

THE ANALYSIS OF CORRUPTION IN PUBLIC ADMINISTRATION - A QUANTITATIVE METHOD

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Abstract

This paper aims to examine, starting from Romania case, the degree in which decentralization process and improvement of local governance contributes to reduction of corruption on short and medium term. Through the used methodology, the paper is in line with the international trend that aims to analyze the impact of corruption on economical and social processes at the local level. For corruption analysis we used a simple dichotomist logistical model. From the obtained results, at one hand – descriptive analysis, on the other hand – the logistical model, there are some action to be undertaken for reduction the corruption level at local public administration like intensifying the reform process at local public administration level on three important components regarding civil service, decentralization process and improving the public policy formulation process, elaborating a long term strategy and a specific law on civil servant payment system, intensifying the continuous training courses for local electives, fluctuation reduction of technical apparatus from city halls as result of political changes, continuous training courses for mayors.

Keywords: *public administration, econometric models, corruption, logistical model, local governance*

1. Introduction

This paper aims to examine, starting from the Romanian case, the degree of which decentralization process and improvement of local governance contributes to the reduction of the corruption on short and medium term. Through the methodology used here the paper is in line with the international trend that aims to analyze the impact of corruption on economical and social processes at the local level. Furthermore, in the last time, the research on corruption issues are related, mainly on the measurement of the corruption level and on its impact on the growing rate of the GDP (Mauro [1995], Abed and Davoodi), Krueger [1974]), on impact that generates over some of national economical sectors (Tanzi [1998], Shang-Jin Wei [2001]), or on the decentralization processes (Shah [2006]). In Romania, studies were undertaken in order to identify corruption mechanisms at local level or to measure its impact over development of some of national economical sectors (Profiroiu, Andrei [2005], Andrei [2002]). At local level, decentralization process and corruption could generate significant negative impacts in economical and social segments.

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Like in every country that undertakes a transitional process, corruption affected in a large scale the economic performance in Romania. According to Transparency International – Romania, corruption had a high level in the period after the revolution from 1989. The indicator value from that period was in the 2.5 and 3.2 interval.

In 2005 from 159 countries¹ where corruption indicator was calculated, 117 countries scored less than 5, these being the poorest countries in the world. In this hierarchy, Romania scored 3.0, progressing from preceding years when registered 2,8 respectively 2.9. Amongst countries that recently joined European Union, Slovenia and Estonia scored above 5. Hungary scored 5.0, Lithuania 4.8, Czech Republic and Slovakia 4.3. Bulgaria, our eternal comparison term, has a superior score than Romania. A lower score than Romania was registered by Russia, Macedonia, Serbia and Montenegro, Albania, Moldavia, Ukraine and Georgia.

According to European Commission, “in decentralization and local administration domain the warnings from last year Country Report are still actual; the competences transfer to local authorities did not take place in concordance with the resources transfer.”²

2. Corruption causes

For all countries undertaking transitional process, corruption was one of the phenomena that have negative effects in developing free market. Amongst factors that contributed directly to developing and generating corruption phenomenon can be named: lack of the organizational culture, change resistance from administration apparatus, its dependence on the political changes. An important part of the mayors testified existence of corruption at local public administration level. Therefore, the obtained results from analyzing answers from the question “**Do you consider corruption a real problem of Romanian public administration?**” are presented in the following table:

Table 1

Answer choice	Results (%)
Yes	66,0
No	30,4
No answer	3,6
Total	100,0

A significant part of the mayors considers corruption as being one of the major problems of Romanian public administration. In considering causes of this phenomenon there were taken into account six elements: legal framework (a), civil servants pay system (b), civil servants morality (c), pressure from business sector (d) and politic (e) and citizen behavior (f). For these variables there were defined a scale with five items: 1-do not influence (the corruption from system), 2-influence in a low degree, 3-influence in a moderate degree, 4-influence is important, 5-influence is high. The obtained results from analyzing the answers are presented in the following table:

¹ See www.transparency.org

² 2004, Regular Report on Romania’s progress towards accession, p 17.

