Universidade de Aveiro
Departamento de Economia, Gestão e Engenharia Industrial

Documentos de Trabalho em Economia
Working Papers in Economics

Área Científica de Economia
E/nº 19/2004

The socio-cultural and political-economic causes of corruption: a cross-country analysis

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The socio-cultural and political-economic causes of corruption: a cross-country analysis

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Abstract

This paper presents an empirical analysis about the economic-political and social-cultural factors that determine the perceived level corruption on a cross country basis. Regressing the Corruption Perception Index on the culture dimensions proposed by Hofstede and by Schwartz and on the social-economic variables such as the human development index, gini coefficient, openness index and political stability indicator, it is found a significant statistical relationship between cultural variables and perceived corruption as well as for the political and economic variables, of which development seems to be the most important factor. Also the cluster analysis shows that as the level of perceived corruption increases, the level of development and openness of countries decreases and the hierarchic, the collectivism and the conservative cultural characteristics tend to be more significant.

***Keywords*:** corruption, culture, cross-countries.

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1- Introduction

Corruption has long been a social problem that governments try to control and society in general repudiates. The World Values Survey shows that "accepting a bribe in the course of someone's duties" is "never justified" for about 75% of the respondents from all over the world. Though corruption is in almost all countries, with more or less intensity, why is that? Why some countries are more willing to present higher levels of corruption than others?

In this work we attempt to answer to these questions by suggesting some of the explanations of corruption. The main hypothesis of this article is that the culture and the values shared by people from one country can influence the way people behave, the levels of commitment toward work and economic life, the institutional and legal framework, the level of economic performance of countries (Hofstede, 1980; Franke et al., 1991; Scharf & Mathúna, 1998), and so their level of corruption.

But not only culture determines the level of corruption, within our hypothesis, there are economic and political factors that have to be taken into account to explain the different levels of corruption among countries. We will use a linear regression model to investigate the determinants of corruption, either cultural or political-economic.

We will also do a cluster analysis based on the economic indicators and then the obtained groups are compared with the economic and culture variables in order to know if the economic performance is related in a particular way with a certain combination of culture variables.

In sum, in this paper we'll start by presenting the theory and our hypothesis. As well as explaining some definitions and the culture dimensions we will use in our model. Next, we present the data and the methodology we have used and then the results are described. Finally, we analyze and discuss the results, present the limitations to our work and propose some future lines of research.

2- Theory and hypothesis

In spite of the absence of a universal definition of corruption, we can broadly define it as a personal behaviour that seeks to obtain private gains by using his/her position on the public structure or organisation. There are some economic models that try to explain how corruption may emerge as a stable equilibrium (Andvig & Moene, 1990; Ehrlich and Lui, 1999; Shleifer and Vishny, 1993; Tirole, 1996). We cannot rely only on the economic factors to explain corruption; historical, social and cultural factors seem to play an important role (Licht et al., 2003; Bonaglia et al., 2001; Treisman, Daniel, 2000; Mocan, 2004), even if Paldam (1999) doesn't find such strong empirical relevance for this.

In what follows, we will describe the determinant variables of our regression model in which the dependent variable is the Corruption Perception Index. First, we present the cultural determinants and then the economic determinants.

2.1- The social-cultural explanatory variables

By culture we understand a broad system of meanings, symbols, values and assumptions about what is good or bad, legitimate or illegitimate that underlie the prevailing practices and norms in a society as well as they justify and guide the ways of functioning of social institutions (Kluckholm, 1951). It is not easy to establish cultural prototypes features in order to operate them as numerical variables. There are two main studies who tried to do this, in particular, the Hofstede work and the Schwartz work, which will be explained next.

The four Hofstede culture characteristics

Hofstede inquired more than 117 000 employees of a multinational corporation in 40 nations, from 1967 to 1973, and then defined and scored four cultural dimensions: power distance, uncertainty avoidance, masculinity/femininity and individualism/collectivism, which the scores range from 0 to 115.

The *power distance (pd)* reflects the degree of respect people have towards their superiors and the need to keep a social gap between the leader and his subalterns. In countries and regions where the power distance is high, superiors and subordinates feel different by nature[1]. There is big respect for authorities and it is given a great importance to honorific titles and status. The opposite happens in countries with low hierarchical distance (e.g. USA, Great-Britain and non-Latin European countries) where the subordinates' dependence from superiors is limited because both see themselves as equal in nature. So, we expect to find a negative relationship between power distance and transparency/non corruption perception.

