

HYPER-CORRUPTION THEORY (MICROECONOMIC ANALYSIS WITH THE USE OF GAME THEORY)

Radim Valencik, Assoc. Prof., PhD

University of Finance and Administration, Prague, Czech Republic

Abstract

This paper discusses the corruption resistance (hyper-corruption). We use the exact models (in our case from the area of the game theory, the analysis of the game such as the Tragedy of the Commons) in decoding the social reality with regard to uncovering the phenomenon of structures based on mutual covering of violations of the generally accepted principles, its significance, description of its anatomy, evolution and operational mechanisms.

Keywords: Corruption, gametheory, prisoner's dilemma, contextual games, tragedy of the commons

Introduction

When we talk about corruption, we are usually referring to the battle against bribery. From the legal perspective, the new bribery regulations are contained in § 331 to § 334 of the Czech Criminal Code. Experience up until now has shown that even though the CR occupies one of the leading positions as far as the dispersion and deep roots of this unfortunate phenomenon are concerned, and even though all sides (in the political as well as non-political sense) commit to fight it, the results of this battle are more than dismal. This contribution presents the answer to the question of why this is the case. The real problem is not corruption, which can be uncovered and punished relatively easily, but rather that which we call hyper-corruption. In the first approximation, one can say that this concerns the formation of relationships based on the “corrupting of the corrupt”, respectively the forced corruption behavior of those that have engaged in corruption or similar forms of behavior.

The identification, definition, description and analysis of hyper-corruption assume a developed theoretical apparatus that falls into the area of micro-economics and uses game theory. We ran into this phenomenon while elaborating on several different theoretical questions, while engaged in several different research directions that met and supplemented each other in connection with the phenomenon's discovery and subsequent “bringing into the light”. Specifically this concerned the resolution of the following theoretical questions, respectively problems:

1. Explanation of apparent discrepancies between theory and experiments performed on the basis of the prisoner's dilemma model by adding the role of credibility capital (reputation).

2. Description of assumptions under which credibility capital can be formed and can act, revealing of structures based on the mutual covering-up of the breaching of rules and generally accepted principles (hereinafter structures based on mutual covering-up) as those forms of behavior that are connected with the surpassing of conditions under which credibility capital is formed and acts.

3. Creation of a model of structures based on the mutual covering-up on the basis of the revealing of (incomplete) symmetry between integrating a player into a structure and the exit or departure of a player from a given structure.

4. Revealing of the complementarity of models based on the redistribution systems theory (that capture that about which the players in a given system are completely informed) and models based on the delimiting of structures based on mutual covering-up (that capture that which can work only thanks to the different levels of informedness of players in a system).

5. Combining the model of parallel redistribution games with a model of structures based on the mutual covering-up (respectively interpreting the model of parallel redistribution games via structures based on mutual covering-up).

We have listed the questions the solution of which opened the way to revealing what hyper-corruption is in the order that corresponds to the logical sequence. The actual discovery approach in a time horizon of approximately two years was somewhat different and it makes sense to describe it briefly. The very first thing created was a mathematical model of a redistribution system, and two equilibrium types (discriminating, which is the same as the discrete internal and external stable set, and the jointly acceptable, which has values different from the equilibrium types known until now) were revealed. In contrast with the redistribution system model, real systems (in which there are deviations in the payout to players from their performance, in which there are negotiations and where coalitions form) are exposed to various external influences. The impacts of these external influences were modeled via parallel redistribution games. They differ from the basic game by the fact that not all players are informed in them. But with the exception of a very general description in the form of modified redistribution equations, there was no more specific interpretation of that which corresponds to these parallel redistribution games in reality, i.e., their interpretation was missing. A little bit later, and independently of this, the team dealing with the redistribution systems theory discussed the question of to what extent models of players based on the assumption of their rationality are relevant and where their limits are. In connection with this, the results of experiments performed on the motives of the prisoner's dilemma type game model were mentioned. It was shown that the apparent discrepancies between what theory says and the real behavior of players can be resolved by expanding the payout matrix to include the influence of credibility capital, respectively reputation, which the players either gain or lose. Following this significant leap forward, the following question was asked: under which conditions can the influence of credibility capital contribute to the keeping of agreements or generally accepted principles. An example of behavior was provided where a player uses a different strategy, respectively a strategy that is outside of the scope of the evaluation of the given due to the acquisition or loss of credibility capital. This was a case where a player takes advantage of, respectively abuses, the fact that he and only he knows about the fact that another player has breached the generally accepted principles and blackmails this player. Specifying the description of this situation in the form of a model of relevant dilemmas (announce the breaching of the rules or blackmail the player breaching the rules in the case of a player that discovered the breaching of the rules, succumb to the blackmailing or not in the case of the player that breached the rules) showed that on this basis can be formed relatively complicated structures that are based on the mutual covering-up of the breaching of rules or generally accepted principles. It was apparent from the beginning that these structures can be related to parallel redistribution games, respectively that they can be interpretations of them. But no sufficiently functional model of structures based on the mutual covering-up existed. Its foundations were put into place by revealing the significance of the symmetry between incorporating a player into the structure and the exit or departure of a player from the given structure. This made it possible to "bring into the light" the structures based on the mutual covering-up, as well as parallel games, respectively to demonstrate the link between the one and the other. At the same time was revealed the complementarity of models based on the redistribution systems theory, which describe the "visible" part of

