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An Exploratory Analysis of the Number of Corruption Crimes in Romania from 2014 to 2020

Iulia Oana Florea

University of Economic Studies in Bucharest

oflorea81@gmail.com

Kamer Ainur Aivaz

Ovidius University of Constanta

aivaz_kamer@yahoo.com

Abstract. Corruption is a form of dishonesty or a crime that is undertaken by a person or organization entrusted with a position of authority to gain illicit benefits or abuse power for personal gain. Corruption can involve many activities that include bribery, influence peddling and embezzlement and can also involve practices that are legal in many countries. There is a consensus regarding the presence of this phenomenon since ancient times, but this consensus is not maintained regarding the definition or motivation of this phenomenon. The objectives of this paper are to highlight the dynamics of different types of corruption crimes that occurred between 2014 and 2020 in Romania which may help the law enforcement agencies in the fight against corruption. The methodology used for this paper is principal component analysis.

Keywords. Corruption, crime, bribery, influence peddling, embezzlement.

1. Introduction

Corruption is a crime that is undertaken by a person or an organization with a role of authority, who realizes illicit benefits or abuses power in personal interest. Corruption takes many forms, some of the most used being bribery, influence peddling and embezzlement. In the following we will explore the origin of the phenomenon of corruption and highlight some of the controversies generated by the attempt to define and motivate this phenomenon.

Corruption is a global, timeless and trans-systemic phenomenon (Neild, 2002). It can exist in any country, at any time and under any form of government, as John A. Gardiner (1970) also said. It appears persistently in political society and is unlikely to be completely eliminated, ever. It exists in any situation where people compete for valuable but limited opportunities and is generated by the temptation to ensure success through corrupt incentives, in case all other efforts fail (Gardiner, 1970).

Gardiner's statement has been echoed by numerous scholars. For example, Edward Banfield (1975) argues that since people are naturally opportunistic, positions of authority and trust almost inevitably result in incentives for corrupt behavior (Banfield, 1970). Fleck and

Kuzmics (1985) argue that corruption as a phenomenon can be found in all societies that have reached a certain level of complexity. Renowned corruption scholar Robert Klitgaard (1988) points out that corruption is as old as organized human life, and indeed perhaps as old as government itself.

The studies on corruption or the phenomena associated with it have known various study perspectives over time, such as the study of the intention that may trigger it (Munteanu, 2021), the financial implications, the motivation or the investigation of the effects of the phenomenon or it's context (Aivaz et al., 2022b). The timeless nature of corruption is best illustrated with examples from the ancient world, such as the Arthashastra text which is about 2400 years old. In one part of this text, Kautilya, one of the advisors of Emperor Chandragupta Maurya, talks about the inevitability of corruption and the need to curb it.

The timeless and seemingly ever-present nature of corruption (Chiriac et al., 2021) is also illustrated by the case of China. Lambsdorff, Taube, and Schramm (2005) point out that as early as the 3rd century BC, the penal code of the Qin dynasty detailed harsh punishments for corruption. In the 11th century, the Chinese reformer Wang An Shih pointed out that corruption can occur even under good institutions and laws, as long as public officials are not properly elected (Lamsdorff et al., 2005).

European scholars have pointed out that corruption was widespread in Rome and Greece. MacMullen (1988), among others, even argues that corruption was one of the major reasons for the decline of the Roman Empire. Wilson (1989) points out that even Athenian democracy was not without corruption. In fact, corruption was a big enough problem that an investigative institution, the Council of the Areopagus, had it as one of its tasks, namely the reporting of corrupt behavior (Wilson, 1989).

Alatas (1968) drew attention to the fact that history has shown us that it is impossible to ensure an adequate government only with the power of the law, and it is especially necessary to have adequate, honest people to ensure the application of these laws.

2. Definition

What exactly is corruption? However simple this question may seem, it does not seem to have found a clear answer. In fact, an aspect with a prolonged continuity is the continuing difficulty in defining and conceptualizing corruption in the literature. Even if most researchers agree that a universal definition of corruption is probably impossible (Philip, 1997), we can still distinguish two distinct approaches, namely that of the moralists and that of the revisionists.

