CORRUPTION AND SOCIAL WELFARE IN THE EU27 COUNTRIES

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ABSTRACT: The corruption is a complex and generalized phenomenon all over the world, with cultural, social, psychological, political and economical dimensions. The defining and the studying of the phenomenon are going through the most different thinking filters known in the specialized literature: social-cultural, political, administrative and economic. The article's aim is to quantify and analyze the relationship between corruption and political, administrative and economic determinants factors, through a regressive "pool data" model. The sample includes the 27 countries of the actual European Union, and the data refer to the period 1996-2008. The study shows that the limitation of corruption's phenomena (maximizing FC index) has the result of increasing of social welfare (maximizing HDI index).

Keywords: corruption, social welfare, EU27

JEL codes: D73, I30

Introduction

The corruption is a complex and generalized phenomenon all over the world, with economical, cultural, social, psychological, political, administrative and religious dimensions. By consequence, defining and the studying of the phenomenon are going through the most different thinking filters known in the specialized literature: economic, social-cultural, political, administrative and religious. Its conceptualization has attracted in recent past competing and numerous views and approaches. Nye(Nye, 1967) defined corruption as a behavior which deviates from the formal duties of a public role because of private-regarding (personal, close family, private clique) pecuniary or status gains; or violates rules against the exercise of certain types of private-regarding influence and he included in this category bribery, nepotism and misappropriation.

In the economic approach, the government controls the distribution of revenues and the taxation of onerous costs. The private individuals and firms, in such context, tend to receive the advantages from public authority. If the "payment for advantages" is illegal, then we can talk about corruption. Seen as a transaction between private and public sector actors, the effect of corruption is the tendency to convert illegitimately collective goods into private regarding payoffs (Heidenheimer et. al., 1993). In other words, Mauro saw corruption as an extra tax which leaves less money for public expenditures (Mauro, 1997). Tanzi sustain this opinion and suggest that corruption transfers resources from the mass public to the elites – and generally from the poor to the rich (Tanzi, 1998). But the most widespread definition regards corruption as a misuse of public power for private gain (Rose-Ackerman, 1999). According to Rose-Ackerman, the corruption is a symptom for the situations in which the management of the state is inefficient.

The consequences of corruption on economic growth it is perceived to be negative, but a series of studies was conducted in order to find that this perception is correct or not. Based on this understanding, this paper intends to clarify the relationship between corruption and social welfare.

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Literature review

The consequences of corruption have attracted much attention in recent years by both academics and policy makers.

In spite of the general perception that corruption have a negative impact on economic growth, one of the first studies about corruption (Leff, 1964) argued that corruption may "grease the wheels" of public activities, making individuals to avoid bureaucratic delay, especially in countries where bureaucratic regulations are cumbersome, and government employees to work harder if they receive bribe. This is why Leff asserts that corruption improves social welfare. Leys (Leys, 1965) and Huntington(Huntington, 1968) also support the idea that corruption has positive impact on economic growth because it increase the efficiency especially in the public sector. Lui developed an equilibrium queuing model of bribery in which the decision makings on bribe payments are decentralized to the customers (Lui, 1985). Based on this, Lui proved that, under some specified conditions, the bribing model is capable of giving socially optimal solutions. Lui argued that sometimes, the privately optimal speed of service chosen by the server may be faster than the speed without bribery. Acemoglu and Verdier, based on the case of an economy where contracts are necessary to encourage investments, finds that it may be optimal to allow some corruption and not enforce property rights fully(Acemoglu and Verdier, 1998). Another finding of Acemoglu and Verdier is that less developed economies may choose lower levels of property right enforcement and more corruption as a way to encourage development.

The second series of studies suggest that corruption doesn't improve efficiency.

First in this line is Myrdal (Myrdal, 1968), who argued that bureaucrats may deliberately delay to solve the problems so as to attract more bribes. This point of view is sustained more recently by a large number of empirical studies, based mainly on indices of corruption that are subjective assessments of the level of corruption, which suggest that corruption has negative effects on the economic and social development.