Table 2

Variable	Mean	Std. Deviation
a	3,69	1,150
b	4,62	0,617
c	3,33	1,126
d	3,31	1,150
e	3,37	1,371
f	2,99	1,085

These results are proving the following: 1. Legal framework – still permits in a large degree the apparition and maintaining corruption at public administration level. This aspect recommends expediting the revision of the actual legislation (Law 215/1998, 213/, 326/, OUG 45/2003, etc.) that governs local public administration activities. Moreover, these legislative changes are in line with European Union integration process requirements and World Bank PAL program requirements related to the local public administration; 2. The payment system represents determinant factor in apparition and maintaining corruption in the system, according to respondents' opinion. The mean of this variable is from far the highest (4,62), while the standard deviation is the smallest (0,617), proving a strong convergence of the respondents. This fact is more than obvious while the salaries level is not in concordance with the sector responsibilities and the changes in leading positions at the local public administration level are significant related to the changes of political spectrum. Equally important, this aspect is generated by the lack of sustainable strategy on payment system and developing a unitary payment system; 3. Morality of the civil servants – represents an aspect that has an important role in generating the corruption, according to mayor's opinion. The explanations of this situation can be explained by the following: reduced development of a organizational culture and existence of a behavior that is non conform with the actual society requirements, that is registered at the level of the large scale of employees from the public administration; the payment system from the local and public administration sector; 4. Pressure from the business sector – has an important role in generating corruption. For an economy in transition the business' interest in doing business with the local public administration institutions is immense due to the advantages that are offered: prices that can be advantageous negotiated, permissible contracts, guaranteed market; 5. Pressure from the political system – it is also a determinant factor. Therefore, about 50% from respondents appreciated that the political influence is high and very high in generating corruption. Explanations can be offered by a severe instability of civil service, especially on command positions, on electoral cycles and by operating of political clientele, especially in distributions of the financial resources on local level; 6. Citizens behavior – has a moderate influence comparing with other factors, therefore could be considered rather an effect than a cause for corruption.

3. Corruption and local governance

In analyzing the relationship between local governance, decentralization process and corruption should be considered that a transparent and coherent decentralization process determines corruption decrease and an improvement of public funds use. A World Bank series of studies demonstrates this fact (Olowu [1993], Fiszbein [1997]). Nevertheless, an incorrect decentralization process (conceived and implemented) is a factor that will lead most of the time increasing the corruption level from a country that undertakes a transitional process. In this situation the central weight shifts from central to local level. For reduction corruption level in

the decentralization process a series of components should be introduced for generating transparency in decisional process and participation of citizens in taking the important decisions at the local level.

In this study, starting from registered data from sample level it was noticed that corruption phenomenon was signaled by the mayors which consider that citizens should be directly involved in taking the relevant decisions at community level. Consequently, correlation coefficient Pearson amongst the two variables is 0.315 significant for 1% significant level. This characteristic makes evident a direct cause the apparition and perpetuation of corruption phenomenon, namely the lack of transparency in taking decisions at the institutions of local public administration.

At Romania localities level the proportion of mayors with high school and university education is equal. The distribution of answers for the question regarding corruption at the two respondents categories, education level (high school and university) are relatively the same. Therefore, chi-square value (χ^2) who's value is 34,96 support this statement. *These results prove that corruption phenomenon is perceived in the same measure by the majority of mayors, regardless education level. The problem in combating corruption is not about understanding and perceiving corruption phenomenon, but about efficient methods of combating it.*

Table 3

		Education level			Total
		High school	University studies	No answer	
Corruption is a real problem of the public administration	Yes	64,7	67,9	52,9	65,3
	No	32,8	31,2	17,6	31,0
	No answer	2,5	0,9	29,4	3,7
Total		100,0	100,0	100,0	100,0

Corruption and other factors contribute directly to the poor quality of citizens offered to the citizens by the local public administration. In this study it is defined the following variable "Measure in which local public administration fulfils its bases functions" (Q5) is a mean of four variables that define its functions: a) administration and management of goods and public funds at local level (Q1); b) assure the bases services at the local level (health, social assistance, education, culture, defense, aso) (Q2); c) predictions and socio-economical development (Q3) and d) organization (Q4). For quantifying the mayors' opinion reported to the degree in which the local public administration fulfils each single function, a ordinal scale was defined, having the following items: 1-very low degree, 2-low degree, 3-high degree, 4-very high degree. The characteristics of the four primary variables are presented in the following table.