reality, and models based on the specification of structures based on mutual covering-up that capture that which is “invisible” (remains hidden or is hiding). This enabled the identification and naming of the problem of hyper-corruption, where the issue is not the fact that a person attempts to bribe another person, but rather the fact that another player (this player can also be a structure based on the mutual covering-up that is already being created) takes advantage of having information about corrupt behavior and a structure based on the mutual covering-up is either formed or strengthened.

We are aware that we are using terms that require precise definitions and uncovering of contents via relevant models. The issue is not only the definition, but a condition of the functioning of a term as an element of theory building is its link to a model that is correct, consistent and has sufficient explanatory power. The difficulty connected with the theoretical grasp of the phenomenon that we have called hyper-corruption is given by the fact that it was insufficient to move the theory forward in only one direction and in the form of only one step. Instead, several steps in several directions had to be taken and these then had to be linked, which was not anticipated within the scope of the original research program. The fact that this occurred at this time and in this place is probably also connected with how urgently and generally the problem of corruption and the unsuccessful battle with it is felt in the CR. This probably confirms what commonly occurs in history: every serious problem finds its theoretical reflection in the place where it is felt the most.

The goal of this contribution is -- from the above stated perspective and within the above stated context -- to present an overview of tools that make it possible to identify, define, describe and analyze the term “hyper-corruption” as a subject of micro-economic research performed with the use of game theory. In the conclusion we will then outline some practical recommendations ensuing from the theoretical investigation.

Explanation of apparent discrepancies between theory and experiments performed on the basis of the prisoner’s dilemma model by adding the role of credibility capital (reputation).

In 2009, work was begun on the CR Grant Agency’s Redistribution Systems Theory project. The project conception was based on the Game Theory and Redistribution Systems monography (Valenčík 2008). This is an original and promising direction of the development and application of game theory, which will be discussed later on. The research team set (and still sets) an ambitious goal: using models based on game theory, reveal undiscovered laws of human behavior, i.e., to put it clearly, answer the question of why people behave the way they do in a certain type of system. A question arose during the testing and perfecting of the mathematical model of a redistribution system: to what extent is it possible to proceed from the assumption of player rationality. Several experiments were discussed that according to certain interpretations demonstrate the fact that the irrational side of humans is significant to the extent that models based on the assumption of rationality necessarily fail.

Already in the interpretation of a case with the distribution of a certain amount of money -- where the players divide the amount according to the first player’s proposal, but they actually only get these amounts if the second player agrees with this -- it became clear that the apparent irrationality of players can be explained using contextual games, i.e., games that are related to each other in a certain way (Valenčík – Budínský 2010). Therefore also in the clarification of experiments examining the behavior of people in situations of the prisoner’s dilemma type, where there was a significant (although -- as we will demonstrate -- only an apparent) discrepancy between what theory says and how people actually behave, an attempt was undertaken to explain the situation using a relevant contextual game.

Let’s keep in mind that both players have two options in a prisoner’s dilemma type: cooperate or betray. The selfish choice to betray leads to greater benefits than cooperation if

the second player cooperates, but to lesser benefits if the second player also betrays. The rational behavior of both accused persons is to testify against the other person, even though the optimal solution for both of them together is for both to remain silent.

That which in the case of the prisoners is called a strategy of silence or testifying against the other person, respectively cooperation or betrayal, can also be interpreted in regular life as the strategy of complying with an agreement or generally accepted principles, or conversely the breaching of an agreement or generally accepted principles. We will present a table of the most well-known results published in the given area:

Table 1. Comparison of experiments in the Prisoner's Dilemma model

	deflection	cooperation	unknown decision
Shafir, Tversky [1992])	97	84	63
Li, Taplan [2002]	83	66	60
Busemeyer [2006]	91	84	66

Source: own study.