The *individualism* (ind) dimension characterizes the level of individual identity defined according to personal and immediate family aims. The inverse happens with collectivism, when people are integrated in a cohesive group, the individual identity is based on the collective objectives. Countries strongly individualists (e.g., Australia, Great Britain, USA, Canada, and Netherlands) people act on their interest and on their close family interest. In "collective" cultures (e.g., Colombia, Pakistan, Venezuela, Switzerland, Guatemala) people place the group and the community aims in first place and in exchange people expect loyalty and fairness from the group. There is some tendency for individualist countries to be characterized by a small power distance and hence we expect to find a positive relationship between individualism and transparency.

Masculinity (mas) represents the ambition and the competitive attitude which is opposed to the concern for achieving interpersonal harmony. In strong masculine societies (e.g., Japan, Austria, Venezuela, Switzerland) men and women have distinct roles: while the man is supposed to be strong, to impose himself and search for material success, women is expected to be modest and tender and also to worry about the quality of life. In less masculine societies, strong feminine societies (e.g., Sweden, Denmark, Norwegian, Netherlands) it is assumed that men and women are modest, tender, worried with life quality and willing to help. According to the empirical work of Swamy et al. (2000)[2], we expect to find a negative relationship between masculinity and transparency.

[1] That is to say that the emotional distance between different hierarchy levels is high.
[2] The empirical work of Swamy et al.(2000) shows that women are less involved in bribery and are less likely to condone bribe taking.

The *uncertainty avoidance* (ua) reflects the degree of disgust towards risk and uncertainty, the degree of acceptance/rejection of novelty and of difference, and the degree of importance given to stability and planning. In countries where this characteristic is sharp (e.g., Greece, Portugal, Japan, Uruguay), this culture characteristic is expressed in stress, predictability need, rules and security search. Countries where there is a low uncertainty avoidance (e.g., Singapore, Hong-Kong, Denmark, Sweden) it appears to exist an emotional aversion to formal rules and these are set under an absolutely necessity and deviating behaviour is more easily accepted. The preference for stability and certainty prevents people from explicitly taking risks and from assuming a entrepreneurship attitude, it is easier to improve wealth by an implicit and hidden way and so we expect a negative relation between uncertainty avoidance and transparency.

These four cultural dimensions are widely accepted and used by researchers not only because this is the largest cross-cultural values sample, but also because social and cultural values are quite stable over time, it takes too long to produce and notice the changes in these values. But it is possible to find other dimensions to describe the cultural functioning of a country and Schwartz suggests a different framework of analysis.

The seven dimensions of Schwartz

Schwartz and his collaborators inquired schoolteachers during 1988-1992 from 31 countries (41 cultural groups in 38 nations) and Schwartz derived three bipolar social characteristics which results in seven cultural dimensions: conservatism, intellectual and affective autonomy, hierarchy, mastery, egalitarian commitment and harmony.

Conservatism (consv) characterizes the societies where the interests of the person are not viewed as distinct from those of the group and, as so, the importance of the status-quo, the propriety and the traditional established social order. Countries like Malaysia, Israel and Singapore are very conservative, the opposite happens in Spain, France and Switzerland. This variable ranges from 3.25 to 4.51.

Autonomy is the opposite of the conservatism and include those cultural values that view a person as an autonomous entity, either in an *intellectual* (intellaut) (a self-

direction, broadminded and creativity), or in an *affectively* (affauton) (pleasure and enjoying life). The first one ranges from 3.68 to 5.33 and the second from 2.76 to 4.41.

Hierarchy (hier) is the dimension that includes cultural values such that of wealthy, social power, authority, influential and humbleness which emphasis the legitimacy of hierarchical role and resource allocation. Countries like China, Thailand and Turkey have a strong preservation of this dimension, contrary to countries like Denmark, Slovenia and Italy. Ranging from 1.69 to 3.98.

Mastery (mast) comprises the self-skill and self-knowledge used to modify one's surroundings and get ahead of other people like the values of ambitiousness, success, independence, daring and choosing own goals. This cultural dimension is stronger in countries like China, Greece and USA while in Slovenia, Estonia and Finland it is softer. Ranging from 3.63 to 4.84.

Egalitarian commitment (egalcom) emerges as opposed to the dimensions of hierarchy and mastery and comprises the values that do not promote the selfish interests but the others welfare. This dimension includes cultural values such those of equality, loyalty, honest, responsibility, social justice and helpfulness. Countries like Portugal, Italy and Spain show higher values for this cultural dimension opposed to countries like China, Slovenia and Thailand. Ranging from 4.34 to 5.62.