Table 4

Variable	Mean	Std. Deviation	Correlation Matrix on Primary Variables			
			Q1	Q2	Q3	Q4
Q1	2,79	0,701	1	0.549*	0.317*	0.521*
Q2	2,38	0,755		1	0.534*	0.563*
Q3	2,27	0,798			1	0.515*
Q4	2,70	0,779				1
Q5	2,53	0,600	-	-	-	-

* significant value for 1% confidence level

At the actual phase of decentralization, in the vision of mayors, local public administrations could fulfill their basic functions just on a small degree. The most unfavorable situation is the low capacity of prediction and economic-social development at the local level and providing basic public services at localities level. The reduced capacity of local administration in providing basic services is directly determined by inappropriate administration and management of the goods and public funds at the local level (Pearson coefficient is 0.549) and organizational capacity is reduced (0.563). *By implementing the decentralization process on a coherent and transparent manner it is assured the premises of local public administration strengthening in providing its basic functions.*

The public administration reform process, at technical apparatus level, and also at local elected civil servants level is one of the important factors in reduction corruption level. Within present research, this is perceived as a process that did not bring yet the expected transformations. In the questionnaire were inserted three questions for understanding essential aspects of this process: "Do you consider that public administration is undertaking a thorough reform process?" (QR1), "To what extent the actual changes on public administration level correspond to your expectations?" (QR2), "Do you consider that public administration reform is oriented on right path?" (QR3). For the three variables is was defined a scale with 4 response choices: 1- the most unfavorable situation, ... 4 – the most favorable situation. After analyzing data there were obtained following synthetic data presented in the below table:

Table 5

	Mean	Standard dev.	QR1	QR2	QR3
QR1	2,5099	0,71610	1.000	0.631*	0417*
QR2	2,4545	0,71472		1.000	0.417*
QR3	3,5640	1,08933			1.000

* Correlation is significant at the 0.01 level (2-tailed)

The comments that are coming from analyzing the answers of the three questions are: half of the mayors have an unfavorable opinion about the changes from public administration; in general, changes in public administration match only in a moderate degree to mayors' expectations; variables interdependences, measured by Pearson coefficient, are significant.

Possible explanations of this situation are: a series of reform measures, in implementing process, do not have yet significant effects at localities level, reform process requiring time; political message at government level is not accompanied by an information campaign and by training for local electives on concrete reform components; in elaborating the strategy or of some basis components of the reform process, there were not enough involved local electives, aso. *We consider that lack of a promotion campaign for reform measures at the local public administration level explain a reduced concordance between mayors' expectations and perceived changes. The lack of a promotion campaign for reform measures at the local level slows down the process of reform implementation.*

Based on the three initial variables it is defined a new variable that quantifies mayors' opinion on reform process at public administration level. This variable is defined based as the mean of 3 initial variables from the questionnaire: $QR = (QR1 + QR2 + QR3) / 3$.

4. Utilizing the logistic model for analyzing the corruption

For analyzing corruption it is used a simple dichotomist logistical model. It is considered the probability that a mayor will consider corruption one of the real problems of public administration.