The names and year show who performed the corresponding experiments and when. The numbers in the columns express the percentage representation of “betrayals”, i.e., cases when the corresponding player who had guaranteed information that the other player betrayed him (first column) or did not betray him (second column), or was not informed about the second player’s decision (third column), opted for the strategy of non-cooperation. Other experiments showed that the willingness to betray or cooperate is influenced to a large degree by the size of the reward (punishment). Let us now take a closer look at where is the difference between how players (i.e., specific people) should behave in theory versus how they actually behave. If we do not know how the other player decided, we should betray (and not only in 60-66 % of cases), and if we do know that the other player betrayed us, all the more so (and not only in 83-97 % of cases). If we know that the other player is cooperating, why betray him (and why in 66-84 % of cases, i.e., in even in a greater number of cases than when we don’t know how the other player behaved)? How can the “irrational” behavior be explained (if, however, it really is irrational behavior)?

We have to proceed from the contextual character of games, because in reality a situation where a prisoner’s dilemma type game is played without repetition and is completely isolated from other games occurs very rarely. Most of the time during the course of a game, other people (who we can consider to be players in other games) are observing how individual players decide, and based on this they also create a relationship to the participants of the given game. We can therefore understand each game that we are actually playing as a contextual game, i.e., a game that we are playing in the context of other games. For the sake of completeness, let us add that we are introducing the term “contextual games” as an original term. In theoretical literature we will find only the designation of some starting points with which we are working, such as Meliers – Birnabou (1981). But this is only a partial view without an apparatus that would make it possible to analyze the contextual games phenomenon.

Our decision-making in real games depends significantly on how we reflect contextual games. The reflection itself of contextual games depends considerably on our experience and the transformation of this experience into the “on-line” mechanisms of our (human) decision-making in which important roles are played by imagination, emotions and other attributes of the psyche, i.e., mechanisms that we usually classify as outside of the scope of human rationality. Nevertheless, the model based on the assumption of partial rationality -- to which other mechanisms of the human psyche also contribute -- has sufficient explanatory power from the perspective of the goals that we have set. Rather than

irrationality, once can speak more about limited informedness and limited possibilities of processing information in real time. This restriction is given already by the diversity of the reality in which we live. Knowledge of contextual games helps us in assessing situations, but this knowledge is always only incomplete.

Let us demonstrate how a game of the prisoner's dilemma type changes if we consider it to be a game played in the context of some other games. The partial results, based on which we are proceeding, were first published in December 2010 (Heissler – Valenčík 2010). The tables are taken from the original text, and the text is refined and expanded.

Table. 2. Comparison of experiments in the Prisoner's Dilemma model

		B	
		cooperation	non-cooperation
A	cooperation	6; 6	0; 8
	non-cooperation	8; 0	3; 3

Source: own study.

A, B are players that have two strategies: comply with an agreement or breach an agreement (breach agreed upon or acknowledged rules). Their payouts are in the matrix. Let us now assume that from the perspective of one of the players (e.g., A) the game has a certain context, respectively is played as a contextual game in the sense that the community in which the player is active may be (but also does not have to be) informed about the outcome. If he complies with the agreement and the other players in the given community see this, this will contribute to the increasing of his credibility capital (reputation). If, however, he does not comply with the agreement, and the other players in the community find out about this, his credibility capital (reputation) decreases. Let us also assume that the credibility capital (reputation) can (at least approximately) be valued in units in which the payouts from the prisoner's dilemma type games are made, and the corresponding player values the loss or acquisition of the credibility capital in this way. For example, the player values the loss in the event of non-compliance with an agreement with -6 points, and the increase in the event of compliance with the agreement with +2 points (trust is lost faster than it is gained). It is necessary to emphasize that this valuation is based on the assumption that there is only a certain probability of the community being informed about how the players decided. Each player guesses the level of this probability and its value is directly linked to the bonuses and penalties given by the acquisition or loss of credibility capital. The following table shows how the situation changes.

Table. 3. Payout matrix of a game of the prisoner's dilemma type with the taking into account of credibility capital (reputation)

		B	
		cooperation	non-cooperation
A	cooperation	6+2; 6+2	0+2; 8-6
	non-cooperation	8-6; 0+2	3-6; 3-6

Source: own study, first presented by Šnajdar-Valenčík [2010]

We see that the situation changes dramatically. It is worthwhile for both players to cooperate. But only if the original payouts and payouts connected with the acquisition or loss of credibility capital (reputation) have certain values. The situation can be different if the values are different. We will demonstrate one of the possible cases. Let us note that in both cases we are working with a certain simplification where both players value the loss as well as acquisition of credibility capital equally (which generally does not have to be the case),

even in cases where the second player complies with the agreement, as well as in cases where the second player does not comply with the agreement (this generally also does not have to be the case).

Table. 4. Payout matrix of a game of the prisoner's dilemma type with the taking into account of credibility capital (reputation), values are different

		B	
		cooperation	non-cooperation
A	cooperation	6+2; 6+2	0+2; 20-6
	non-cooperation	20-6; 0+2	3-6; 3-6

Source: own study, first presented by Šnajdar-Valenčík [2010]

In the case of the values that are listed in table 3, the following two interesting phenomena occur. If player A has information that player B complied with the agreement, he is better off not complying with the agreement, which explains the apparent paradox in the experiments cited above. If player A has information that player B did not comply with the agreement, he is better off complying with the agreement, which also explains the apparent paradox in the experiments cited above.