The earliest debates on the definition of corruption, that between the so-called "moralists" and "revisionists", revolved around two complementary ideas: whether definitions that are value-laden can be used, or whether we should aspire to develop value-neutral definitions. Moralists condemned corruption and believed that any type of corruption is inherently toxic to society, politics and development in general. Not surprisingly, moralistic definitions of corruption had clear ethical overtones. Furthermore, their approach to the study of corruption tended to be descriptive in nature, as they were simply writing about a characteristic of more "backward" societies. For example, the approach of Edward Banfield (1958) would fall into this category. In his description of "amoral familism," Banfield writes that the rule follower is immoral relative to people outside the family—but relative to family members, he applies standards of right and wrong. The underlying message was clear: corruption, resulting from a lack of moral behavior, held societies back from further development.

One of the major criticisms of the moralists was that their work seemed to have an inherent western bias. According to Colin Leys (1965), moralists were convinced that "... the results of nepotism and all other forms of what they call corruption are grave and evil." Leys points out that while nepotistic practices are generally considered corrupt by Western standards, it is not always the case that family-based appointments are considered corrupt in every society. If so, then the moralists' position on nepotism and corruption was insensitive to cultural differences and clearly biased in favor of the West.

Unlike the moralists, the "revisionists" were reluctant to be so quick to condemn corruption. They did not believe that a priori judgments about the effects of corruption should be incorporated into its definition, and so tried to define the term in a much more clinical way. The term "corruption" as used by the revisionists is almost worthless. Nathaniel Leff's (1964) definition is a good example, regarding corruption as an extra-legal institution used by individuals or groups to gain influence over the actions of the bureaucracy, and its existence only indicates that these groups participate in the decision-making process to a greater extent than would be the case.

Revisionists such as David Bayley and Joseph Nye also believed in this definition as a result of imbalances between different systems. Corruption would result, for example, when new political institutions meet traditional cultures or when economic development has outstripped legal development. In short, corruption was a by-product of modernization and development, and revisionists did not believe that it was inherently harmful. Some have even argued that it could serve useful purposes. Huntington (1968) argued, for example, that corruption can be functional for the maintenance of a political system and that it can be a means of introducing new groups into the political system through "irregular means", due to the system's inability to adapt sufficiently to quickly to generate legitimate options for this purpose.

An acceptable definition according to Kaufmann and Vicente (2005) is the following: a form of dishonesty or a crime that is undertaken by a person or an organization entrusted with a position of authority, to acquire illicit benefits or to abuse power in self-interest. Corruption can involve many activities that include bribery, influence peddling and embezzlement and can also involve practices that are legal in many countries.

3. Corruption types

Among the most common types of corruption, we can mention: bribery; embezzlement; theft and fraud; extortion and blackmail; influence traffic; abuse of power; favoritism, nepotism and clientelism.

Bribery means offering, receiving or requesting any object of value to influence the actions of an official or another person responsible for a public or legal duty. (The law dictionary, 2015). In terms of government operations, bribery is essentially a corrupt solicitation, acceptance, or transfer of value in exchange for official action (Legal Information Institute, 2018). Gifts of money or other valuables that are otherwise available to everyone on an equal basis and not for dishonest purposes are not bribes. Offering a discount or refund to all buyers is a legal discount and not a bribe.

A bribe is an illegal or unethical gift or lobbying effort given to influence the behavior of the recipient. A bribe may be in the form of money, goods, rights in action, property, preference, privilege, emolument, valuables, advantage, or merely a promise to induce or influence the action, vote, or influence of a person in an official or public capacity (Funk, 2011).

In Romania, taking a bribe is punishable by imprisonment from 2 to 7 years and the prohibition of exercising the right to hold a public office or to exercise the profession or activity

in the execution of which the act was committed (art. 289 of Law No. 286/2009 on the Criminal Code).

Bribery is the promise, offering or giving of money or other benefits, in order to influence the actions of an official or another person, responsible for a public or legal debt, and is punishable by imprisonment from 2 to 7 years (art. 290 of Law No. 286/2009 on the Criminal Code).