For the dependent variable it is considered a two options variable, which is defined: $y_1 = 1$ if a mayor considers corruption as a real problem for Romanian public administration, and $y_1 = 0$ if mayor is in a complementary situation. Within the model there were considered following independent variables: existence at the city hall level of a person nominated directly to be in charge for implementing reform measures (*PR*), mayor' education level (*NI*), civil servants' pay system (*SS*), political system pressure (*PP*). The characteristics of the logistic model are presented in the following table:

Table 6

	B	S.E.	Wald	Sig.
<i>PR</i>	0,291	0,158	3,382	0,06
<i>NI</i>	-0,235	0,144	2,676	0,10
<i>SS</i>	-0,989	0,178	30,791	0,00
<i>PP</i>	-0,680	0,172	15,709	0,00
<i>Constant</i>	11,548	1,593	52,576	0,00

The logistical model is defined in this case by the following relationship formula:

$$P(y_i = 1) = \frac{1}{1 + \exp(-(11,548 + 0,291PR - 0,235NI - 0,989SS - 0,680PP))}$$

The high statistical score (χ^2) = 253.2 proves that the estimated logistical model is valid. Moreover, the model parameters are significant different from zero. The significant level (α) for each parameter is presented in the above table. The estimation signals that correspond to the independent variables shows to what extent the probability to respond affirmative at the question on corruption is increasing function by a certain variable from the model. Therefore, probability is an increasing function reported to *PR* variable and decreasing function reported to the mayor' education level (*NI*), civil servants' pay system (*SS*), political system pressure (*PP*).

5. The regression model

In the economic literature, a special attention is given to the studies related to the measuring of corruption and of its impact on economy as a whole or on some activity sectors in particular. For the analysis of the corruption phenomenon, a series of questions measuring the public administration employees' opinion of the level of corruption, of the factors that generate corruption and of the economic and social consequences of this phenomenon were included in the questionnaire. Three level-three variables were defined using the primary information.

5.1. The level of corruption by activity sector

With a view to assessing the level of corruption, variable C_5 is defined. This variable has a measurement scale whose values range from 1 (corresponding to a low level of corruption) to 5 (for generalised corruption). The public administration employees' opinion of the level of corruption in education, health, politics, local public administration, central public administration and in their own institution is taken into account in defining this variable.

The average level of this characteristic is 3.20 and the standard deviation is 0.80. A transformation of this value on the scale of the TCI index leads to the value 3.6. In other words, relatively similar results are obtained in the two measurements. In general, TCI values are situated between 2.8 and 3.2, which places Romania among the European countries with the highest level of corruption. With a view to making the shift from the measurement scale used in this study for measuring corruption to the TCI scale, the following calculation relation was applied:

$$(5 - 3.2) \cdot \frac{10}{5} = 3.6.$$

5.2. The effect of corruption on the economic and social environment

With a view to measuring the public administration employees' opinion of the negative effect of corruption on the economic and social environment, the questionnaire included questions based on which a series of primary variables were defined. These variables quantify the negative effect of corruption on local development, national development, the quality of education, the public health system, the quality of the political environment, the quality and image of local and central public administration. The variable that measures the effects of corruption is symbolised by C_6 and is calculated on a measurement scale with values ranging from -2 , which corresponds to a negative effect of corruption, to 2 , for the case in which the respondents consider that the corruption phenomenon has a series of positive effects on the socio-economic environment.

The average level of the aggregate variable (-1.06) shows that corruption has a negative effect on the Romanian economic and social environment. The standard deviation of this variable is 0.91 .

5.3. The contribution of some factors to the reduction of corruption

With a view to reducing the level of corruption in a country, the most various strategies can be developed. These strategies have the following aims: creating new institutional structures and improving the legal framework for combating corruption, making the state structures more efficient both by setting up efficient institutions at central and local level and by modernising the civil service, reforming the political class, creating and developing - at the level of civil society - non-governmental institutions meant to support the fight against corruption etc.

An important role in the reduction of corruption is played by the mass media, which usually support the increase in the transparency of decisions at public level. The cultural factors and the mentality of a country's or area's population directly contribute to the constantly high level of corruption. With a view to measuring the influence of some factors on the reduction of corruption, primary variables were defined based on the questionnaire questions. These variables quantify the civil servants' opinion of the influence of mass media, school, church, the central- and local-level political class, the state's representatives/the civil servants who work in central and local public administration and the citizens on the reduction of corruption. For the purpose of measuring the primary variables defined above, a measurement scale with five whole numbers ranging between -2 (corresponding to the case in which the effect of the factor considered does not contribute to the reduction of corruption) and 2 (for the case in which the factor considered greatly contributes to the reduction of corruption) was used. Based on the above-mentioned variables, an aggregate variable (C_8) which measures the influence of the factors considered on the reduction of corruption is defined.

