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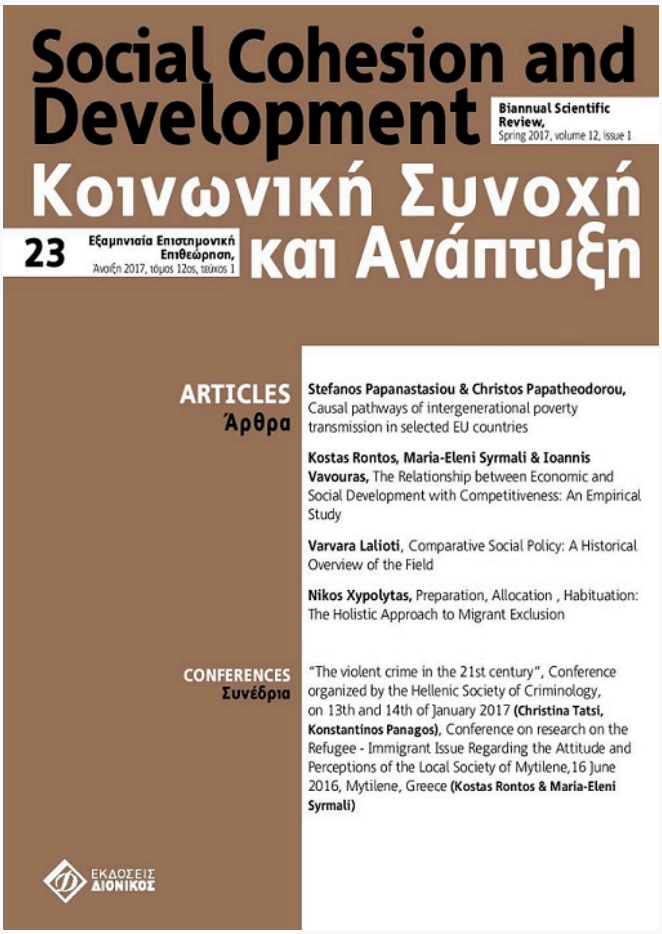

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The relationship between economic and social development with competitiveness: An empirical study

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Η σχέση μεταξύ της οικονομικής και κοινωνικής ανάπτυξης με την ανταγωνιστικότητα: Μια εμπειρική μελέτη

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ABSTRACT

The prevalence of institutional weaknesses largely unveils the existence of inherent economic and social underdevelopment as well as persistent bottlenecks of political nature, which in principle are more intense in less developed countries. In this study, by using a global sample of developed and developing countries it is proved that the relationship between corruption, which is a serious institutional deficiency, and income is not a symmetric one. However, the effective control of corruption should not be considered as a "quasi luxury good" the demand of which increases once the level of income rises to a certain level. On the contrary, it may be achieved through the adoption and effective implementation of the appropriate long-run policies and institutional reforms.

KEY WORDS: Economic development, social development, competitiveness, institutional environment, reforms

ΠΕΡΙΛΗΨΗ

Η επικράτηση θεσμικών εκτροπών υποδηλώνει την ύπαρξη οικονομικής και κοινωνικής υπανάπτυξης, καθώς και αδυναμίες πολιτικής φύσεως που είναι περισσότερο έκδηλες στα λιγότερο αναπτυγμένα κράτη. Χρησιμοποιώντας ένα παγκόσμιο δείγμα αναπτυγμένων και αναπτυσσόμενων χωρών αποδεικνύεται ότι η σχέση μεταξύ διαφθοράς, που συνιστά μια σοβαρή θεσμική παρέκκλιση, και εισοδήματος δεν είναι συμμετρική. Παρόλα αυτά, ο αποτελεσματικός έλεγχος της διαφθοράς δε θα πρέπει να θεωρείται ως «οιονεί αγαθό πολυτελείας», η ζήτηση του οποίου αυξάνει όταν επιτευχθεί ένα συγκεκριμένο επίπεδο εισοδήματος. Αντίθετα, είναι εφικτός μέσα από την υιοθέτηση και την αποτελεσματική εφαρμογή κατάλληλων μακροχρόνιων πολιτικών και θεσμικών μεταρρυθμίσεων.

