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The cross-country pattern of corruption

Economics, culture and the seesaw dynamics

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Abstract: The cross-country pattern in the 1999 corruption index from Transparency International is explained. The economic part of the model has four variables: the level and growth of real income per capita, the inflation rate, and the economic freedom index. The economic transition from poor to rich strongly reduces corruption, while periods of high inflation increases corruption. The cultural part of the model uses a set of dummies for »cultural areas«, and the Gastil index for democracy. Both parts work and interact. However, the (relative) difference between GDP-levels within the same cultural area is smaller than the (relative) difference between the levels of corruption, so the interaction points to something different from culture: the inherent seesaw dynamics of corruption.

Key words: Corruption, economic transition, dynamics of cross sections Jel: K49, O11, P50

Casual observation and historical reading suggest that corruption varies greatly across countries and over time, even when changes are slow. Most observers probably suspect that the large pattern is related to the *transition* from a poor, stagnating traditional society to a rich developed, »liberal« democracy, but it has often been suggested that a »cultural« factor is also involved. Historians such as Hofsteadter (1948) claim that corruption in the US grew to reach a peak about a century ago. Since then it has fallen steadily, as predicted by the transition hypothesis. It appears that corruption in Russia has gone from bad to worse during the last decade, where the country has gone through a collapse and a chaotic system change (see Levin and Satarov,2000). Perhaps economic chaos causes corruption.

Such observations and others in the large literature[2)] suggest that the »grand« cross-country pattern of corruption should be explained by a *mixed economic-cultural model*. It further suggests various explanatory hypotheses of which some can be operationalized. Below *seven* such hypotheses are studied graphically and by means of a simple exploratory model. The analysis leads to a set of stylized facts »explaining« most of the grand pattern of corruption.

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2. The literature till 1988 is covered by the 1000 page Handbook by Heidenheimer, Johnson and LeVine (1989), while new surveys are Bardham (1997) and Mbaku (1998). Other references are Rose-Ackerman (1978, 1999), Klitgaard (1988), Schleifer and Vishny (1993, 1999), Heywood (1997), Elliot (1997) and Jain (1998). Only a handful of studies starting with Mauro (1995, 1997) analyze the cross-country pattern of corruption. See the survey by Lambsdorff (1998) and Paldam (2000).

The data and the model are introduced in Section I. Section II discusses the economic submodel, which contains five hypotheses about the grand pattern, while Section III considers the cultural submodel and the last two hypotheses. Section IV joins the two parts together, while Section V discusses dynamic interactions between the hypotheses. Finally, Section VI summarizes the findings.

I Introduction: The corruption data and the basic corruption model

Cross-country studies of corruption are new, so we will introduce the data briefly, and present a basic model. It is easy to expand and develop in many directions, but we start at the beginning.

I.1 The corruption variable: the κ-index for 100 countries

The κ-index of *perceptions of corruption* is published by »Transparency International« (see netsources). It is a composite index calculated from 17 primary sources of cross-country corruption data. Most of these underlying indices are based on polls of business people operating in more countries, but some are more broad-based polls, using the same questionnaire in more countries. Transparency International first calibrates the underlying indices to a common scale, from 0 »highly corrupt« to 10 »highly clean«. The κ-index is the average of the underlying indices, and the standard deviation is also posted. The first κ-index from 1995 covered 41 countries. The 1999 issue increases the total covered to100 countries.[3)]

Several definitions exist of the concept of corruption. The κ-index defines corruption implicitly as an average of the definitions used by the underlying indices. Fortunately most people agree in practice on something like: *Corruption is illegal private gains made by an agent at the expense of the principal, when the agent deals with a third party*.

The κ-index has *no meaningful dynamic dimension* (yet) for two reasons.[4)] First, the measures contain much inertia. When a businessman is asked about his impressions of the level of corruption in a country, his perceptions are based on his experiences and stories he knows. These impressions are not limited to the calender year, but formed during a longer period. Secondly, the annual movements in the κ-index implied by our calculations are less than 0.1 points. With strong inertia and small annual movements estimates of the dynamics become so uncertain as to be hardly meaningful at present.

The construction and the problems of the index are discussed in several papers available from the two Internet sites dealing with corruption (see netsources), and Lambsdorff (1998). No doubt the κ-index can (and will) be improved. However, the scores for the countries, I know, appear reasonable. Clearly a serious effort has been made. The standard deviations (of κ) is around 1 for most countries, so the standard error is below 0.4. It is large relative to some country differences one would like to discuss, but small relative to the cross-country pattern analyzed.

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3. The 1999-issue is used except for Bangladesh, where only the data for 1996 is available. The present article was first done on the 86 observations of the κ-index for 1998. The results were the same, though slightly weaker.

4. The data contains mini-time series of 2-5 annual observations for 86 countries. Trends appear in the data for 14 countries and a pattern may be emerging. However, it will take two to three years before serious tests of the dynamics can be made. Some of the underlying indices cover more than 10 years, but they have other problems.