Influence peddling is the practice of using a person's influence in a governing authority or connections with the authorities to obtain favors or preferential treatment for another person, usually in exchange for a payment. Influence peddling itself is not necessarily illegal, as the Organization for Economic Co-operation and Development (OECD) has often used the modified term "undue influence peddling" to refer to illegal acts of lobbying (Building a Cleaner World Economy, OECD, 2020) However, influence peddling is commonly associated with corruption and can therefore delegitimize democratic politics with the general public. It is punishable as a crime in Argentina, Belgium, Brazil, France, Hungary, Italy, Portugal, Romania (art. 291 of Law No. 286/2009 on the Criminal Code), Spain and the United Kingdom.

Buying influence means offering or giving money or other benefits to a person who has influence over a public official, or lets this be believed, in order to cause him/her not to fulfill, to expedite/delay the fulfillment of an act that enter into his official duties (art. 292 of Law No. 286/2009 on the Criminal Code).

4. Methodology

The method of principal components analysis (PCA) is one of the most used method of multidimensional factor analysis which, starting from a large set of data, which presents the distribution of some statistical units after the variation of some numerical variables, highlights a system of axes factorials that concentrate the information contained in the initial table for a better visualization of it (Aivaz et al., 2022a; Chiriac et al., 2022).

The application of principal components analysis can be done to achieve the following three major objectives: highlighting the statistical links (correlations) between the considered variables; highlighting the similarities, respectively the differences between the statistical units considered according to the set of recorded variables; explaining the similarities, respectively the differences between individuals, from the point of view of the considered variables. For this, the results obtained for the statistical units are "correlated" with the results obtained for the statistical variables.

5. Results and discussions

The variables used in the analysis are: bribery, requesting/ accepting bribery, traffic of influence, buying influence, Number of corruption crimes brought before Romanian courts. The data was collected from Statista, a german company specializing in collecting data. According to the company, its platform contains more than 1,000,000 statistics on more than 80,000 topics from more than 22,500 sources and 170 different industries (Statista).

The statistical description of these variables was carried out with the help of statistical indicators: the average level and the standard deviation. N represents the number of analyzed years (2014-2020).

Table 1. Descriptive statistics

	Mean	Std. Deviation	Analysis N
Bribery	134.71	25.349	7
Requesting/accepting bribery	211.43	84.680	7



Traffic of influence	144.14	32.891	7
Buying influence	13.14	5.178	7
Number of corruption crimes brought before Romanian courts.	491.43	105.339	7

The correlation matrix shows the values of the correlation coefficients between the variables, considered two by two ($r_{xi/xj}$). It is a square matrix symmetric about the main diagonal (equal to one because a variable is perfectly correlated with itself). The form of the correlation matrix is presented in table 2.

The analysis of the values of the coefficients in the correlation matrix allows to evaluate the possibility of applying the analysis of the principal components: high values of these coefficients (greater than +0.5 or less than -0.5) show that there are significant statistical links between the considered variables (direct links if the value of these coefficients is positive, reverse links if the value of these coefficients is negative). Low values of these coefficients show that there are no correlations between the statistical variables, so the analysis of the main components, whose purpose is to identify these correlations, cannot be applied.

Table 2. Correlation matrix

	Bribery	Requesting/ accepting bribery	Traffic of influence	Buying influence	Number of corruption crimes brought before Romanian courts	
Correlation	Bribery	1.000	.533	.802	.577	.216
	Requesting/ accepting bribery	.533	1.000	.817	.821	.901
	Traffic of influence	.802	.817	1.000	.675	.594
	Buying influence	.577	.821	.675	1.000	.570
	Number of corruption crimes brought before Romanian courts.	.216	.901	.594	.570	1.000
Sig. (1-tailed)	Bribery		.109	.015	.088	.321
	Requesting/ accepting bribery	.109		.012	.012	.003
	Traffic of influence	.015	.012		.048	.080
	Buying influence	.088	.012	.048		.091
	Number of corruption crimes brought before Romanian courts.	.321	.003	.080	.091	

a. Determinant = .001

As we can see in table 2, there is a very strong link between taking/giving bribes and influence peddling, the link explained precisely by the definition of the two terms, both definitions involving either the promise or the actual exchange of money/goods between parties in the exchange exercising influence. Taking/giving bribes is the most common concrete way to reward influence peddling.