ΛΕΞΕΙΣ-ΚΛΕΙΔΙΑ: Οικονομική ανάπτυξη, κοινωνική ανάπτυξη, ανταγωνιστικότητα, θεσμικό περιβάλλον, μεταρρυθμίσεις

1. Introduction

Corruption is a global phenomenon that exists in all countries, not only developing but developed as well (Myint, 2000). Corruption is an ancient problem (Bardhan, 1997), associated with all forms of human organization whereas historical data show that the efforts to combat corruption date back to its existence (Riley, 1998). The term "corruption" has been applied to such a wide variety of beliefs and practices that pinning down the concept proves to be difficult (United Nations Development Programme, 2008). As a result, there is no international consensus on the specific meaning of the term. Due to the complex nature of corruption neither exists an internationally agreed definition of the concept corresponding to all types and forms of the phenomenon (Council of Europe, 1995).

The most widely accepted definition of corruption in the relevant literature has been compiled by the World Bank, according to which corruption is "the abuse of public office for private gain" (World Bank, 1997). Most existing definitions of corruption are variations of this prevalent definition. OECD (1996) defines public sector corruption as the misuse of public office, roles or resources for private benefit, material or otherwise. Lambsdorff (1999) adopts the common definition of corruption and specifies its meaning to the misuse of public power for private benefit. A definition provided by the nongovernmental organization Transparency International is the misuse of trusted power for own profit (Transparency International, 2011).

Corruption can take up several facets, such as bribery, embezzlement, fraud, extortion and nepotism (Amundsen, 1999). It should be emphasized, however, that corruption is not always related to personal gain. More often than not, the beneficiaries are the so-called third parties, namely the families, friends or the political party to which the individual belongs (Tanzi, 1998). Also, it must be stressed that although corruption is observed at both the private and the public sector, the vast bulk of the economic literature examines only public sector corruption for two main reasons. Firstly, the phenomenon is mainly associated with the public sector and secondly, widely accepted private sector corruption indices have not yet been constructed, rendering the relevant empirical research extremely difficult (Rontos, Syrmali and Vavouras, 2013).

Corruption is associated with two basic features, namely public authority and morality. Specified as such, corruption is often characterized as a "disease" inherent to public power and an indication of bad governance (Tiihonen, 2003). Moreover, the general attitude towards corruption is also determined by the prevailing ethical standards and personal values; that is by the system of individual moral attributes existing in each country at a specific time. However it must be stressed that not all people facing the same socioeconomic environment are equally prone to corruption exhibiting identical opportunistic behavior. Having stressed this individualistic dimension of corruption, it should be emphasized that it is generally accepted that corruption is mainly considered as a social phenomenon depending less on the individual psychological or personality characteristics of people and more on the cultural, institutional and political basis on which the specific country is constructed (Sung, 2002), not ignoring of course and the level of its economic development.

Major causes of underdevelopment are of domestic origin, shaped by internal to the specific country forces. Therefore, when economic and sociopolitical patterns of corruption prevail and become institutionalized their control is extremely difficult, whereas the political difficulties of reform become even more challenging (Bräutigam and Knack, 2004). As a result, the extent of corruption varies among countries because corruption operates in a certain cultural and political

context that influences its growth (Benson and Cullen, 1998), among other factors. Generally, the determinants of corruption could be distinguished between those that affect the motives or incentives of agents to engage in corruption and those that create opportunities for corrupt activities (Martinez-Vazquez, Arze del Granado and Boex, 2007).

As corruption is a multidimensional issue it has several causes (Lalountas, Manolas and Vavouras, 2011). The empirical analysis has established that the single most important factor affecting corruption is the level of economic development. In this context, corruption is considered to be both a cause as well as a consequence of poverty. The direction of causality between corruption and income per capita, as an approximation of the level of economic development, has already been under scrutiny in the relevant empirical literature. Paldam (2002) shows that corruption is a sub-product of poverty that gets restricted as economies develop and there is a transition from poverty to increased levels of economic development. In this manner, the direction of causality is mainly from income towards corruption. However, corruption control is not an automatic process that starts only when a certain income threshold is reached. On the contrary, it is achieved through the adoption and the effective implementation of the appropriate long-run policies (Rontos, Syrmali and Vavouras, 2015).

Moreover, it must be pointed out that corruption is extensive in low income countries, due to a series of structural weaknesses that prevail in them and are conducive to its expansion. Therefore, in low income economies corruption might prove to be a "survival strategy" (Rose-Ackerman, 1999). In these countries many people live below subsistence level and often try to satisfy the means for their survival with illegitimate means (Shen and Williamson, 2005). Therefore, the motive for the increase of personal income is indeed intense and is becoming more so due to widespread poverty and low public sector salaries (Gray and Kaufmann, 1998). As a result, in the aforementioned cases corruption invades society. In addition, it is often argued that corruption might be less detrimental in countries plagued with a very inefficient institutional framework as it may act as the grease for the wheels of an economy in order to overcome bureaucratic rigidities and administrative delays that inhibit economic activity (Méon and Weil, 2010).