The average level of this characteristic is 0.22 , and the standard deviation is 0.82 . The average value of this characteristic shows an insignificant influence of the factors that contribute to

the fight against corruption at the level of Romanian society. With regard to the eight factors considered, the following values were calculated for the average level and the mean square error.

Table 7: Characteristics of the factors that contribute to the reduction of corruption

Variable	$Q_{5.61}$	$Q_{5.62}$	$Q_{5.63}$	$Q_{5.64}$	$Q_{5.65}$	$Q_{5.66}$	$Q_{5.67}$	$Q_{5.68}$
Mean	0.89	0.68	0.74	-0.43	-0.29	-0.02	0.13	0.17
Std. deviation	1.072	0.890	0.940	1.356	1.280	1.241	1.191	1.185

A significant positive influence on the reduction of corruption is that of the mass media, while the behaviour of the central-level political class does not encourage the reduction of corruption. Moreover, their behaviour generates and encourages corruption. The behaviour of central and local public administration employees is situated in a neutral area from the point of view of the efforts to reduce corruption.

5.4. General data

Within the analysis, a series of specific characteristics of the persons working in public administration were also taken into account: the gender of the person (C_{10}), the age in completed years (C_{11}), the staff category (managerial staff or non-managerial staff) (C_{12}), the training level (high school studies, post high school studies, college degree, master's, PhD) (C_{13}), the person's religion (C_{14}), the type of institution in which the person works (central public administration, Prefects' Offices, County Councils and decentralised services) (C_{15}).

5.5. Preliminary conclusions

We conclude this part of the paper by drawing some preliminary conclusions based on the descriptive characteristics of the variables presented above. They will help define the econometric models used in the analysis of the four aspects related to public administration (the capacity of public administration to fulfil its basic functions, corruption, transparency and the satisfaction of public administration employees).

(i) For most of the variables used in the study there are significant differences at the level of the four types of public administration institutions. Thus, if we consider the conclusions drawn based on the ANOVA analysis, these differences are obvious for the level-three variables used to analyse the quality of the activities carried out by public administration institutions (variable C_1 , for which the significance threshold of the F test is $p < 0.04$), the transparency of public institutions (C_2' , $p < 0.04$), the satisfaction of public administration employees (C_3 , $p = 0.00$), the level of corruption (C_5 , $p = 0.00$) and the perception of the effects of corruption on the social and economic environment (C_6 , $p < 0.07$). This observation recommends that the regression models be defined both for public administration overall and for the four types of public administration institutions.

Table 8. Characteristics of the variables that describe aspects related to the civil service

		C_5	C_6	C_8
Type of institution				
	CPA	3.36(0.82)	-1.08(0.97)	0.22(0.82)
	CC	2.97(0.74)	-0.87(0.95)	0.30(0.75)
	PO	2.98(0.75)	-0.99(0.88)	0.88(0.78)
	DPS	3.19(0.80)	-1.13(0.86)	0.21(0.81)
<i>F</i> statistics and <i>p</i> value		4.863 (0.001)	2.241 (0.07)	-
Gender of the person				
	M	3.09(0.74)	-1.04(0.88)	0.25(0.84)
	F	3.24(0.83)	-1.09(0.92)	0.20(0.78)
<i>F</i> statistics and <i>p</i> value		3.496 (0.03)	-	-
Staff category				
	NMS	3.22(0.83)	-1.10(0.90)	0.80(0.81)
	MS	3.11(0.74)	-1.02(0.92)	0.27(0.79)
<i>F</i> statistics and <i>p</i> value		3.544 (0.06)	-	-
Civil service reform				
	$GR_1 = (3.67 \quad 5.00]$	3.71(0.93)	-1.35(0.99)	0.20(0.73)
	$GR_2 = (2.33 \quad 3.67]$	3.44(0.82)	-1.07(0.95)	0.03(0.80)
	$GR_3 = [1.00 \quad 2.33]$	3.02(0.75)	-1.05(0.88)	0.31(0.79)
<i>F</i> statistics and <i>p</i> value		28.107 (0.00)	-	10.062 (0.00)
Transparency in public administration				
	$GT_1 = [0.00 \quad 1.33]$	3.89(0.63)	-1.38(0.94)	-0.23(0.98)
	$GT_2 = (1.34 \quad 2.67]$	3.47(0.71)	-1.12(0.92)	0.05(0.73)
<i>F</i> statistics and <i>p</i> value		41.875 (0.00)	2.470 (0.09)	13.731 (0.00)
For public administration overall		3.172(0.81)	-1.07(0.91)	0.22(0.81)