If only credibility capital (reputation) entered into the games, this would strengthen the tendency to comply with agreements, respectively to behavior based on compliance with acknowledged rules or principles. But additional influences can also be in play. It would be possible to reveal these influences by empirical testing of the supplemented model, with players valuing the value of credibility capital and independently making the choice whether to comply with the agreement or not.

Assumptions of the formation and functioning of credibility capital, structures based on mutual covering-up

A model based on the assumption of the contextual nature of a prisoner's dilemma type game and its expansion by the element of the acquisition or loss of credibility capital offers the way to resolving the question of why and when does it pay off to comply with rules or generally accepted principles. Additionally, however, this model can contribute to clarifying the issue of the formation of institutions. But it is important to precisely define the conditions under which credibility capital can be created and can function. They include the following, among others:

- The possibility that a player that is a part of the system in which we are considering the contextual game (e.g., player C) discovers that another player (e.g., B from the two players considered so far) has breached, or conversely not breached, a certain generally accepted principle. We can also view the breaching of an agreement as the breaching of one generally accepted principle in a certain system (e.g., community, etc.).

- The fact that it pays off for player C
 - who discovered the breaching or not breaching of generally accepted principles
 - to inform the other players about the breaching or not breaching of generally accepted principles by player B. This condition also includes the fact that he has the possibility of informing the other players (otherwise it would not pay off for him to do so).

- The fact that the informedness of the community means bonuses or penalties (as a result of sanctions, or conversely the increase of authority, etc.) for the player breaching or not breaching agreements.

Let us note the second condition in more detail, i.e., that it pays off for the second player to spread the relevant information (e.g., in the form of reporting the player breaching

generally accepted principles). In the general case it holds that it can pay off for him sometimes, yet under different conditions it may not pay off for him. Player C can then decide among various alternatives:

- Spread the information, i.e., report player A.
- Ignore player A's actions, i.e., no reaction.
- Abuse the information, i.e., blackmail player A.

Player C's decision-making can be expressed via the following illustration:

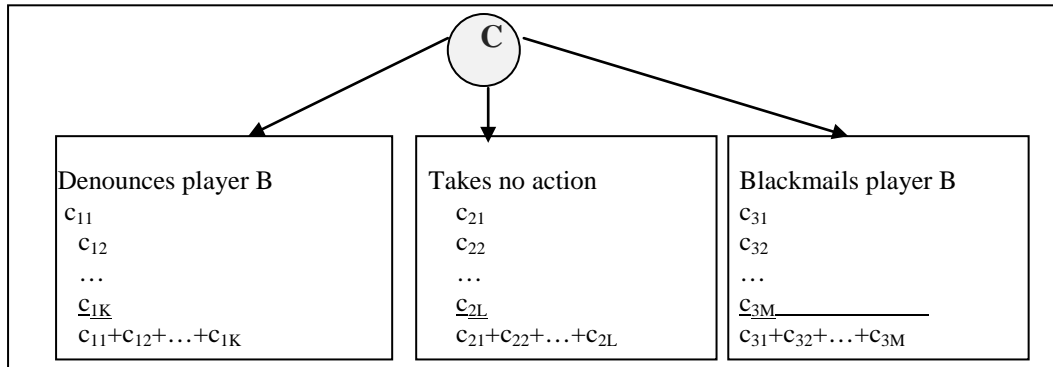


Figure 1. Diagram describing the decision-making of a player who discovered a breach of generally accepted principles
Source: own study.

Here c_{1i} (and similarly in other cases c_{2i} or c_{3i}) is the valuation of various consequences of player C deciding for one of the alternatives. The values of these parameters can either be positive or negative. The following are possible examples:

- Protection of the community and a share of its results.
- Risk of revenge by the player that is reported.
- Reward by the community for protecting it.

If he blackmails the player, it can then be, for example, the possibility of increasing his own payouts in the form of breaching generally accepted principles about which the other players will not find out as a result of the role of the blackmailed player. It can also be, however, the valuation of the risk consisting of the revelation of the fact that he himself is breaching generally accepted principles with the blackmailing.

Objective analysis, which can be based on the mapping of generally occurring payouts in individual cases, is necessary here in every specific case. The mapping of various components of payouts (presented by the parameters c_{1i} , c_{2i} , c_{3i}) based on the listed alternatives is significant (and also very interesting for those dealing with this), nevertheless it exceeds the focus of our paper.

Player C then decides according to which alternative brings him the greatest payout.