Furthermore, Lambsdorff (2007) claims that increased levels of corruption are closely related to the lack of competitiveness. Competitiveness addresses structural challenges in order to ensure more sustainable and inclusive growth. Ades and di Tella (1999) support the view that corruption is greater in countries where domestic enterprises are protected from international competition and are characterized by inherent market restrictions. However, the direction of the causal relationship is not clear. Bliss and di Tella (1997) argue that corruption may affect the level of competition. Emerson (2006) empirically proves that competition and corruption are related, whereas it is also argued that policies aiming at combating corruption may strengthen industrial competition in cases that it is set as a development goal.

Klitgaard (1998) argues that multiple and complex regulations may increase corruption levels. According to Svensson (2005), government regulations that raise barriers to entry give public officials the power to demand and collect bribes. Countries with heavier regulation of entry have higher corruption levels and larger unofficial economies, but not better quality of public or private goods (Djankov et al., 2002). Treisman (2000) argues that corruption is higher in countries with greater state intervention in the economy in the form of regulations, among others.

It is also acknowledged that there exists a strong interconnection between corruption and the level of existing political freedoms. On the one side corruption affects the quality of democracy and on the other the quality of democracy affects the level of corruption. Corruption is widely

considered to be both a symptom and a cause for the malfunctioning of democratic institutions (Warren, 2004). Shleifer and Vishny (1993) support the view that the structure of political processes and, especially democracy, prove restrictive for the proliferation of corruption, mainly because of the competition they set as a precondition for the acquisition of political office, which in turn presupposes widespread democratic participation and increased levels of transparency. Moreover, democratic accountability raises the costs of corrupt behavior and as a result limits the opportunities presented for corruption (Bohara, Mitchell and Mittendorff, 2004). Kunicov (2006) supports the view that in less democratic countries there are more opportunities for developing rent-seeking behavior, which is closely linked to corruption. Goel and Nelson (2010) reach the conclusion that corruption is less prevalent in politically free countries, as defined by the level of political rights and the extent of civil liberties.

Based on the preceding analysis, the current paper has two main objectives. The first objective is to examine the above-mentioned factors, namely the level of economic development, structural competitiveness, the quality of regulatory framework and the extent of political freedoms, as the main causes of corruption in the world. The second objective is to analyze whether the relationship between income and corruption is uniform for all countries, independently of their level of economic development. Ignoring these variations as far as the effective control of corruption is concerned may lead to mistaken inferences regarding public policy, especially for developing countries, which are seriously affected by the phenomenon.

The rest of the paper is organized as follows. Section 2 presents the data available and the empirical methodology employed, whereas section 3 discusses the main results that emerge out of the empirical analysis. Section 4 presents the conclusions and some major policy guidelines.

2. Methodology

All the variables, which are employed for the analysis, have been derived for a global sample of 139 countries. As far as time coverage is concerned, it must be pointed out that since the year 2005, the methodology of the competitiveness index underwent significant changes rendering intertemporal comparisons of the index extremely problematic. Therefore, the data used for the empirical estimation start after the year 2005. Moreover, the time period examined expands until the year 2014, which is the year with the most currently available data. Due to the aforementioned restrictions, the sample of countries is examined over the period 2005-2014.

The variables used have been extracted from official statistics and other well-known international data sources. More specifically, to express corruption the corruption perceptions index (CPI) is employed provided by Transparency International (TI). The values of the indicator lie between 0 to 100, where 0 denotes that a country is perceived as highly corrupt, whereas 100 means that a country is perceived as very clean. Structural competitiveness is expressed with the global competitiveness index produced by the World Economic Forum (WEF). The values of the indicator range between 1-7, with higher values corresponding to increased levels of competitiveness. To approximate the level of economic development in each country, gross domestic product per capita in purchasing power parity is used transformed into a logarithmic scale [ln(GDP.pc.ppp)] in order to facilitate empirical estimates. This variable is derived from the World Economic Outlook (WEO) database of the International Monetary Fund (IMF). The political determinants of corruption are approached in terms of the range of political rights index (PR) and the extent of civil lib-

erties (CL), estimated by the Freedom House organization. The score scale of both indexes varies between 1 and 7, with lower values representing improved freedom standards. Countries with a combined average rating of 1-2.5 are considered "free", 3-5 "partly free" and 5.5-7 "not free". To measure the degree to which policies and institutions are supportive of economic freedom, a composite index referring to regulations on credit, labor and business (REG) is employed compiled by Fraser Institute. The measurement scale of the index lies between 0-10, where higher values of the index correspond to greater economic freedom.