Harmony (harm) is the opposite of Mastery and so is the opposition to value types that promote actively changing the world through self-assertion and exploitation of people and resources. Ranging from 3.01 to 4.8.

In broader terms we can say that the three bipolar cultural characteristics are conservatism/autonomy, hierarchy/egalitarianism and mastery/harmony, which gather some "opposite" social-cultural values. We expect to find a positive relationship between conservatism, hierarchy and harmony, and the level of perceived corruption in a country because societies with a higher preference for these values may motivate a non public or hidden behaviour of people to improve their wealth or profit position.

We may ask what is the relationship between Hofstede and Schwartz dimensions? None, it would be the answer. According to the article of Schwartz the two frameworks are not comparable because the correlation analysis between his dimensions and those

of Hofstede show, in general, no statistical correlation, except in some cases, which unable to establish a direct and consistent relationship among the different dimensions of Hofstede and Schwartz. However, for those possible correlations, it will be possible to find some common features and inferences about the relationship between culture and corruption of countries.

2.2- The political-economic explanatory variables

The economic variables that we'll be using are the human development index, gini coefficient, openness index and political stability.

The human development index is a very good synthesis of the level of development of the country and we will use an average of this index over about 10 years (avghdi). This is a composite index measuring the average achievement of each country in three basic dimensions of human development – long and healthy life, knowledge and decent standard of living - based on the following indicators: life expectancy at birth, adult literacy rate and gross enrolment ratio, and GDP per capita. It is expected that the more developed countries will have lower level of corruption because of the better well being of the society[3], and better law of governance of these countries. This relationship was empirically observed before (Mauro, 1995; Treisman, 2000; Paldam, 1999; Acemoglu et al.,2001). We tested for the possibility of endogeneity of this variable in the regression, using GDP per capita (PPP, constant 1995, international $, World Development Indicators) as instrumental variable in the Hausman test, and we found none.

The gini coefficient (gini) measures the economic inequality within one country and we expect that the larger this, the larger will be the level of perceived corruption because people may feel the temptation to fulfil their selfish desires and take advantage from their positions over the public structure. This variable is not frequently used to explain the level of corruption[4] but in our opinion economic inequality is a relevant factor that may motivate the acceptance of bribes because people tend to be averse to income/wealth inequality (Lambert et al, 2003).

[3] In particular, the higher wages paid by the public sector allows for a lower propensity of accepting bribes.
[4] Licht et al. (2003) have also used this variable as an explanatory variable.

The openness index (open) is a way to measure the easiness of foreign products, services and other influences to enter in another country. It is expected to find that the more open, the less corrupt appear to be a country as other empirical works have obtained (Bonaglia et al., 2001; Wei, 2000; Neeman et al., 2004). The reason for this sort of relationship lies on the fact corruption damages the trade relations of countries (Neeman et al.,2004) and closeness works as a veil over transparency of institutions and organizations that do not encourage foreign affairs.

It may be thought that the openness index is endogenous. But this issue was addressed before by other authors. Bonaglia et al.(2001) tested for endogeneity, using tropics, population and time dummies as instrumental variables and they didn't find it; Treisman (2000) was not able to find an appropriate instrumental variable and Neeman et al.(2004) didn't find either the adequate instrumental variable and so they treated the openness variable as exogenous. Also Wei (2000) considers openness as an exogenous variable. Hence, we will also consider openness as an exogenous.

Finally, we will consider a political explanatory variable. Most of the empirical works include a variable that captures democracy. However, on one hand, there is no common conclusion about its statistical relevance[5]. On the other, as we are using culture values as explanatory variables this generates a multicolinearity problem[6] (table 1). A long lasting democracy is a historical influence on the culture values of a society and so the democracy effects over the country culture are already accounted for in the cultural variables. Indeed, we tested for the redundancy of democracy and we rejected the model that includes such variable. And we also tested for its endogeneity using Gastil index as instrumental variable and we rejected that possibility. A more relevant fact from democracies is their stability over time (Treisman, 2000; Mocan, 2004) but this can be better represented by a political stability variable (polstab).

[5] While Treisman (2000) and Bonaglia et al.(2001) obtained significant coefficients for democracy, Wei (2000) does no find such result.

[6] Although, that correlation between cultural variables and democracy is not so explicit in the cultural Schwartz dimensions.