The blackmailed player then faces the following dilemma:

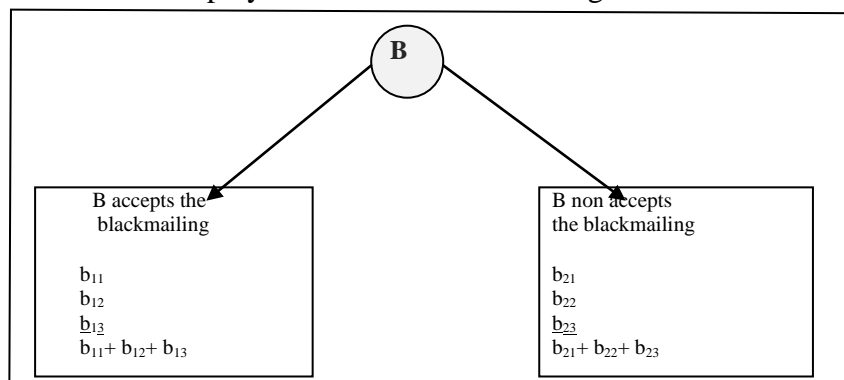


Figure 2. Diagram describing the decision-making of a player who contemplates, if he accept the blackmailing
Source: own study.

Here:

b_{11} is the valuation of the sanction via which the blackmailed player will be penalized if he accepts the blackmailing player's offer (in the given case one can assume that it will be zero)

b_{21} is the valuation of the sanction via which the blackmailed player will be penalized if he does not accept the blackmailing player's offer (in the given case one can assume that it will be quite severe)

b_{12} is the valuation of the advantage that the blackmailed player will have if he accepts the blackmailing player's offer (in the given case one can assume that it will have a certain value)

b_{22} is the valuation of the advantage that the blackmailed player will have if he does not accept the blackmailing player's offer (in the given case one can assume that it will be zero)

b_{13} is the valuation of the risks and negative consequences that the blackmailed player assigns to the fact that he allows himself to be blackmailed and starts to cooperate (in the given case this is a negative variable and in most cases a big one)

b_{23} is the valuation of the risks and negative consequences that the blackmailed player assigns to the fact that he does not allow himself to be blackmailed and does not start to cooperate (in the given case this variable is zero)

$b_{11} + b_{12} + b_{13}$ is the sum of all of the blackmailed player's payouts if he accepts the cooperation offer

$b_{21} + b_{22} + b_{23}$ is the sum of all of the blackmailed player's payouts if he does not accept the cooperation offer

Some notes to this:

1. The payout of the blackmailed player, no matter how he decides, consists of several components. As we have seen, this also holds in similar cases, i.e., not only when he faces the dilemma whether to allow himself to be blackmailed or not. When illustrating this in a corresponding schema, it is good to list the individual components under each other, so that also in the schema a brief characteristic can be assigned to them at least in one word (we did not do this in the case where player C was deciding; we only do so now). This makes the schema clearer. Anyone studying it will have a better idea of what is going on. The total sum of the payouts is then stated under the line.

2. In the model, the following applies in the logic of the matter:

- if $b_{11} + b_{12} + b_{13} > b_{21} + b_{22} + b_{23}$, the player accepts the offer and allows himself to be blackmailed;

- if $b_{11} + b_{12} + b_{13} < b_{21} + b_{22} + b_{23}$, the player does not accept the offer and does not allow himself to be blackmailed.

3. For the sake of completeness, we also include in the schema the values of those variables that are equal to zero in the given case, as they can have non-zero values in the schematic expression of similar situations.

4. A player can be mistaken when handling the said dilemma. The origin of the error can be in one or more of the following mistakes:

- The player is not aware of and does not consider ("does not include") an influence or consequence that plays a significant role in reality (in our case we stated three, there can be more in real situations).

- The valuation of an influence is inadequate (in the given case, consequences that will be faced by the blackmailed player if he accepts the cooperation offer and allows himself to be blackmailed usually tend to be significantly undervalued). This is usually the case because the player is unable to imagine how the game will continue to develop (we will deal with this later on).

5. One of the benefits of the presented schema is, among other things, that it makes it possible to identify, differentiate and describe individual cases of errors. In more complicated situations, where it is necessary to also take the other player's (the one who is doing the blackmailing) reaction into account, the cause of errors can also be the incorrect estimate of parameters according to which the other player is making his decisions. This is a considerably more complex case, which we will also discuss later on.

A situation where one player can blackmail a second player based on the above stated occurs in two ways. Either, as we have already discussed, i.e., that one player (in our case player B) does something and the second player begins to blackmail him and force him to take a certain type of action. But it can also occur in a different way. The player that we have designated as "C" can be engaged in an activity that is contrary to the generally acknowledged principles in a given community. He usually also performs this activity with other players. Player B discovers this, while at the same time player C knows that player B has discovered this fact. If player C also has the chance to discover some sort of breach of generally accepted principles committed by player B, he can begin blackmailing him, in this case only ex post. From this perspective, the first case is then ex ante blackmailing.