Buying influence is also closely related to taking/giving bribes, the high value of the coefficient of 0.821 having a possible explanation for the fact that taking/giving bribes is the most common method of buying influence.

Also, another strong connection can be observed between taking/giving bribes and the number of corruption cases tried in Romania. An explanation of this index could be the fact that taking/giving bribes is a relatively easy procedure to demonstrate by organizing a flagrant and thus being able to easily obtain incriminating evidence in corruption trials.

In order to test the hypothesis of independence between the statistical variables, the SPSS program provides the calculated values of the corresponding test statistics. The test statistic χ^2 , presented in table 3 through the KMO and Bartlett's Test output, is used to test if the correlation matrix is a unit matrix, so if there is a statistical link between the respective variables. For this, the following statistical aspects are formulated:

H0: hypothesis of independence (correlation matrix is a unit matrix)

H1: dependency hypothesis.

To test these hypotheses, the SPSS program provides both the calculated value of the test statistic ($\chi^2_{\text{calculated}}=24.272$) and the probability value associated with the calculated test statistic (Sig.=0.007). A value of Sig.<0.05 associated with the calculated value of the test statistic χ^2 shows that hypothesis H0 is rejected and hypothesis H1 is accepted. According to the results, we can thus guarantee with a probability of 0.95 that there are significant statistical links between the statistical variables, that the correlation matrix is not a unit matrix.

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.563
Bartlett's Test of Sphericity	Approx. Chi-Square	24.272
	df	10
	Sig.	.007

The simultaneous analysis of the results obtained after testing the hypothesis of independence, using the test statistic χ^2 , and the value of the determinant of the correlation matrix allows to identify the properties of this matrix that are of interest to ACP. The identification of the existence of links between variables is facilitated by the calculation of the Kaiser-Meyer-Olkin (KMO) statistic, a measure of sampling adequacy (Measure of Sampling Adequacy). The KMO statistic can take values in the range (0,1). Since the KMO statistic has a value of 0.563, it means that there are significant statistical links between the analyzed statistical variables, so principal component analysis can be applied.

Table 4 shows the variances of the analyzed variables. If the variance of a variable is small, then the variable can be eliminated from the actual analysis because it is not correlated with the factor axes. Since all the values obtained in the Extraction column are greater than 0.700 from the analysis, we will not remove any of the analyzed variables, all variables contributing to the explanation of the corruption phenomenon.

Table 4. Communalities

	Initial	Extraction
Bribery	1.000	.959
Requesting/ bribery	1.000	.994
Traffic of influence	1.000	.894
Buying influence	1.000	.741

Number of corruption crimes brought before Romanian courts.	1.000	.951
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Extraction Method: Principal Component Analysis.

The values of the correlation matrix are presented in the output of table 5, *Total Variance Explained, Initial Eigenvalues* column.

Table 5. Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings		
		% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.638	72.765	72.765	3.638	72.765	72.765
2	.901	18.016	90.781	.901	18.016	90.781
3	.358	7.152	97.933			
4	.095	1.891	99.824			
5	.009	.176	100.000			

Extraction Method: Principal Component Analysis.

The first factor axes together explain 72.765% of the total variance. Thus, according to the Benzecri criterion, which involves choosing the number of axes that explain more than 70% of the total variance of the cloud of points, to explain the biggest differences we will use a single factorial axis.

The values presented in Table 6 Component matrix show the position of the variables on the factorial axes. For example, Bribery has a positive coordinate on both factorial axes, the value being higher on the first factorial axis (0.725). Traffic of influence has a positive coordinate on both factorial axes, the value being very high on the first factorial axis (0.963).