Table 1 – Correlations between democracy and Hofstede and Schwartz dimensions

	(less) democracy
mas	0.08
dp	**0.70**
ind	**-0,71**
ua	0.003

	(less)democracy
affauton	-0.40
intellaut	-0.48
egalcom	**-0.59**
hier	**0.70**
harm	-0.43
consv	0.51
mast	0.44

Note: democracy is given by the Gastil Index[7] that measures the level of freedom within a country: the higher is the index, the lower is the level of freedom, and so the democratic framework of a country.

Next, we describe other variables which are usually considered in some empirical models to explain corruption but which we will not consider in our model.

First, we'll rule out the historical variables such as those that indicate if a country was a formal colony, in particular a British colony (Bonaglia et al.,2001; Treisman, 2000), because we think that historical and cultural factors[8] are so much interrelated and they cannot be torn apart. And indeed when including dummy variables for French, Spanish and Portuguese colonies no conclusion is achieved (Treisman, 2000).

Second, we will not use religion as a determinant of corruption for two reasons. One reason is that all religions in certain way condemn dishonest social behaviours. Osborne (1997) documented that throughout the human history under Hinduism, Confucianism, Christianity, etc., there has always been distaste over dishonest and corrupt behaviour. The other reason arises from the inconclusive relationship between religion and corruption of a country (La Porta et al, 1997; Lipset & Lenz, 2000). When controlling for different religions, there is no statistical significance, except for the protestant religion (Treisman, 2000; Bonaglia, 2001). When explaining this result, Treisman uses arguments based on the cultural values which are, as a matter of fact, the basis of our suggestion about being unable to tear apart culture values from some historical-religion factors.

[7] The Gastil Index, for 1999/2000, is calculated by Freedom House, www.freedomhouse.org.
[8] And by cultural factors we mean the social-cultural values as those described by the cultural dimensions of Hofstede or Schwartz.

Thirdly, we will not consider variables as rule of law, efficacy and trustiness of institutions, even though they are frequently considered as causes of corruption (Mocan, 2004; Shleifer &Vishny, 1993). The reason for this fact is that we cannot include independent variables such as the rule of law because it is an endogenous variable if we are considering our dependent variable the perceived corruption, which also measures the perception of trustiness and credibility in the institutions and law of a country. Actually, this variable can be used as a proxy for corruption due to their very high correlation (Licht et al.2003).

3- Data and methodology

The linear regression models to be estimated are the following:

i) the first regression uses the cultural dimensions proposed by Schwartz:

$$\begin{aligned} \textit{Perceived Corruption} = \textit{const} + &\alpha_1\, \textit{conservatism} + \alpha_2\, \textit{harmony} + \alpha_3\, \textit{hierarchy} + \\ &\beta_1\, \textit{development} + \beta_2\, \textit{openness} + \beta_3\, \textit{economic inequality} + \\ &\delta\, \textit{political stability} + \textit{error}_1, \end{aligned}$$

ii) the second regression uses the cultural dimensions proposed by Hofstede:

$$\begin{aligned} \textit{Perceived Corruption} = \textit{const} + &\alpha_4\, \textit{conservatism} + \alpha_5\, \textit{harmony} + \alpha_6\, \textit{hierarchy} + \\ &\beta_4\, \textit{development} + \beta_5\, \textit{openness} + \beta_6\, \textit{economic inequality} + \\ &\delta\, \textit{political stability} + \textit{error}_2, \end{aligned}$$

where the *alfa* coefficients are the cultural determinants, the *beta* coefficients are the economic determinants and the *delta* coefficient is the political determinant of perceived corruption. To perform this econometric analysis, we used Eviews 4.

We adopted the linear model because the Reset test showed that we do not reject the null hypothesis of no correlation between the residual term and the low order non linear predicted perceived corruption index.

Cultural variables are provided by Hofstede and Schwartz data which themselves provide in their work. Unfortunately, they don't cover the same sample of countries and Schwartz sample turns out to be smaller than the one from Hofstede.

The economic variables considered are the average of human development indexes, openness index, gini index and political stability indicator as described before.

The average of human development indexes of 1990 and 2001, calculate by UNDP[9], measures the development level of the country. We decided to use an average over a decade of the human development indexes in order to have a lasting effect over time, control for short-term fluctuations and also to avoid the static assessment over just one year, which doesn't allow catching the lasting effects of culture.

The Gini coefficient is used to measure economic inequality and is based on the World Bank's surveys conducted between 1990 and 2002.