In real situations the relations between the player doing the blackmailing and the one that is being blackmailed tend to be asymmetrical. A player with other players who together are performing activities breaching generally acknowledged principles -- we can label them, for example, players C_1, C_2, \dots, C_M -- search for information about other players in the system so that they can blackmail them, respectively to force them to perform an activity that makes it possible for that which players C_1, C_2, \dots, C_M are doing to be covered, to be disguised.

Whether the abuse of the fact that one player or multiple players knows or know about another player that he has breached principles generally acknowledged in a certain community or system, either ex post or ex ante, is formed based on that which we have stated, structures that we have called structures based on the mutual covering-up of the breaching of rules or generally accepted principles. In simple cases linked to games of the prisoner's dilemma type, one can speak only of the breaching of agreements, which itself tends to be one of the cases of the breaching of generally accepted principles. Our next task will be to find a suitable key for describing structures based on mutual covering-up.

Model of structures based on the mutual covering-up and symmetry between integrating a player into a structure and the exit of a player from a given structure

Describing structures based on mutual covering-up is a theoretically demanding problem for several reasons, which we will list before we start resolving it:

1. Structures based on mutual covering-up can be very multifaceted; they can differ in a number of their parameters.
2. The relationships inside structures based on mutual covering-up tend to be quite branched.
3. It generally holds that it is not simple to describe that which is hiding and always remains more or less hidden and only becomes visible through certain types of consequences.

A good key to describing the significant aspects of the behavior of structures based on mutual covering-up proved to be the revealing (or more precisely the understanding of the significance) of the symmetry between incorporating a player into a structure and the exit or departure of a player from the given structure. This symmetry is incomplete for the following reasons:

- The player dealing with the dilemma whether to allow himself to be drawn into a structure or not is usually less informed and does not have a sufficient idea about all possible consequences.

- Sanctions ensuing from exiting the structure can be much more severe than sanctions from refusing to enter a structure that is based on mutual covering-up.
- A player exiting a structure, respectively attempting to depart from a structure, has multiple possibilities of how to proceed.

We can consider several possibilities available to a player that was incorporated into a structure in the form of blackmail or bribery (based on the previous, we will designate him as “B”):

- Player B remains in the structure after considering all alternatives.
- Player B departs from the structure but keeps everything he knows to himself.
- Player B departs from the structure and starts to report what he knows to those players from a relevant system (e.g., community) to which he can report this.

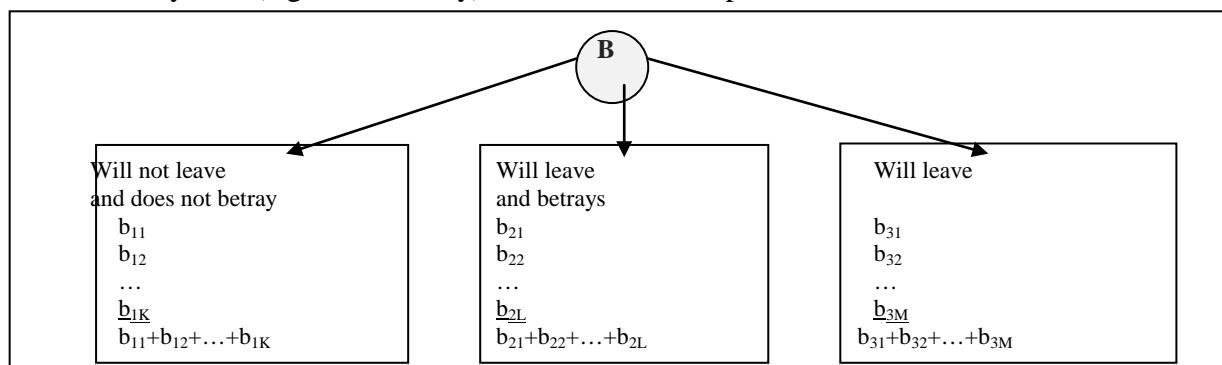


Figure 3. Diagram describing the decision-making of a player who contemplates leaving the structure

Source: own study.

Here b_{1i} , b_{2Ni} , b_{3Vi} are various types of consequences that the player considers and that he believes could occur. One of the interesting and important directions of the theory development is composing a typology of consequences that correspond to various alternatives of behavior for which a given subject can decide.

A structure (usually represented by a core of players who decide how the structure will behave) reacts to the decision of a subject to exit or depart from a structure. This launches an entire chain of contextual games, which -- as we will show later on -- we can model by expressing the basic schema of contextual games as a game in an explicit form with the addition of other inserted games that start to be played. We can consider the following development, for example:

1. Player B (we will use the designation that we have already used earlier in the given context for the corresponding player) decides to leave the structure, but to not report (to not inform other players in the system in which he is active about what he knows). By doing this, he attempts to attain that the structure does not react.