Building on the precedent analysis about the main determinants of corruption, the basic model for estimation has the following form:

$$CPI = bo + b_1 GCI + b_2 \ln(GDP.pc.ppp) + b_3 PR + b_4 CL + b_5 REG + b_6 \left[\ln(GDP.pc.ppp)\right]^2 + e \quad (1)$$

As far as the analysis of the current sample is concerned, it must be stressed that the repeated observations of enough cross-sections, the so-called panel analysis, permits to examine the dynamics of change with short time series (Yaffee, 2003). The combination of time series with cross-sections can enhance the quality and quantity of data in ways that would be impossible using only one of these two dimensions (Gujarati, 2003).

The employed panel data is estimated with the Fixed Effects (FE) method (applying the White diagonal correction of standard errors for heteroscedasticity and autocorrelation). To decide on the estimation method a Hausman test was conducted (Baltagi, 2005), which indicated that the Fixed Effects (FE) method is preferred instead of the Random Effects (RE) method. The Fixed Effects (FE) method can be used with panel data to estimate the effect of time-varying independent variables in the presence of time-constant omitted variables (Wooldridge, 2013). Therefore, the unobserved heterogeneity could be treated by assuming that omitted variables do not change over time and as a result by eliminating their effect through the FE method. With regard to this empirical model, it might be assumed that omitted variables remain constant over time due to the small time dimension of the sample (T=8). To test the validity of the results the Panel Least Squares method (without fixed or random effects either for cross section or time series data) is also performed, which is presented in column (4) of table 3. To evaluate the robustness of the results, static cross section estimation is also carried out concerning the most recent available data, which refer to the year 2014, and are presented in table 4.

3. Results

Table 1 reports summary statistics presenting some preliminary results. All countries, regardless their average real income levels, are included in the analysis. This is also evident by the large difference between the minimum and the maximum value of the used per capita income index (GDP.pc.ppp), which ranges between $389.312 and $102.724,238 respectively, expressed in its original values. The corruption index (CPI) varies between 1.4 (highest corruption level) and 9.7 (lowest corruption level). Moreover, no country in the world sample is totally free of corruption as expressed by the relevant CPI index, as the maximum theoretical value (10) of the corruption index is not reached by any country.

Table 1. Summary statistics

	Mean	Standard eviation	Min.	Max.
CPI	4.363	2.147	1.400	9.700
GCI	4.173	0.684	2.577	5.646
ln(GDP.pc.ppp)	9.028	1.198	5.965	11.541
PR	3.189	2.011	1.000	7.000
CL	3.019	1.637	1.000	7.000
REG	6.985	0.882	3.895	9.075

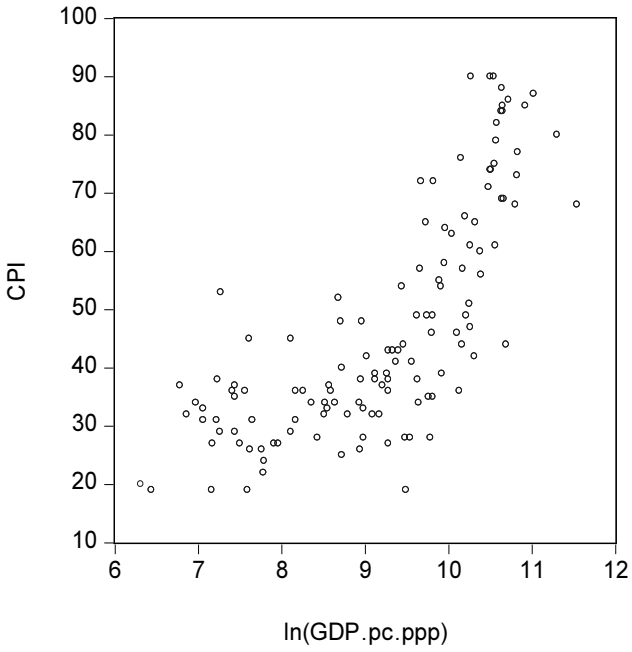
Table 2 containing the correlation matrix provides a first approximation for the main determinants of corruption. Competitiveness as measured by the relevant GCI index has a strong positive correlation with corruption (CPI). Data show, on average, that countries with a high degree of competitiveness (GCI) exhibit lower levels of corruption (CPI). Moreover, countries with higher levels of GDP.pc.ppp show lower levels of corruption (CPI). An interesting finding, which is also reached by the ensuing regression results, is the negative correlation between corruption (CPI) and the political rights (PR) and civil liberties (CL) indexes, as higher values of these indicators correspond to lower actual levels of freedom. Moreover, the relation between corruption (CPI) and the political rights (PR) index in particular is not very strong (-0.538). In addition, political rights (PR) and civil liberties (CL) are strongly related, whereas the sign of this relationship is positive due to the measurement scale of both indexes.