Table 6. Component Matrix

	Component	
	1	2
Bribery	.725	.659
Requesting/ accepting bribery	.963	-.256
Traffic of influence	.914	.241
Buying influence	.861	.006
Number of corruption crimes brought before Romanian courts.	.780	-.585

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

High values of the variable coordinate on the factorial axes show that those variables are highly correlated with that axis. These variables significantly explain differences between statistical units. More specifically, there are significant differences between the statistical units in terms of the values recorded for these variables.

6. Conclusion

The phenomenon called corruption can involve many activities that include bribery, influence peddling and embezzlement and can also involve practices that are legal in many countries. There is a consensus regarding the presence of this phenomenon since ancient times (in India, China, Italy, Greece), but this consensus is not maintained regarding the definition or motivation of this phenomenon, as we could see in the content of this article, there is a controversy between "moralists" and "revisionists". Moralists condemned corruption and believed that any type of corruption is inherently toxic to society, politics and development in general. Revisionists view corruption as an extralegal institution used by individuals or groups to gain influence over the actions of the bureaucracy, and its existence only indicates that these groups participate in the decision-making process to a greater extent than would otherwise be the case.

The exploratory analysis carried out on the basis of these indicators records specific dynamics both from year to year and between the indicators of results tracked numerically and in terms of value due to some aspects related in particular to the way the activity is carried out.

The graphic representation in Figure 1 allows the visualization of the position of the variables in the system of factorial axes, allowing the identification of the meaning and intensity of the connection between the variables.

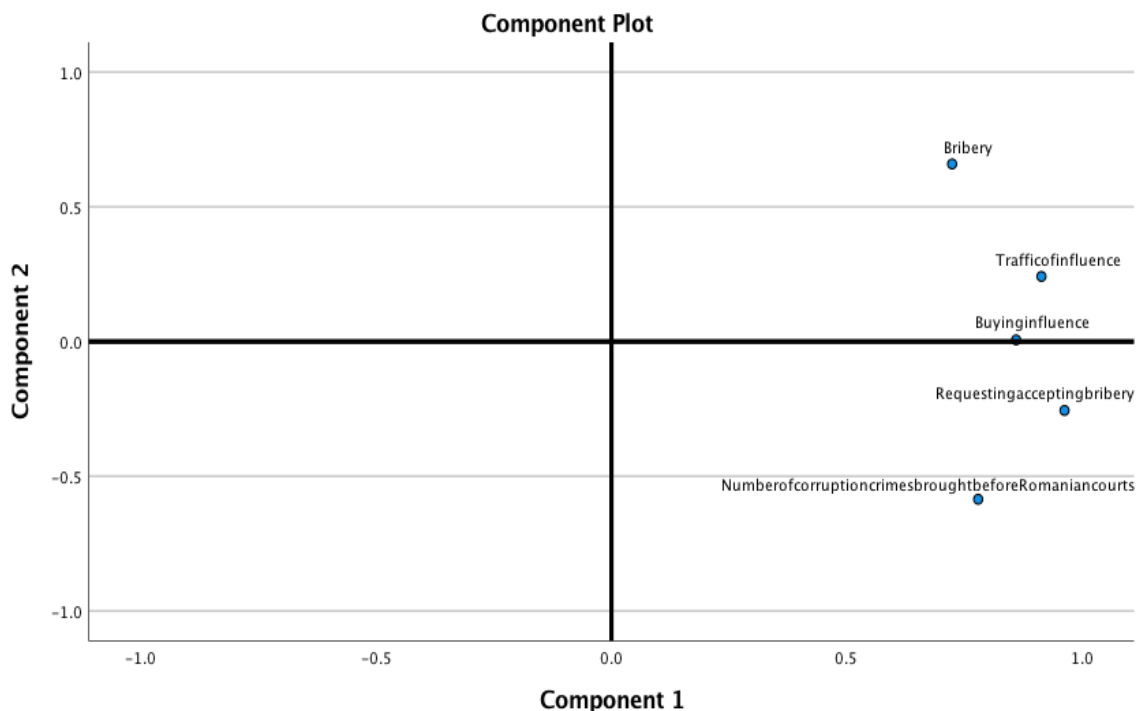


Figure 1. The representation of variables in the system of the first two factorial axes

Figure 2 provides a graphical representation of the correlations outlined based on the Correlation Matrix. The association of the cloud of points on the right side of the factorial axis related to Component 1 shows the links of the indicators and supports the conclusions of the study.