(ii) The same observation is valid when defining the groups of public administration employees according to gender. Thus, differences appear in the level-two variable used to analyse the budgetary performances of the institution ($X_2, p < 0.01$), the size of the pressure put on public administration by the political system ($X_6, p < 0.03$), the transformations in the system due to the political changes that were brought about by local and national elections ($X_7, p < 0.03$) and the public administration employees' satisfaction resulting from the monthly income obtained by them ($X_9, p = 0.00$).

(iii) The intensification of the reform process at civil service level leads to the reduction of the level of corruption. The highest level of corruption is recorded for the group of employees that was least affected by the reform process. In fact, among the groups of employees defined in

relation to the size of the impact of the reform process (GR_1 , GR_2 and GR_3) there are significant differences in evaluating the level of corruption in the system ($p = 0.00$). The analyses made at administration level reveal the fact that the low salaries, the discretionary regulations for public administration employees and the lack of alternative tools for motivating civil servants are important factors that cause a high level of corruption in the system.

(iv) An important factor that generates corruption in the system is represented by the lack of transparency at the level of public administration institutions. Thus, as the results presented in table 10 show, the greater the transparency of decisions, the lower the level of corruption. The size of corruption is different among the groups of employees defined according to the level of transparency (GT_1 , GT_2 and GT_3), case in which the value of the significance threshold is $p = 0.00$. One of the major mid-term objectives set out in the reform strategy was „The improvement of the image of public administration by increasing the transparency of administrative operations and by taking firm anti-corruption measures, which should be visible to the public”³.

(v) The level of satisfaction of civil servants can be significantly improved by adopting an attractive and stable remuneration system. In fact, of the three dimensions of the degree of satisfaction of the civil servant (salary, respect in the workplace and working conditions), the first has the lowest level. The mean of this variable is only 2.30, while the values recorded for the other two variables are 3.59 and 3.43 respectively.

(vi) The financing system of public administration does not meet the needs of public administration institutions.

5.6. Models for the analysis of the corruption phenomenon

A regression model for the analysis of the level of corruption (C_5) is defined in relation to various influence factors, which are divided (depending on the way in which they influence the level of corruption) into the following three classes: (i) Factors that contribute to an increase in the level of corruption. This category includes committing fraud in competitions for civil servants (C_9) and the pressure put by the political system (X_6). (ii) Factors that contribute to a decrease in the level of corruption, a category which includes: the quality of the activities carried out by public administration institutions (C_1), transparency in public administration (C_2), the degree of satisfaction of public administration employees (C_3), the quality of work relations at the level of public administration institutions (C_4), the current capacity of the company to fulfil its functions (X_8), the capacity of the current system of financing public services ($Q_{3,21}$) and the quality of civil service reform (C_{10}). (iii) Characteristics of the persons who work in public administration. Three of these characteristics (three variables) are included in the models, namely the gender of the person (C_{11}), the staff category to which the person belongs – non-managerial staff or managerial staff (C_{12}) and the person’s training level (C_{13}).

The regression model is defined as follows:

$$C_5 = b_0 + b_1C_1 + b_2C_2 + b_3C_3 + b_4C_4 + b_5Q_{3,21} + b_6X_6 + b_7X_8 + b_8C_9 + b_9C_{10} + b_{10}C_{11} + b_{11}C_{13} + b_{12}C_{14} + u_2 \quad [M_3]$$

³ Updated Government Strategy on the Acceleration of Public Administration Reform 2004-2006, Bucharest, p. 6.

where u_2 is the residual variable that quantifies the influence of other factors (not included in the model) on the level of corruption.