Most of the empirical studies of the impact of corruption have explored the efficiency implications of corruption through its impact on growth and investment, on composition of government expenditure and on allocation of foreign direct investment

First empirical study that explored the impact of corruption *on growth and investment* was conduced by Mauro, who used a sample of 67 countries and finds that corruption is negatively linked to the level of investment and economic growth, because the incentive to invest of the businessmen tend to diminish and so, the private investments will slow down (Mauro, 1995). In a newer study, that presented two models that rely on strategic complementarities to obtain multiple equilibrium, Mauro showed that the link between widespread corruption and low economic growth is explained by the behaviour of the individuals regarding public affairs and the behaviour of the politicians in a corrupt society (Mauro, 2002). Tanzi and Davoodi find that countries with higher perceived corruption tend to have lower real per capita GDP and countries with lower perceived corruption tend to have higher real per capita GDP. Another finding is that there is a negative association between corruption perception indexes and economic growth measured by growth in real per capita GDP (Tanzi and Davoodi, 2000).

On the other hand, Pelegrini and Gerlagh (2004) find that the indirect transmission channels are the significant one in explaining the negative effect of corruption on growth rates, so the conclusion is that once other relevant factors are controlled, corruption is insignificant with respect to growth in GDP per capita (Pelegrini and Gerlagh, 2004). On the contrary, Everhart et al. (2009) suggest that the impact of corruption on the level of public investment is not significant, but the interaction between corruption and public investment implies a reduction in private investment (Everhart et al., 2009). In a recent study, Aidt (2009) doesn't find convincing and robust evidence that corruption may have a significant negative effect on the growth rate of GDP per capita, but the paper suggests that corruption is a significant hindrance for sustainable development (Aidt, 2009).

Also, there are studies that show the *impact of corruption on public finance* and *on the public sector functions*.

In this sense, Shleifer and Vishny find that corruption can reduce government revenue and lower the level of government output and services, including the provision and financing of health care and education services (Shleifer and Vishny, 1993). This idea is sustained by Erlich and Lui, ho find that corruption can reduce investment in human capital (Erlich and Lui, 1999). Not only the quantity of the services is affected, but also the quality of publicly provided services seems to lower, according to Bearse, Glomm and Janeba (Bearse et al., 2000).

Based on the data for a group of 39 sub-Saharan African countries during 1985-96, Ghura (1998) highlights that the variations in tax revenue-GDP ratios rise with declining inflation, implementation of structural reforms, rising human capital (a proxy for the provision of public services by the government) and declining corruption. So, the factors that affect tax revenue-GDP ratios are economic policies and the level of corruption. Tanzi and Davoodi also determined the impact on public finance and found that corruption not only tends to increase the size of public investment, but also skews the composition of public expenditures away from needed operation and maintenance towards expenditure on new equipment and reduces the productivity of public investment and cause the deterioration of a country's infrastructure and by this reduce private productivity. On the income side of the budget, corruption may reduce tax revenue because it compromises the government's ability to collect taxes and tariffs (Tanzi and Davoodi, 1997). Mauro (1998a, 1998b) presented evidence which suggests that corruption reduces public expenditures from growth-promoting areas (e.g., health and education) and stimulate other types of project (e.g., infrastructure investment) that are less productivity-enhancing, but which offer public servants better opportunities to collect bribes. In the same direction, an IRIS Center study for the World Bank (Azfar et. al., 2001) demonstrates that corruption can lead to negative effects on health care services and health outcomes(strongly emphasized in the Philippines case), but also on education outcomes resulting from reduced public sector services in those areas. In a more recent work, Azfar and Gurgur find that corruption reduces the outcomes of the public health services, but also have a negative effect on education outcomes (Azfar and Gurgur, 2008). In the same article, Azfar and Gurgur find that corruption affects public services in rural areas in different ways than urban areas, and that corruption harms the poor more than the wealthy. Also, in a series of studies coordinated by DiTella and Savedoff it was shown how corruption undermines the efficacy of health care in Latin America (DiTella and Savedoff, 2001).