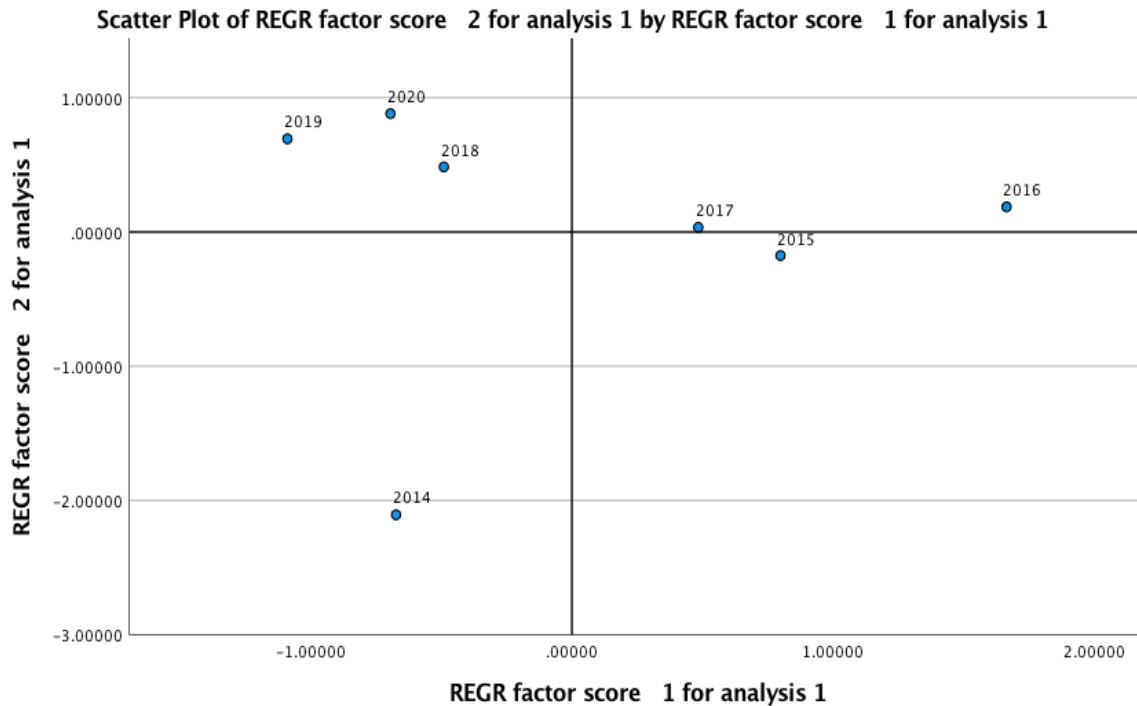


Figure 2. The representation of clusters in the system of the first two factorial axes

As we can see in figure 1, 2 clusters are created, namely: the year 2014, the years 2015/2016/2017 and the years 2018/2019/2020. In the years 2015/2016/2017 we can observe an increase in the number of corruption cases in Romania compared to 2014, followed by a decrease in this number in the years 2018/2019/2020. A possible hypothesis for this distribution would be that between the years 2013-2018 the position of chief prosecutor of the National Anticorruption Directorate was occupied by Mrs. Laura Codruta Kovesi whose clear objective was to reduce corruption in Romania and incriminate as many perpetrators as possible this illegality. However, once she left the position, the number of files decreased.

Another hypothesis for the creation of these clusters would be that in the period 2015/2016/2017 the MCV reports (Cooperation and Verification Mechanism) emphasized the reduction of corruption in Romania and drew systematic attention to this objective, so there is a great pressure on DNA prosecutors from the European Union and the political class to resolve these files.

One of the limitations of this study is that corruption data is difficult to be measured due to its illicit and thus hidden nature, resulting in possible greater values than the ones present and used in this study.

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