The parameters were estimated at the level of public administration, central public administration, Prefects' Offices, County Councils and decentralised services. The estimation of these parameters only took into account the records (questionnaires) that contained valid answers to all the questions based on which the variables of the above model were defined. The ordinary least squares method was used to estimate the parameters. The results are presented in Table 9.

5.7. Models for the analysis of transparency in public administration institutions

With a view to defining the regression model used to analyse transparency, one of the two variables C_2 or C'_2 . can be chosen as an endogenous variable. The explanatory variables used for defining the model are grouped on the following categories: (i) Corruption, which favours the reduction of transparency in public institutions; (ii) Variables directly related to the behaviour of public administration employees, a category which includes the degree of satisfaction of the employees, the quality of work relations and the fairness of the competitions for recruitment or promotion to the civil service. All the three variables quantify factors that are directly correlated to the level of transparency. (iii) Variables that measure aspects of public administration reform. They quantify factors that can have a positive impact on transparency in public institutions if the reform process is felt at the level of the system or a negative impact if the effects are negative or if they are way below the expectations of the employees. (iv) Personal characteristics related to the gender of the person, the position within the institution, the training level etc., which influence people's perception of the transparency of public institutions.

Thus, the regression model for the analysis of transparency at the level of public administration institutions is defined as follows:

$$C_2 = c_0 + c_1C_1 + c_2C_5 + c_3C_3 + c_4C_4 + c_5X_8 + c_6C_{10} + c_7C_{12} + u_3 \quad [M_4]$$

The estimation of the parameters was made by applying the OLS method, and the results are presented in Table 10. For each type of institution, only the questionnaires that contained valid answers to all the variables included in the regression model were taken into consideration.

Table 9. Model for the analysis of corruption

	PA		CPA			CC		PO		
	Coef. of correlation	Parameters M3.1AP	Parameters M3.2AP	Coef. of correlation	Parameters M3.1APC	Parameters M3.2APC	Coef. of correlation	Parameters	Coef. of correlation	Parameters M3.1P
Constant		3.080* (0.250)	3.621* (0.262)		4.273* (0.382)	4.485* (0.628)		3.805* (0.508)		3.990* (0.544)
C2	-0.323*		-.166* (0.034)	-0.464*	-0.292* (0.071)			-0.295*		-0.189*** (0.092)
C3	-0.222*	-0.081*** (0.039)						-0.258***		-0.239**** (0.128)
Q3.21	-0.183*	-0.053**** (0.031)		-0.323*	-0.266*** (0.093)	-0.231*** (0.104)				
C4	-0.185*		-0.095* (0.038)	-0.272*		-0.294**** (0.137)	-0.224****	-0.234**** (0.127)		
Q5.22	-0.193*	-0.099* (0.029)	-0.097* (0.028)	-0.317*		-0.146*** (0.087)	-0.164****	-0.135**** (0.074)	-0.227*	
X6	0.232*	0.095* (0.025)	0.094* (0.024)	0.261*	0.118*** (0.056)	0.123*** (0.060)				

C7	0.277*	0.136* (0.031)	0.113* (0.030)	0.335*	0.156**** (0.081)				
X8	-0.195*	-0.107** (0.044)	-0.094*** (0.042)						
C9	0.257*	0.142* (0.034)	0.111* (0.034)	0.325*	0.162***** (0.089)	0.197*****	0.156***** (0.088)	0.269****	0.206*** (0.101)
C10	0.118*	0.113*** (0.053)	0.103* (0.052)						
R^2		0.438	0.460		0.581	0.528		0.224	0.421
F		21.210	24.721		12.889	7.795		4.96	5.245
Number of valid cases		744	744		105	105		95	76

* differs considerably from zero for a significance threshold of 1%; ** 2%; *** 3%; **** 5%; ***** 6%; ***** 8%.