Based on a simple neoclassical growth model with a self-seeking and corrupt public sector, Barreto and Alm finds that, holding the relative size of government constant, the presence of corruption distorts the country's tax structure, in a manner that countries affected by corruption relies more on consumption taxes than income taxes (Barreto and Alm, 2003). Another finding of this study is that the optimal size of government is smaller in an economy with corruption than in one without corruption, the explanation being the negative effects of corruption on social welfare via the implied loss in production of the public consumption and production goods when corruption occurs, effects that are no longer present in a clean economy. Attila integrates corruption in an endogenous growth model in two ways: corruption in public spending and corruption in taxation and finds that, under certain conditions, corruption can positively affect the rate of growth, but the second effect of corruption, and the more devastating one, is that it has a negative impact on growth by the tendency to make sub-optimal tax rate that maximizes the rate of growth in the long term and by creation of distortions leading to excessive tax rates harmful to growth (Attila, 2008). Cerqueti and Coppier demonstrate that the relationship between the tax rate and tax collection depends on the relevance of the "shame effect", meaning the possibility of the entrepreneur being detected and reported in a corrupt transaction (Cerqueti and Coppier, 2009). The authors find that in countries with a "low shame" effect, tax revenues grow as the tax rate increases. Moreover, there is a critical tax rate where the growth rate of tax revenues begins to reduce. In countries with a high "shame

effect" tax revenues increase up to a threshold value and then decrease. As a policy implication, an optimal level of taxation exists both for "high shame" and "low shame" countries, which permits governments to maximize fiscal revenues, but the action that has to be taken are different.

Another important category of studies regards the impact of corruption *on inequality and poverty*. In this sense, Hendriks et al. (1999), Li et al. (2000), Gupta et. al. (2002) argue that corruption increases income inequality. Gupta et al. (2002) found further evidence that corruption increases inequality in education and land distribution.

Most of the econometric results reviewed point in the direction show that corruption is bad for economic growth, and also bad for a number of economic factors that tend to be correlated with growth: domestic investment, the quantity and composition of foreign direct investment, government expenditure on health and education, the quantity and quality of government investment in infrastructure, and generally the returns to business and trade. These factors are influencing social welfare, so the question is if the presence of corruption tends to reduce social welfare. The study intends to verify if there is a correlation between corruption and social welfare, viewed from the perspective of Sen's work on capabilities.

Base on whole theoretical acquisition, we assume the hypotheses:

H: The level of social welfare is growing as the intensity of corruption is decreasing.

In summary, the meanings of the hypothesis's work relations are:

Table no. 1

The sense („the sings") of the hypothesis's work relation

The trend of social welfare level	The trend of corruption
+	-
-	+

Our fundamental assumption releaves the idea that between social welfare and corruption is a strong correlation, by contrary direction.

Methods and results

To quantify and to analyze the relationship between social welfare (dependent variable) and corruption (independent variable), we have considered the period 1996-2008 and a sample of 27 countries of European Union, with different degrees of economic development and political-administrative structures. The countries are: Belgium, France, Germany, Italy, Luxembourg, Netherlands, Denmark, Ireland, United Kingdom, Greece, Portugal, Spain, Austria, Finland, Sweden, Cyprus, Estonia, Latvia, Lithuania, Malta, Poland, Czech Republic, Slovakia, Slovenia, Hungary, Romania and Bulgaria.

1. Social welfare (HDI) is quantified by the "Human Development Index" which measures the degree of human development by combining life expectancy, education levels and realized income, on a scale from 0 to 1, where 0 denotes a minimum level of welfare and 1 a maximum one.

2. Intensity of corruption (FC) is quantified by the "Freedom from corruption" which is the component of the Index of Economic Freedom, developed by The Heritage Foundation, on a scale from 0 to 100, where 0 indicates a very high level of corruption and 100 an extremely small one.