To measure the openness of a country we constructed an index that covers the relative average trade of a country over a decade and is given by $AverageTrade \big/ AverageGDP$, where $AverageTrade = \frac{\text{Exports90} + ... + \text{Exports01}}{12} + \frac{\text{Imports90} + ... + \text{Imports01}}{12}$ and $AverageGDP = \frac{GDP90 + ... + GDP01}{12}$.

The political stability is given by an index calculated by Kauffman et all. (2002) for 2000/01. This index captures the idea of the likelihood of political undesired changes and so the breakdown of the policies, as well as it captures the possibility of citizens to select and replace those in power. The higher is the index, the more stable is the country.

Finally, the corruption index used is the Corruption Perception Index (CPI) from the Transparency International Annual Report of 2003, which is the year with the larger number of observations. On the other hand, as culture effects have a lasting effect on time, it seems appropriate to use a variable of perceived corruption with some lag time from the independent cultural variables. And economic effects are smooth down by taking averages over a period of about 10 years.

[9] United Nations Development Program, *Human development report.*

We used the Corruption Perception Index (CPI) from 2003 as a dependent variable in a linear regression model. This index ranges from 1 to 10 and is higher for countries with a higher level of transparency and lower for countries with stronger propensity for corruption. Perception of corruption can be different from reality; moreover as we are using a perception index there will be measurement errors in the dependent variable. But this is no problem for the consistency of our estimates as long as we assume that there is no covariance between the explanatory variables and the error of the true model. On the other hand, the correlations between CPI and other corruption indexes are very high (Wei,1999)[10].

After we performed cluster analysis, using SPSS.11, to find groups of countries with similar economic characteristics. In order to find some pattern within the created clusters of countries, we compare then the features of each group with the cultural and political-economic characteristics.

4 - Results

In this section we present the main results our empirical work on the determinants of the perception of corruption.

We begin by presenting the correlations between the Schwartz dimensions (table 2).

Table 2 – Correlations of Schwartz dimensions

	affauton	consv	egal com	harm	hier	intellaut	mast
affauton	1	**-0,73**	0,43	0,11	-0,27	0,56	0,13
consv		1	**-0,72**	-0,32	0,44	**-0,75**	-0,07
egal com			1	0,41	-0,62	0,38	-0,17
harm				1	-0,6	0,46	-0,45
hier					1	-0,48	0,39
intellaut						1	-0,22
mast							1

From table 2 we can see that conservatism is highly correlated with autonomy, either intellectual or affective, as expected from the bipolar relationship of the cultural dimensions, and with egalitarianism. Because of these correlations we kept out these

[10] For a comparative analysis of the different corruption indexes see Wei (1999).

later variables from the regression which left us with mastery, hierarchy, harmony and conservatism as independent variables to be considered. But mastery dimension has the "opposite" interpretation of harmony, as we have seen before, and so it is more intuitive to consider the following independent cultural variables: hierarchy, harmony and conservatism just as Schwartz himself did in a work together with Licht et al.(2003).

Our regressions results using Schwartz dimensions are presented on table 3.

Table 3 – Regression using Schwartz culture dimensions
(dependent variable Index of Perceived Corruption)

Variable	Coeff. (t-stat.)	Coeff. (t-stat.)	Coeff. (t-stat.)	Coeff. (t-stat.)	Coeff. (t-stat.)	Coeff. (t-stat.)
C	34.13* (8.00)	-0.005 (-0.003)	15.63*** (2.11)	15.27** (2.50)	21.03* (4.46)	18.21** (3.61)
CONSV	-2.65* (-3.02)		-1.17 (-1.26)	-1.92* (-2.97)	-2.18* (-2.79)	-1.56# (-1.75)
HARM	-2.71* (-3.73)		-2.22* (-4.05)	-1.37** (-2.40)	-1.69* (-2.83)	-1.78* (-2.93)
HIER	-2.54* (-4.50)		-1.77* (-2.98)	-1.31*** (-2.38)	-1.17* (-3.27)	-0.86# (-1.83)
AVG HDI		6.6* (3.16)	10.47 (2.70)	7.95*** (2.38)	5.55* (3.52)	4.59* (3.73)
OPEN		1.1* (2.63)		0.97*** (2.03)	0.96*** (2.09)	0.81 (1.47)
GINI		-0.03 (-1.46)			-0.06* (-3.11)	-0.04*** (-2.36)
POL STAB		1.11* (3.40)				0.9# (1.85)
R^2	0.44	0.75	0.64	0.73	0.77	0,80
R^2 Adj.	0.38	0.73	0.59	0.67	0.69	0,72
F	7.08	32.11	11,22	12,46	9,91	9,56
N	31	48	30	29	24	24

Note: * significant at 1%; ** significant at 2%; *** significant at 5%; # significant at 10%.
White Heteroskedasticity-Consistent Standard Errors & Covariance

We can see in table 3 that cultural variables are statistical significant and indeed when considered alone they account for 44% of the variance of the perceived corruption.