Table 9 (continued)

	PO			DS			
	Coef. of correlation	Parameters M3.2P	Parameters M3.3P	Coef. of correlation	Parameters M3.1SD	Parameters M3.2SD	Parameters M3.3SD
Constant		3.843* (0.521)	4.747* (0.494)		3.262* (0.261)	3.436* (0.262)	3.254* (0.235)
C2	-0.295*		-0.189* (0.093)	-0.324*	-0.178* (0.044)	-0.188* (0.045)	-0.198* (0.045)
C3	-0.258****	-0.285*** (0.127)	-0.257* (0.129)				
Q5.22	-0.227*	-0.146**** (0.074)	-0.131* (0.075)	-0.142*			-0.069***** (0.038)
X6				0.249*	0.126* (0.031)		
C7				0.304*	0.152* (0.039)	0.157* (0.040)	0.162* (0.039)
X8				-0.197*	-0.114* (0.052)	-0.122** (0.053)	
C9	0.269****	0.223*** (0.100)		0.248*	0.106* (0.043)	0.136* (0.043)	0.137* (0.043)
R^2		0.417	0.407		0.451	0.417	0.413
F		5.115	4.826		23.510	24.311	23.723
Number of valid cases		76	76		465	465	465

* differs considerably from zero for a significance threshold of 1%; ** 2%; *** 3%; **** 5%; ***** 6%; ***** 8.

Table 10. Analysis of transparency in public administration

	PA		CPA		CC		PO		DS	
	Coef. of correlation	Parameters	Coef. of correlation	Parameters	Coef. of correlation	Parameters	Coef. of correlation	Parameters	Coef. of correlation	Parameters
Constant		0.414 ^{***} (0.218)		0.602 (0.640)		-0.541 [*] (0.358)		0.157 [*] (0.455)		0.555 [*] (0.283)
C1	0.697 [*]	0.703 [*] (0.035)	0.763 [*]	0.729 [*] (0.094)	0.754 [*]	0.723 [*] (0.090)	0.593 [*]	0.697 [*] (0.127)	0.692 [*]	0.669 [*] (0.044)
C3	0.393 [*]	0.124 [*] (0.034)			0.412 [*]	0.214 ^{**} (0.081)			0.412 [*]	0.141 [*] (0.044)
C4	0.318 [*]	0.106 ^{**} (0.041)	0.444 [*]	0.231 ^{**} (0.131)					0.283 [*]	0.083 [*] (0.050)
C5	-0.368 [*]	-0.112 [*] (0.027)	-0.563 [*]	-0.237 [*] (0.084)					-0.360 [*]	-0.107 [*] (0.034)
X8					0.415 [*]	0.216 ^{***} (0.095)	0.354 [*]	0.248 ^{**} (0.141)		
C10	-0.289 [*]	-0.056 ^{**} (0.021)							-0.356	-0.069 ^{****} (0.028)
C11					-0.233 [*]	-0.090 ^{***} (0.042)				
C12	0.238 [*]	0.108 ^{****} (0.042)							0.279 [*]	0.169 [*] (0.054)
R^2		0.736		0.800		0.797		0.614		0.742
F		141.28		50.87		36.96		22.44		86.39
Number of valid cases		725		89		98		76		430

* differs considerably from zero for a significance threshold of 1%; ** 2%; *** 3%; **** 5%; ***** 6%; ***** 8.

Conclusions

From the obtained results, at one hand – descriptive analysis, on the other hand – logistical model, there are some action venues for reduction the corruption level at local public administration. From most important it can be mentioned: i) intensify the reform process at local public administration level on three important components regarding civil service, decentralization process and improving the public policy formulation process. Also, these are in accord with the requirements of Romanian accession process in the European Union structures. It is recommended a clearer assignment of some city hall employees in specific tasks related to reform process. At the county council and prefectures level, by creating county modernizing groups, the reform actions are more clear and coherent; ii) elaborate a long term strategy and a specific law on civil servant pay system; iii) intensify continuous training courses for local electives; iv) fluctuation reduction of technical apparatus from city halls as result of political changes; v) continuous training courses for mayors.

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