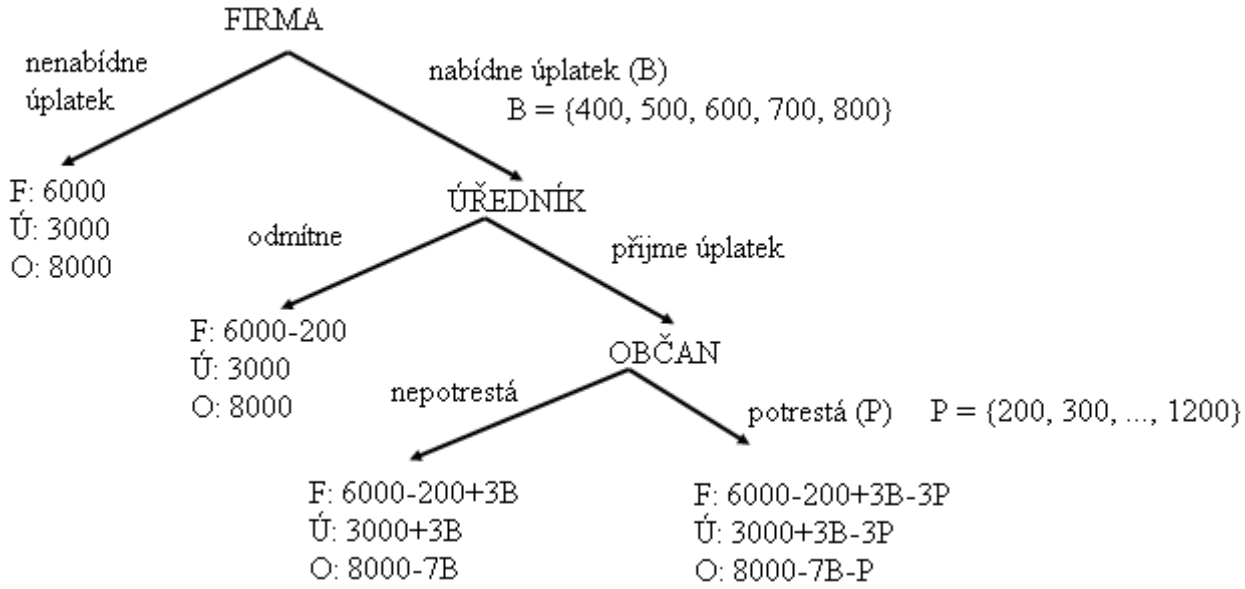


DIAGRAM 2: FIRM OFFERS BRIBE OF 800, OFFICIAL ACCEPTS AND CITIZEN CHOOSES PUNISHMENT OF 400.