The higher is the transparency of a country, and so the more value is given to honesty, the softer are the values associated with conservatism, harmony and hierarchy. And consequently stronger those values that are within the bipolar cultural dimensions: autonomy and mastery.

On the other hand, economic variables are also statistical significant. As expected the level of development is highly correlated with the level of corruption: the higher is the level of transparency, or the lower are the levels of corruption, in a country, the more

developed is likely to be that country. Actually, the strongest influence on corruption is coming from the level of development which presents the higher estimated coefficient.

The other significant statistical relation is the one between the level of perceived transparency and the gini coefficient, despite the very small value of the estimated coefficient. The higher is the economic inequality, the more likely it is to have higher levels of corruption.

Unexpectedly, we didn't find statistical relationship between openness and the corruption index. This might be due to the small size of the sample. Finally, the political variable of stability also explains the level of corruption in a country. The more stable is the political life of a country, the higher will be the levels of transparency.

Next we present the results when we consider the Hofstede dimensions (table 4).

Table 4: Regression using Hofstede culture dimensions
(dependent variable Index of Perceived Corruption)

Variable	Coeff. (t-stat.)	Coeff. (t-stat.)	Coeff. (t-stat.)	Coeff. (t-stat.)	Coeff. (t-stat.)	Coeff. (t-stat.)
C	7.77* (4.59)	-0.005 (-0.003)	-2.49 (-0.90)	-0.56 (-0.28)	0.67 (0.34)	2.15 (1.22)
PD	-0.03* (-2.68)		-0.02 (-1.44)	-0.02*** (-2.24)	-0.02# (-1.88)	-0.019*** (-2.03)
UA	-0.01 (-0.96)		-0.02*** (-2.31)	-0.008 (-1.27)	-0.008 (-1.27)	-0.009# (-1.68)
IND	0.05* (3.78)		0.02 (1.35)	0.03* (3.37)	0.03* (3.94)	0.027*** (3.1)
MAS	-0.03*** (-2.21)		-0.02** (-2.64)	-0.02*** (-2.27)	-0.03* (-3.17)	-0.025# (-2.87)
AVG HDI		6.6* (3.16)	13.64* (4.27)	8.64* (3.36)	6.78* (3.04)	4.84** (2.34)
OPEN		1.1* (2.63)		0.92* (2.86)	1.18* (3.87)	1.07* (4.12)
GINI		-0.03 (-1.46)			0.008 (0.33)	0.004 (0.19)
POL STAB		1.11* (3.40)				0.6*** (2.17)
R^2	0.62	0.75	0.80	0.85	0.86	0,87
R^2 Adj.	0.59	0.73	0.78	0.83	0.82	0,84
F	17.63	32.11	33.31	36.33	28,20	27,15
N	48	48	47	45	40	40

Note: * significant at 1%; ** significant at 2%; *** significant at 5%; # significant at 10%.
White Heteroskedasticity-Consistent Standard Errors & Covariance

From table 3 we can see that now the culture variables explain 62% of the corruption index variance. And the higher levels of transparency occur in countries with lower relevance of the power distance and of masculinity, lighter uncertainty avoidance, and

stronger culture of the individualism. Unlikely the estimated coefficients before for Schwartz cultural dimensions, now the estimated coefficients are smaller, probably because data was collected longer ago.

As we have obtained before, the higher level of development and the openness determine positively the lower levels of perceived corruption in the countries. And the same happens with the political stability, which presents an estimated coefficient close to the one estimated on the previous regression. As before, the higher estimated strength over the corruption is development and the second bigger coefficient is the one of openness, which is not so different from that estimated on the regression of Schwartz dimensions.

However, now economic inequality doesn't have statistical relationship with corruption has we have obtained before in the regression of Schwartz dimensions. This insignificant result was also obtained by Licht et al.(2003).

Finally, as a complement to our work we performed a cluster analysis (method: complete or furthest neighbor; measure: square Euclidian distance; standardization: Z scores) for the economic features: average of human development index, openness index, gini index, political stability and perceived corruption index. And then characterize each of the created cluster of countries

We obtained 5 groups of countries and then we compared the economic characteristics with the culture indicators for those groups. The general tendency is presented in table 5.