Based on the illustrated variables, the sense of changes existing between HDI and FC, in according with theoretical assumption made above, is as follows:

Table no.2

The expected sense („the sings") of the relation between HDI - FC, according to working hypothesis

The trend of HDI	The trend of FC
+	+
-	-

The method of analysis used is the econometrical modeling (with software EViews 6.0), elaborating a "Pool Date"[3] regressive model, with this shape:

$$Y_{it} = \alpha + \beta x X_{it} + \lambda_t + v_{ij} \quad (1)$$

where Y_{it} represents the dependent variable - HDI, α intercept term, β independent variables coefficients, X_{it} independent variable - FC, λ_t time-varying intercept (captures all of the variable that affect Y_{it} and that vary over time and cross-sectionally), v_{ij} the remainder disturbance (capturing everything that is left unexplained about Y_{it}), *i* cross-sectional units observed for dated periods - (the number of states - 27) and *t* the period of time (years 1996-2008).

The econometric analysis has two steps:

a. The econometric tests of the „pool";

b. The "unit root test" of the residuals.

a. The econometric tests of the „pool data" are presented in Tables no. 3.

Table no.3

The econometric tests of the „pool data" model HDI – FC in U.E.27's case

Dependent Variable: HDI?
Method: Pooled EGLS (Period SUR)
Sample: 1996 2008
Included observations: 13
Cross-sections included: 27
Total pool (balanced) observations: 351
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BELGIUM--FCBELGIUM	0.013179	0.000285	46.31743	0.0000
FRANCE--FCFRANCE	0.013083	0.000283	46.28539	0.0000
GERMANY--FCGERMANY	0.011528	0.000252	45.68250	0.0000
ITALY--FCITALY	0.017704	0.000389	45.54637	0.0000
LUXEMBOURG--FCLUXEMBOURG	0.010569	0.000230	45.91205	0.0000
NETHERLANDS--FCNETHERLANDS	0.010863	0.000234	46.45046	0.0000
DENMARK--FCDENMARK	0.009850	0.000213	46.17317	0.0000
IRELAND--FCIRELAND	0.012561	0.000274	45.92223	0.0000
UK--FCUK	0.010742	0.000232	46.22082	0.0000
GREECE--FCGREECE	0.019823	0.000446	44.48529	0.0000
PORTUGAL--FCPORTUGAL	0.013784	0.000312	44.22934	0.0000
SPAIN--FCSPAIN	0.015020	0.000327	45.98501	0.0000
AUSTRIA--FCAUSTRIA	0.011487	0.000249	46.19148	0.0000
FINLAND--FCFINLAND	0.009912	0.000214	46.33344	0.0000
SWEDEN--FCSWEDEN	0.010298	0.000220	46.86137	0.0000
CYPRUS--FCCYPRUS	0.015765	0.000361	43.73105	0.0000
ESTONIA--FCESTONIA	0.013505	0.000331	40.85200	0.0000
LATVIA--FCLATVIA	0.020993	0.000522	40.18858	0.0000
LITHUANIA--FCLITHUANIA	0.020589	0.000504	40.87203	0.0000

[3] For econometric model we used the econometric software Eviews 5.0.

MALTA--FCMALTA	0.018752	0.000438	42.78048	0.0000
POLAND--FCPOLAND	0.018174	0.000435	41.77663	0.0000
CZECHR--FCCZECHR	0.018709	0.000436	42.93261	0.0000
SLOVAKIA--FCSLOVAKIA	0.047514	0.000451	105.3411	0.0000
SLOVENIA--FCSLOVENIA	0.016336	0.000373	43.80734	0.0000
HUNGARY--FCHUNGARY	0.016982	0.000406	41.80112	0.0000
ROMANIA--FCROMANIA	0.024753	0.000639	38.73689	0.0000
BULGARIA--FCBULGARIA	0.022355	0.000564	39.62554	0.0000
Weighted Statistics				
R-squared	0.913509	Mean dependent var		9.657922
Adjusted R-squared	0.906568	S.D. dependent var		9.154091
S.E. of regression	1.011230	Sum squared resid		331.3182
Durbin-Watson stat	2.129130			
Unweighted Statistics				
R-squared	0.236670	Mean dependent var		0.937094
Sum squared resid	32.57704	Durbin-Watson stat		1.121717