Table 2. Correlation matrix

	CPI	GCI	ln(GDP)	PR	CL	REG
CPI	1					
GCI	0.867	1				
ln(GDP)	0.766	0.837	1			
PR	-0.538	-0.422	-0.451	1		
CL	-0.641	-0.499	-0.535	0.937	1	
REG	0.572	0.558	0.434	-0.281	-0.347	1

Figure 1 presents the scatter plot between corruption as approached by the corruption perceptions index (CPI) and income as measured by gross domestic product per capita based on purchasing-power-parity transformed into a logarithmic scale [ln(GDP.pc.ppp)]. The scatter plot provides indications about the existence of non linear relationships between the variables of interest. For countries with low GDP per capita, as income increases the level of corruption increases as well until it reaches a certain level of income. When this income threshold is achieved the relationship between corruption and income becomes positive. Therefore, for countries with higher GDP per capita and as a result a higher level of economic development, an increase in the level of income is associated with a reduction in the level of perceived corruption.

Figure 1. Scatter plot, 2005-2014



The results according to the Fixed Effects (FE) method are presented in table 3. Cross section estimates concerning the year 2014 are summarized in table 4. In the relevant tables, below coefficient estimates, the standard error, the t-statistic and the p-value is given. Moreover, the results of the Hausman test conducted for the choice of the panel regression method appear in last row of Table 3 together with the corresponding p-value (in parenthesis). It must be stressed that results regarding the two estimation methods do not differ significantly as far as their economic and statistical significance is concerned. As a result, estimation results with the preferred Fixed Effects approach are analyzed in the following lines.

According to the Fixed Effects (FE) estimates presented in column (3) of table 3, all independent variables are statistically significant and have the expected signs, with the exception of the political rights (PR) index, which is positive. However, the PR variable is not statistically significant at conventional significance levels. This result is also confirmed by a different specification of the basic model presented in column (1) of table 3. The above outcome concerning the PR variable may be due to the high correlation between the political rights (PR) and the civil liberties (CL) index. The civil liberties (CL) variable is statistically significant at the 1% level and negative, as higher values of this index correspond to lower levels of political freedom. The variable expressing the quality of the regulatory framework (REG) is positive and marginally significant at the 10% level.

The estimated competitiveness coefficient is positive and statistically significant at the 1% level and retains its sign and statistical significance in all alternative specifications of the basic model presented in columns (1) and (2) of table 3. More specifically, a one-point increase in the competitiveness index increases the corruption index by 1.229 points and as a result the

perceived level of corruption is decreased according to the measurement scale of the corruption index. Based on the estimation results, if Greece (4.050) had the level of competitiveness of the United States (5.646), which is the best performer in the world sample regarding the competitiveness index for the period under consideration, then the level of corruption in Greece (4.036) would improve and approximate that of Israel (6.038).

Table 3. Fixed Effects (FE) and Panel Least Squares (PLS) estimates, 2005-2014

	FE (1)	FE (2)	FE (3)	PLS (4)
Intercept	-2.125*** 0.378 -5.622 0.000	-2.011*** 0.467 -4.306 0.000	18.681*** 1.735 10.767 0.000	21.648*** 1.868 11.586 0.000
GCI	1.175*** 0.081 14.416 0.000	1.165*** 0.081 14.230 0.000	1.229*** 0.079 15.509 0.000	1.620*** 0.093 17.419 0.000
ln(GDP.pc.ppp)	0.078* 0.042 1.848 0.065	0.071* 0.042 1.687 0.092	-0.907** 0.353 -2.300 0.021	-5.523*** 0.413 -13.373 0.000
REG	0.052* 0.031 1.653 0.098	0.078** 0.034 2.239 0.025	0.082* 0.046 1.772 0.077	0.265*** 0.043 6.163 0.000
PR	0.004 0.363 0.011 0.992		0.004 0.065 0.060 0.952	0.028 0.019 1.474 0.141
CL	-0.099*** 0.035 -2.813 0.005	-0.256*** 0.037 -6.919 0.000	-0.091*** 0.033 -2.794 0.005	-0.399*** 0.062 -6.435 0.000
$[\ln(GDP.pc.ppp)]^2$			0.060*** 0.021 2.934 0.004	0.368*** 0.029 12.689 0.000
$\bar{R}^2$	0.986	0.985	0.986	0.859
F-statistic	360.443	358.749	358.530	709.401
Prob(F-statistic)	0.000	0.000	0.000	0.000
Hausman	120.709 (0.000)	136.785 (0.000)	196.842 (0.000)	196.842 (0.000)