We excluded Hong Kong from this analysis because it didn't fit any of the 5 created clusters. One limitation of this analysis is the reduced number of observations some clusters have for some cultural variables. For instance, the worst case is cluster 5 which accounts for only two observations for the Schwartz cultural dimensions. From the created clusters we can see that in broad terms clusters 1 and 2 are the developed countries and the other clusters gather the developing countries. We have also included some more variables to better describe the created clusters.

Table 5 – Cluster analysis

average values	**cluster 1**	**cluster 2**	**cluster 3**	**cluster 4**	**cluster 5**
ipc03	8,144	7,943	4,611	3,736	2,713
avghdi	0,903	0,905	0,835	0,688	0,687
open	1,258	0,575	0,466	0,309	0,223
gini	28,574	35,084	35,476	47,547	47,461
polstab	1,040	1,199	0,753	0,324	-0,881
dp	28,750	43,143	53,200	72,167	75,571
ind	66,375	72,000	36,000	31,000	15,143
mas	37,875	54,000	45,000	50,250	52,857
ua	55,125	61,857	91,600	67,750	77,714
consv	4,002	3,632	4,078	4,155	4,240
affauton	3,667	4,122	3,265	3,232	3,550
intellauton	4,573	4,516	4,155	4,130	3,970
hier	2,145	2,256	2,287	2,758	3,220
mast	3,881	4,156	4,042	4,275	4,260
egalcom	4,997	5,324	5,067	4,730	4,800
harm	4,133	4,142	4,462	4,038	3,840
democracy[11]	1,214	1,221	1,803	3,359	3,983
development improvement[12]	0,050	0,041	0,040	0,081	0,037
gdp per capita[13]	20878,07	20845,82	10201,77	5747,82	4017,22
gov effective[14]	1,368	1,450	0,508	0,114	-0,599
rule of law[15]	1,479	1,476	0,583	-0,003	-0,733
countries included in the clusters	austria belgium denmark finland ireland israel norway slovenia sweden	canada france germany w gr. britain/ uk new zealand portugal usa	bulgaria costa rica estonia greece hungary italy poland south korea uruguay	argentina brazil chile china india malaysia mexico pakistan panama philippinas salvador s.africa slovakia thailand	colombia ecuador guatemala indonesia peru turkey venezuela zimbabwe

[11] Gastil index for 1990-2000, Freedom House.
[12] Growth rate of the human development index between 1990 and 2001.
[13] GDP per capita, PPP, (constant 1995 international $), World Development Indicators.
[14] Government effectiveness index calculated by Kauffman et all.(2002). It measures the perceptions about the quality of the public service provision and bureaucracy, independency of the civil service from political pressures and the credibility of the government's commitments to policies.
[15] Rule of law index calculated by Kauffman et all.(2002). It measures the extent o which agents have confidence in and abide by the rules of society.

The major tendencies drawn from this table are the following:

i) as the level of perceived corruption increases, the development level, the degree of openness and the political stability decreases while the economic inequality increases, as expected from the regression analysis before;

ii) as the level of perceived transparency decreases, it is clear that the hierarchical features of the society, the conservatism and the collectivism attitude become more relevant in the country, and also the intellectual autonomy values are less important;

iii) within the developing countries, we can see that as corruption increases, the masculinity tendency of people in those countries becomes higher, the harmony values become less important and the egalitarianism is lighter;

iv) it is not possible to find a pattern for some cultural characteristics within this clusters such as the uncertainty avoidance, mastery and affectively autonomy values.

v) we have also considered some extra variables to better characterize the considered clusters. We can observe that the improvement of the level of development of a country doesn't show any relative pattern with corruption and the level of GDP per capita only allows for a differentiation between developed and developing countries.
As expected the less democratic is a country, the higher is the level of perceived corruption. This may be due to the stronger hierarchic features of these countries, that is why the intellectual autonomy values are less important. Finally, the government effectiveness and rule of law corroborate the tendency already pointed out about corruption in countries with differentiated levels of development.

5- Discussion and conclusion

It is difficult to look for explanations of corruption because of the lack of understanding about the mechanism and structural relations there are among all determinants, in particular, it is difficult to tear apart the cultural values from other historical and political-economic variables. Nevertheless, we tried to do so using the cultural dimensions of Hofstede and Schwartz.