The tests of the model show the following:

- the absolute values of the standard errors corresponding to the coefficients of the function are lower than the values of the coefficients, witch sustains the correct estimation of these coefficients (a conclusion reinforced by the low values of the probabilities);

- the value of the correlation coefficient, shows a very significant statistical correlation between the dependent variable - HDI and the independent variable - FC (the changes in the FC are reflected in proportion by 91.35% in the changes HDI);

- the Durbin-Watson test (with a resulting value near to critical level 2) shows that the residual variables are very low autocorrelated.

More, for a better estimation, we have corrected both period heteroskedasticity and general correlation of observations within a given cross-section. Moreover, to obtain the robust coefficient standard errors we have applied the Period SUR (PCSE) method.

b. The "unit root test" of the residuals. For verifying the stationarity of the residuals are used the „unit root tests" proposes by Levin, Lin & Chu, Im, Pesaran & Shin W-stat, ADF and PP. The results are illustrated in Table no. 4.

Table no.4

The "unit root test" of the residuals

Sample: 1996 2008 Exogenous variables: Individual effects Automatic selection of maximum lags Automatic selection of lags based on SIC: 0 to 2 Newey-West bandwidth selection using Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.5627	0.0000	27	310
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.61896	0.0000	27	310
ADF - Fisher Chi-square	155.218	0.0000	27	310
PP - Fisher Chi-square	140.915	0.0000	27	324
** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				

All tests indicate that the null hypothesis is rejected, meaning that the „residuals of the cross-sectional group" is stationary - I(0).

In conclusion, the model could be considered representative to describe, at E.U.27's level, the connection between HDI and FC.

Discussion

The obtained results based on the constructed model show that corruption phenomena influence in a major extent social welfare. Utilizing the coefficients of independent variable, the descending ranking of countries regarding HDI's elasticity in relation with FC is showed in Table no. 5.

Table no. 5

The ranking of U.E.27's countries regarding HDI's elasticity in relation with FC

No.	Country	Level of coefficient
1	Slovakia	0.047514
2	Romania	0.024753
3	Bulgaria	0.022355
4	Latvia	0.020993
5	Lithuania	0.020589
6	Greece	0.019823
7	Malta	0.018752
8	Czechr	0.018709
9	Poland	0.018174
10	Italy	0.017704
11	Hungary	0.016982
12	Slovenia	0.016336
13	Cyprus	0.015765

14	Spain	0.01502
15	Portugal	0.013784
16	Estonia	0.013505
17	Belgium	0.013179
18	France	0.013083
19	Ireland	0.012561
20	Germany	0.011528
21	Austria	0.011487
22	Netherlands	0.010863
23	Uk	0.010742
24	Luxembourg	0.010569
25	Sweden	0.010298
26	Finland	0.009912
27	Denmark	0.00985

The results confirm the proposed theoretical hypotheses, following the idea that the limitation of corruption's phenomena (maximizing FC index) has the result of increasing of social welfare (maximizing HDI index).

Conclusions

As a complex phenomenon, the corruption hits the entire world, regardless of the geographical location, population, level of economic development, political regime or type of government.

Based on our paper' results, we find that corruption has a significant negative impact on the human well-being (measured by the Human Development Index, which combine the economical aspects with some of the most important social ones: health care and education). This is a result of the direct consequences of corruption such as: lower growth, affecting resources' allocations from the public budgets, promoting inequality. The main results suggest that the corruption is a "key question" especially in developing and in transition economies, but the disturbance constant unobserved factors decrease the phenomenon and compensate the periodical negative unobserved factors.

In this sense, policies against corruption could be seen as measures for increasing well-being of the citizens.

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