***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

Table 4. OLS estimates, 2014

	OLS (1)	OLS (2)	OLS (3)
Intercept	-5.139*** 0.397 -12.945 0.000	-6.341** 0.455 -13.936 0.000	19.571*** 2.103 9.306 0.000
GCI	2.019*** 0.104 19.503 0.000	2.028*** 0.103 19.603 0.000	1.712*** 0.097 17.649 0.000
ln(GDP)	0.123** 0.060 2.067 0.039	0.126** 0.060 2.108 0.035	-6.123*** 0.413 -14.830 0.000
REG	0.246*** 0.042 5.857 0.000	0.352*** 0.051 6.902 0.000	0.284*** 0.052 5.462 0.000
PR	-0.083* 0.054 -1.578 0.115		0.085 0.054 1.563 0.119
CL	-0.491*** 0.075 -6.547 0.000	-0.434*** 0.038 -11.421 0.000	-0.442*** 0.073 -6.054 0.000
$[\ln(GDP.pc.ppp)]^2$			0.369*** 0.029 12.689 0.000
$\overline{R}^2$	0.811	0.811	0.859
F-statistic	603.665	752.412	709.401
Prob(F-statistic)	0.000	0.000	0.000

***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

After replacing coefficients with their Fixed Effects (FE) estimates, equation (1) takes the following form:

$$CPI = 19.785 + 1.229GCI - 0.907\ln(GDP.pc.ppp) + 0.071REG - 0.003PR - 0.098CL + 0.060\left[\ln(GDP.pc.ppp)\right]^2 \quad (2)$$

Since, $\frac{dCPI}{dln(GDP.pc.ppp)} < 0$ and $\frac{dCPI}{d[ln(GDP.pc.ppp)]^2} > 0$,

the relationship between income and corruption is u-shaped. In order to find the turning point of income, the partial effect of income on corruption is computed as follows:

$\frac{dCPI}{dln(GDP.pc.ppp)}$ = 0 ⇨ -0.907 + 2 · 0,060ln(GDP.pc.ppp) = 0 ⇨ -0,907 + 0.120ln(GDP.pc.ppp) = 0 ⇨ ln(GDP.pc.ppp) = $\frac{0.907}{0,120}$ ⇨ ln(GDP.pc.ppp) = 7.558 ⇨ GDP.pc.ppp = $e^{7.558}$ ⇨ GDP.pc.ppp = $2.718^{7.558}$ ⇨ GDP.pc.ppp = 1.914,509

Therefore, it is estimated that countries with GDP per capita lower than $1.914,509 do not reach the income threshold. In these countries, an increase in the level of income is associated with an increase in the level of corruption. Countries that do not attain the required income level for the period 2005-2014, are presented in table 5. Due to the sufficiently large number of countries "trapped" in this category, the decreasing part of the above quadratic relationship cannot be ignored. Countries belonging to this group may be classified as "least developed countries" and "landlocked developing countries", according to the United Nations classification, because of the poor living conditions prevailing in them.

Table 5. Countries that do not reach the income threshold

Least developed countries	Burundi, Malawi, Madagascar, Tanzania (United Republic of Tanzania), Mali, Mozambique, Rwanda, Zambia, Burkina Faso, Benin, Haiti, Yemen, Bangladesh, Senegal, Gambia
Landlocked developing countries	Ethiopia, Zimbabwe, Lesotho, Chad, Tajikistan

Note: (1) The categorization between "least developed countries" and "landlocked developing countries" is based on the United Nations classification. See, http://unstats.un.org/unsd/methods/m49/m49regin.htm. (2) Countries are presented in increasing income order, as expressed by GDP.pc.ppp.

(3) Kenya, Côte d'Ivoire, Nigeria do not reach the income threshold as well but are not included under either "Least developed" or "Landlocked developing" countries, according to the United Nations categorization.