The empirical results drawn from our linear regression model are as expected. We showed that economic variables play a major role explaining the level of perceived corruption. In particular, the level of development of a country, which the adopted proxy was the average of the human development index, has always a significant coefficient. Openness is also a relevant economic determinant of corruption, even though our final model with the Schwartz dimensions didn't reveal so, probably because of the reduced number of degrees of freedom. In this way, we found consistency in the hypothesis which states the more developed is a country and the more open to foreign affairs, the lower is the level of perceived corruption. It may be expected that as a country develops, the wealthier are people and the higher credibility is given to institutions, it makes people more reluctant to offer and accept bribes. And as a country opens up to foreign partners, the more efficient institutions and policies have to be in order to secure those relationships. It is this increase in efficiency that allows for an improvement of the well being of a country and its development with lower levels of corruption.

The political determinant showed to be significant as well. And this is related, in a certain extent, to the fact that development is associated with more stable governments and so more credible policies and institutions that do not encourage corruption.

It seems that democratic and political stable countries motivate a more honest behaviour of people. That is why we found so clear and logic relationship between low level of corruption and democracy, political stability, weak hierarchy or power distance values, high intellectual autonomy and also strong government effectiveness and rule of law. May be there is an intrinsic relationship in the more developed countries, between higher levels of transparency, democracy and the democratic culture values.

An interesting result is the statistical significance of the cultural variables that were gathered some decades ago, which implies that cultural values prevail. Even though the cultural estimated coefficients collected longer ago, didn't present high numerical values.

The results showed that countries where values associated with harmony (ex.: social justice, helping others), hierarchy (ex.: wealth importance, social power, authority importance, influential) and conservatism (ex.: tradition, obedience, reciprocation of

favours, preserving public image, honouring the elders) are stronger tend to reflect a higher level of perceived corruption. And also we can look to a country culture from a different framework and say that countries that give more importance to power distance, that present a stronger uncertainty avoidance and a lower level of individualism and also a larger preference for masculinity values, are those where the levels of corruption appear to be higher.

This last trace of culture – masculinity - is a value only captured by Hofstede, once only his framework allows for a "gender" distinction. The results obtained showing the importance of the masculinity values to explain corruption corroborate a previous empirical work by Swamy et al. (2000) about gender and corruption that showed that women are less willing to take corruption activities.

It may be possible to find some intersections between the cultural values of Hofstede and Schwartz and their relationship with corruption. Then it can be said that the countries where the levels of hierarchy are socially more significant, and where there is a stronger power distance, there is an use and abuse of the empowerment by under top hierarchic levels who try to implicitly reduce the distance and the different levels of power between hierarchy levels, that is, people are more willing to take dishonest behaviour.

Also the countries with a higher level of uncertainty avoidance seem to present strong conservative values, that is, lower levels of entrepreneurship attitude, preference for stability and public accommodation to a certain situation promote easier ways to improve one's well being or profit by accepting or offering bribes.

Finally, in the more collective countries there is a bigger concern for social justice and helping the group, that is, a preference of harmony, but at the same time it appears to be less accepted the explicit improvement of a person wealth or profit and so corruption may be seen as an implicit way to achieve the desired personal aims.

The cluster analysis performed allowed to obtain 5 groups of countries. From this analysis we were able to confirm the relationship between lower perceived corruption and higher development, openness, political stability and economic equality. And also we found that a lower perceived corruption is associated with less hierarchic, less

conservative, less collective and more intellectual autonomy societies. The developing countries have also shown a particular feature concerning the lower perceived corruption levels: they tend to be less masculine, more harmonious and egalitarian societies.

The significance of all these cultural variables may indicate that if governments want to control corruption, they may need to launch policies aiming to reshape some of the cultural values that motivate less honest behaviours. And as it takes time to change culture values, it implies that controlling corruption might not be achieved in the short run (probably this is the case of countries like Italy and Greece that are developed countries with high levels of perceived corruption) but within more than one generation.

Despite the significant results we produced, this work has one relevant limitation. The size of the sample is small and the sample may not be diversified enough as it doesn't include countries like Russia, Hungary, Morocco, Egypt, Kenya, Tanzania, Iran, and Indonesia in any of the samples of Hofstede or Schwartz and which are important in the spectrum of different cultures and economies world wide.

The future work will be using the World Values Survey to collect new and updated data on the cross-country cultural characteristics and it will try to find some pattern that allows us to better explain corruption. It will be also interesting to find some relationship and causality between the political, historical and economic variables and the socio-cultural variables.

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