2. The structure deals with the problem whether to react to the player’s effort to leave the structure. On one hand it is a precedent, as other players could also follow player B. On the other hand, player B is not reporting, which could change if the structure takes a harsh stance and begins punishing the player. But the structure can decide to silence the player definitively.

2.1. When speaking of a structure, in accordance with the previous we mean its core, which is formed by some players. Because here we are considering the entire structure to be a certain player, who in accordance with the previous we are labeling as C, we will label the players that form the structure’s core, i.e., the players whose decision-making influences the structure’s behavior (and to keep things simple we will assume that there are only three), as C_1 , C_2 , C_3 . They will play a certain game among themselves, the outcome of which will be how to proceed against player B, i.e., a decision about the strategy that they will use against

him. This is an inserted contextual game, which was initiated by the original decision of player B to leave the structure. This game can be analyzed by various means, among others also as a (stated later on) redistribution system of a certain type (see for example Budinský – Valenčík 2011). The following alternatives can be the outcomes of the game played by the core players:

- The structure does not react.
- The structure punishes the player.
- The structure silences the player definitively.

We can assume that if the structure does not react or, conversely, definitively silences the player, the game ends. But other games could also be triggered, such as:

- If the structure does not react, other players will start considering exiting or departing from the structure.
- If the player is definitively silenced, other players that are in a similar situation to that of player B can react to this in some way.

3. If player B is punished, he faces the dilemma of whether to start informing on the other players as revenge (report what he knows, inform other players in the system in which he is active, etc.), or to remain silent in order to avoid a more severe penalty or definitive silencing.

4. The next move is once again up to the structure, which -- similarly to before -- ponders the dilemma whether to continue not reacting, punish the player more severely or whether to even definitively silence him.

4.1. This, like in the previous case, triggers a game inside the structure among the core players.

is one only possible game scenario. Worth mentioning is also the possibility of expanding the conflict outside of the given structure that is based on mutual covering-up, as this structure is weakened by the conflict, which other structures that compete with it in the given social space could take advantage of and weaken its position or even eliminate it. On the other hand, by doing this they could also create a precedent for their own players who are pondering the idea of departing the structure. That is why the decision-making of the structure's core does not have to be unanimous. We attempted to simulate the course of the game based on the presented concept in a student environment. The simulations were performed only for the purpose of preparing representative research. Even so, they brought relatively interesting results, which can be briefly characterized as follows:

- A player entering the structure is absolutely not able to imagine the future development, underestimates the risks and possible consequences.
- Very quickly after entering the structure, already after the first experiences, the player assesses the future development much more precisely.
- In the decision-making of the structure's core players, there is a clear shift towards orthodoxy, i.e., adopting severe measures.
- When considering the behavior of structures that compete with the original one, their core players have the tendency to support the competing structure and not the rebelling player in the competing structure.

Specification of the term “hyper-corruption” and notions about it

As we have stated, in the first approximation one can say that hyper-corruption is the formation of relations based on the “corrupting of the corrupt”, respectively forced corrupt behavior of those that have committed corruption or similar forms of behavior. It starts where the person who caught someone in the act of corruption does not face this form of the breaching of generally accepted principles by expanding the informedness of others about what occurred, but on the contrary forces the person that was caught into behavior that also,

and usually even more severely, breaches generally accepted principles. But this is only the first step in the formation of hyper-corruption. Relations based on mutual covering-up have the tendency to expand quickly and grow through the corresponding system, penetrate the formation of its representation and institutional components, including and especially those institutional components that are supposed to prevent corruption and other forms of the breaching of generally accepted principles.

The legal regulations governing bribery contained in § 331 to § 334 of the Criminal Code are based only on the fact that only persons who accept a bribe or the promise of a bribe or, conversely, only persons who give or promise a bribe, are committing the corresponding criminal act. The legal regulations governing blackmail contained in § 235 speak of the fact that the corresponding criminal act is committed by the person who forces another person with violence, the threat of violence or the threat of other severe damage to do something. It is clear from the above stated that in the area of legal regulations there are considerable reserves, as far as disciplinary action against structures based on mutual covering-up and the forms of blackmail that exist in the given case are concerned. It is also clear that hyper-corruption is only affected minimally by the existing methods of the battle against corruption. The existing forms of the battle against corruption practically cannot weaken the structures based on mutual covering-up that are linked to corruption and blackmail. It is no wonder that education in the given area is also ineffective, because it is quite remote from that which is actually taking place in reality.