6.Conclusion

The prevalence of corruption largely unveils the existence of economic and social underdevelopment as well as institutional rigidities and political incapacity, which are more intense in less developed countries. As a result, policies implemented to tackle corruption are meaningless without understanding the underlying determinants of the phenomenon. The omission from the analysis of the appropriate determinant factors is recognized as one of the principal obstacles in building and establishing effective and sustainable anti-corruption systems. This paper makes a

systematic attempt to analyze the determinant factors of corruption and to test the linearity assumption concerning the relationship between corruption and income. More specifically, the enhancement of competitiveness is linked to improved infrastructure, institutions, macroeconomic performance and social services, among others. These pillars constitute the principal transmission channels through which competitiveness affects corruption.

By using a global sample of developed and developing countries it is proved in this study that the relationship between corruption and income is not symmetric as one might expect. In high income countries, economic development is definitely linked to a decline in perceived corruption levels. On the contrary, in low income economies an increase in the level of per capita income, as expressed by gross domestic product per capita in purchasing power parity, seems to be linked to an increase in the level of corruption. This result comes as no surprise as in these countries corruption has penetrated into the value system of society at large and is often considered by socially excluded people who are affected by poverty as an essential mechanism for their survival. Moreover, in low income countries, corruption is to some extent a "survival strategy". In these countries, increasing personal income is a strong motive and is becoming stronger due to conditions of utter deprivation and low public sector salaries. In order to survive and support their families, low paid public sector employees may take small bribes, especially when their jobs are associated with high degree of uncertainty, mainly due to political instability, that reduces the probability of future wages appropriation. According to this line of thought, corruption is a "disease" caused by poverty, or a by-product of poverty that only diminishes when economies develop.

However, the effective control of corruption should not be considered as an automatic process that starts only when countries reach a certain income threshold. On the contrary, it may be achieved through the adoption and effective implementation of the appropriate long-run policies and institutional reforms. Based on the above analysis, it must be stressed that anti-corruption strategies should not be applied uniformly to countries as ignoring the aforementioned divergences may lead to fallacious inferences regarding the fight against corruption. In underdeveloped countries corruption has systemic character and deep roots and constitutes part of everyday practice. In cases where the phenomenon becomes institutionalized, the control of corruption is extremely difficult. Therefore, without ignoring the economic dimension, the broader social and political context should also be taken into account in order to effectively combat corruption.

The extent of political freedoms represented mainly by civil liberties, seems to be another critical factor that affects the level of corruption globally. The higher the index of civil liberties, corresponding to reduced levels of political freedom, the higher are the risks for politically motivated violence and destabilization. It could therefore be argued that achieving and maintaining improved corruption standards is facilitated by the smooth functioning of democratic political institutions and civil liberties. Notions such as freedom of expression and belief, the protection of associational and organizational rights, the promotion of the rule of law and the defense of personal autonomy and individual rights constitute but a few of the principal elements for the operation of a politically free state. Nevertheless, the long-run health of the political system often requires internal checks and balances, whereas openness and transparency are the best ways of ensuring that such structural mechanisms develop. Moreover, from the empirical analysis emerges that economic freedom and deregulation may reduce the scope of corruption.

In practical terms, the analysis implies that implementing universal policy recommendations to all countries indiscriminately, regardless of their economic, social and political back-

ground proves to be ineffective and unresponsive. To put it differently, in case that corruption is endemic, deeply embedded in the political and social dynamics of a country, the corresponding initiatives taken to reduce corruption should be responsive to individual sociopolitical traits of countries, whereas they should also be supported by a deliberate policy mix, targeted reforms and structural adjustments. These long-run factors are important under the sustainability spectrum. The inefficiency of anti-corruption policies in low income countries may be explained by their short sighted character as they do not take into account the necessary social and political transformation.

The above analysis has highlighted that achieving and mainly maintaining anti-corruption reforms is a challenging task as it is associated with a wide variety of economic as well as noneconomic factors of social and political nature. From a sustainable perspective, these requirements are mainly achieved through the establishment of profound social and political transformation. The more unitary, concrete and stable the country is, the harder it becomes for phenomena that can paralyze state structure to prosper. Likewise, countries characterized by low levels of economic development, reduced social capital, weak social cohesion and fluid environments in the allocation of political power, are those countries in which corruption finds fertile ground to infiltrate and materialize. Therefore, anti-corruption challenges are even greater in developing countries as not only the most relevant rules have to be prescribed but these policies have also to be supported by appropriate governance structures in order to enforce them, which in poor countries are inherently weak. Moreover, concerns of improved social capabilities along with intensified efforts targeting economic development should be fully incorporated into future policy purposes and strategies as effective guides for remedying the root causes of institutional failures, such as corruption.