The original schema based on expanding the prisoner's dilemma type model with the effects of credibility capital assumes that the blackmailing of a player that has committed an act of behavior breaching generally accepted principles is effective only if sufficient influence of this type of capital exists in the corresponding community. In other words, if the influence of credibility capital faded, the decreasing of the effectiveness of blackmailing on the basis of its loss would occur, along with weakening of the structures based on mutual covering up. These situations can occur in various periods and their existence is provable. Usually, however, the development is different, especially in places where the institutional system is significantly penetrated with structures based on mutual covering-up. Here the structures based on mutual covering-up usually preserve their influence by increasing the penalties for minor breaches of generally accepted principles, and blackmailing itself is then based on utilization of a double standard in the judging of the behavior of someone who in accordance with the process of the structure's genesis needs to be pulled into the structure, or -- conversely -- of someone who could come across one of the cases of the breaching of generally accepted principles by the structure or one of its players and would want to inform the other players in the system. From the above stated ensues, among other things, that the model that we have provided makes it possible to formulate and operationalize a number of indirect indicators of the degree of the influence of structures that are based on mutual covering-up.

Structures based on mutual covering-up usually function in complex communities that have the form of hierarchical social systems. In these systems, in which some redistribution systems have a specific function, payouts can be acquired not only from the redistribution system itself, but also from its environment, respectively other redistribution systems. (Because the "it's easy to spend other people's money" principle applies here, the conditions for the formation of structures based on mutual covering-up are very favorable in this area and it is here that they frequently start to flourish.) Structures based on mutual covering-up can also be formed "cross-wise" among various redistribution systems, resulting in cross-coalitions or even entire social networks growing through the entire hierarchical system. The existence of cross-coalitions and the from them evolving social networks growing through hierarchical systems manifests itself by the fact that the predetermining of the formation of

coalitions occurs the same way in more cases. According to how and where the predetermined coalitions form, it is then possible to map the contours of structures that are based on mutual covering-up. Analysis of the negotiations process in a “clean” redistribution system makes it possible to reveal and describe various strategies that people (as players) would use if no external influences acted on the system. The better we are able to describe this process of the use of strategies and the learning of strategies by individual players, the more clearly it will be possible to identify when and how a player is pulled into the formation of structures that are based on mutual covering-up. A player usually tends to be pulled into the formation of structures that are based on mutual covering-up by being told “in public interest” during negotiations that “some information is only for some people” and that certain breaching of rules is “completely normal” because “everyone does it”, including persons whom he trusts. A player drawn this way into the formation of structures that are based on mutual covering-up gradually comes to terms with that about which he would have said earlier that he would never come to terms with; he begins playing the game “for the better persons” and those that have the right “to a different truth” than the one that is “for the majority” because “the majority does not deserve the real truth”. This also concerns demonstrations of how that which is “invisible” allows itself to be seen in various ways. One just has to learn how to read it all. And a good theory is necessary for this.

Conclusion

It is not difficult to imagine a number of directions in which it is possible to continue with further examination of the phenomenon that we have called hyper-corruption. That which was revealed as the result of the development of the theory in several directions, which met in a certain area, at the same time opens the path of the further development of the theory in various directions. This concerns especially the following areas:

- Adding more elements to the payout matrices that describe the consequences of the consideration of various alternatives by both the subjects that are being blackmailed as well as by those that are doing the blackmailing in the formation of structures based on mutual covering-up. The goal is to make the list of all consequences of this or that decision as complete as possible and also well-structured.
- It is also possible to identify more alternatives that are possible for players in various situations, from the perspective of the expression of their behavior within the structures that are based on mutual covering-up as games in an explicit form.
- A more difficult task is reflecting the course of the game (moves that are made later) into the establishing of the value of the specific consequences of this or that decision in the early moves.
- Find suitable symbolism that has considerable importance during the subsequent formalization and mathematization; it is still possible to improve much on the symbols and symbolism that we use.
- The most difficult tasks are then in the area of mathematization and possibly also the axiomatization of sub-models and their interconnection; among other things, also the interconnection of the model of structures that are based on mutual covering-up and the model of parallel redistribution games is concerned here.

The greater the progress made in the resolution of these questions, the greater the applicability of the theory for dealing with the given issues in practice. Practical application can be expected in the following areas:

- Education of the public (where combining theory and practice usually begins), so that everyone is able to properly evaluate that which he or she comes across so that he or she does not become a victim and instrument of hyper-corruption and is able to react to its manifestations in a qualified manner.

- Legal regulations, so that the Criminal Code punishes actions that have the greatest social danger, instead of contributing to the creation of an environment in which anyone can become blackmailable.

- Politological reflection, which would comment in a qualified manner that which is taking place in connection with the declared battle against corruption.

We also consider elaboration of the theory of hyper-corruption within the scope of institutional economics and theory of institutions as an independent dimension from both a theoretical as well as practical perspective. We came across the need to deal with this dimension several times during our discussion, but due to the focus of our paper we were not able to give it sufficient attention.

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