Appendix

Table A1. Countries included in the sample

Albania	Dominican Republic	Lebanon	Rwanda
Algeria	Ecuador	Lesotho	Saudi Arabia
Angola	Egypt	Lithuania	Senegal
Argentina	El Salvador	Luxembourg	Serbia
Armenia	Estonia	Madagascar	Singapore
Australia	Ethiopia	Malawi	Slovakia
Austria	Finland	Malaysia	Slovenia
Azerbaijan	France	Mali	South Africa
Bahrain	Gambia	Malta	Spain
Bangladesh	Georgia	Mauritania	Sri Lanka
Barbados	Germany	Mauritius	Suriname
Belgium	Ghana	Mexico	Swaziland
Benin	Greece	Moldova	Sweden
Bolivia	Guatemala	Mongolia	Switzerland
Bosnia and Herzegovina	Guyana	Montenegro	Syria
Botswana	Haiti	Morocco	Tajikistan
Brazil	Honduras	Mozambique	Tanzania
Brunei	Hong Kong	Namibia	Thailand
Bulgaria	Hungary	Nepal	The former Yugoslav Republic of Macedonia
Burkina Faso	Iceland	Netherlands	Timor-Leste
Burundi	India	New Zealand	Trinidad and Tobago
Cambodia	Indonesia	Nicaragua	Tunisia
Cameroon	Iran (Islamic Republic of Iran)	Nigeria	Turkey
Canada	Ireland	Norway	Uganda
Cape Verde	Israel	Oman	Ukraine
Chad	Italy	Pakistan	United Arab Emirates
Chile	Jamaica	Panama	United Kingdom
China	Japan	Paraguay	United States
Colombia	Jordan	Peru	Uruguay
Costa Rica	Kazakhstan	Philippines	Venezuela
Côte d'Ivoire	Kenya	Poland	Vietnam
Croatia	Korea (South)	Portugal	Yemen
Cyprus	Kuwait	Qatar	Zambia
Czech Republic	Kyrgyzstan	Romania	Zimbabwe
Denmark	Latvia	Russia	

Notes

1. http://www.weforum.org.
2. In this paper, the terms competition and competitiveness are not used alternatively. However, there is a strong interconnection between these two terms, as it is broadly accepted that competition between firms is associated with the level of a country's competitiveness, which defines at a great extent the ability of enterprises to compete in the domestic or international market. See, http://www.imd.org/wcc/research-methodology/.
3. The list of countries included in the sample is presented in Table A1 of the Appendix.
4. Transparency International's corruption perceptions index was first launched in 1995 and is published on an annual basis since then. As far as the time period examined, which covers the years 2005-2014, it must be pointed out that until the year 2011, the measurement scale of the corruption index ranges between 0-10. In the year 2012, it changed to the 0-100 score scale. Therefore, in order to facilitate intertemporal comparison of the index, the values of the indicator for the years 2012-2014 have been transformed into the 0-10 scale by dividing its values with 10. See, http://www.transparency.org.
5. See, http://www.weforum.org/
6. See, www.imf.org.
7. See, www.freedomhouse.org.
8. http://www.fraserinstitute.org.
9. To estimate the lower value of GDP, ln(GDP.pc.ppp) = 5.965 ⇨ GDP = $e^{5.965}$ ⇨ GDP = $2.718^{5.965}$ = 389.312 . To estimate the higher value of GDP, ln(GDP.pc.ppp) = 11.541 ⇨ GDP = $e^{11.541}$ ⇨ GDP = $2.718^{11.541}$ =102.724,238.
10. Due to the fact that the political rights (PR) variable is not statistically significant, a different specification of the baseline model is presented in column (2) of table 3 that does not include the PR index. Moreover, in column (1) of table 3 the quadratic term of income [ln(GDP.pc.ppp)]^2 is excluded from the basic model so as to test the robustness of empirical findings in the presence of different control variables. It must be pointed out that in all specifications tested all explanatory variables retain their signs and statistical significance.
11. According to the correlation table (table 2), the correlation coefficient between the political rights (PR) and the civil liberties (CL) index is 0.937.
12. See, http://unstats.un.org/unsd/methods/m49/m49regin.htm.

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