I.2 The corruption function: an exploratory tool

Two basic theories are suggested by the literature: the economic theory and the culture theory. Neither has been fully worked out. The economic theory says that corruption is an endogenous product of economic factors, though perhaps with some feedback loops. The cultural theory sees corruption as a product of culture and politics. In this theory corruption is exogenous to the economy.

The main statistical tool is therefore a one-equation corruption function of the following type:

$$\kappa_i = c + [a_1x_{1i} + a_2x_{2i} + ...]_e + [b_1C_{1i} + b_2C_{2i} + ...]_c + u_i \quad (1)$$

Here i is a country index, u are residuals, the a's, b's and c are coefficients to be estimated, the $[]_e$-bracket contains economic variables (x), while the $[]_c$-bracket holds cultural and political variables (C).

Equation (1) is a reduced form of a more complex system. As we go along, we will look for signs that a simultaneous system is necessary, but we have found no compelling reasons to leave the simple formulation. Model (1) is easy to work with, and many series are available on a comparative basis, so four families of experiments around (1) have been made:

E1 Different x'es and C's. The main experiments made will be presented to assess the robustness of the effects analyzed.[5)]

E2 Non-linearity. Some graphs and many reset-tests suggest that the economic submodel is nonlinear. However, when the cultural part is added non-linearity disappears.

E3 Time-periods. Corruption changes slowly. The explanatory variables must therefore have longer time units than a year. They have consequently been averaged over 3, 5, 10 and 15 years. These averages produce much the same results, but a pattern is found. We just give the best results.

E4 Simultaneity. The best economic model was examined by running a set of two-stage instrument variable regressions. They pointed to little simultaneity, and will not be presented.

II The economic submodel: $[]_e = a_1y_i + a_2g_i + a_3p_i + a_4\phi_i$

Each economic variable included corresponds to a corruption hypothesis discussed in one subsection: (II.1) The GDP-level, y, and the transition hypothesis. (II.2) The growth rate, g, and the hypothesis that honesty is a factor ofproduction. (II.3) The inflations rate, p, and the demoralization hypothesis. (II.4) The regulation-index, ϕ, and the potential for rent seeking hypothesis. In addition, II.5 considers the effect of the income distribution. II.6 and 7 give estimates of the relations suggested. The data are shown on four figures using a system of markers referring to *cultural areas* defined and discussed in Section III. The averages chosen for each economic variables are given in the headlines of the figures.

II.1 The GDP-level (y) and the transition hypothesis for corruption

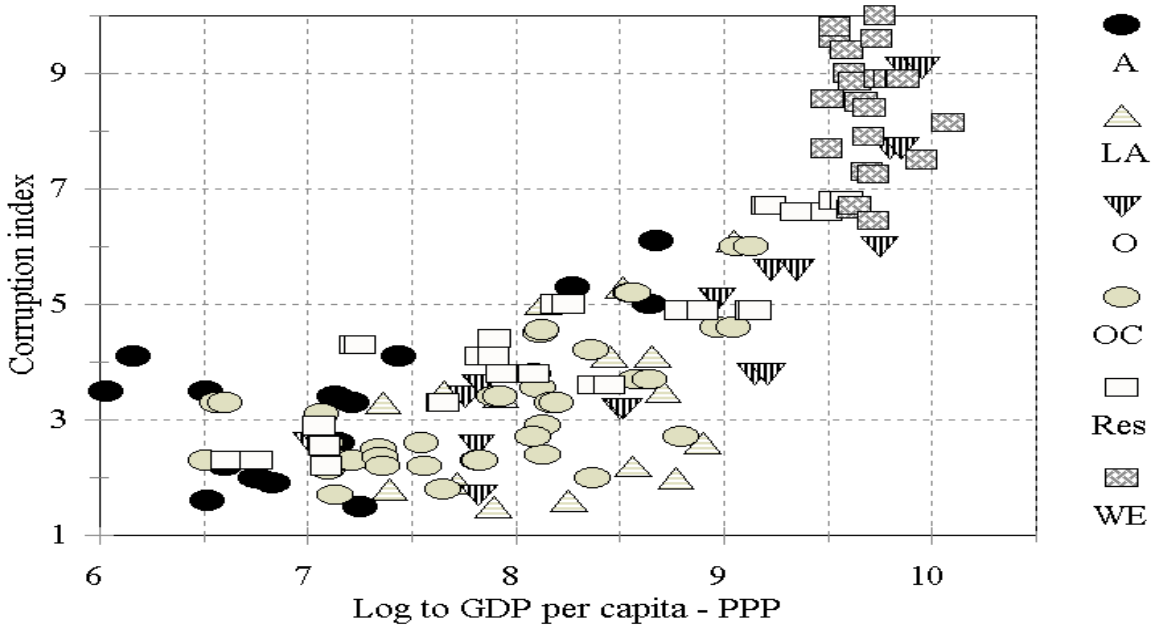
Figure1 shows the (y, κ)-relation, where y is the log to GDP per capita, measured in average PPP-values (the »Penn Tables«) for1994-94.The official GDP-data, were also tried. As usual the picture is similar,

5. The article studies the effect of 5 quantitative variables and 6 binary dummies on corruption, and Paldam (2000) adds a further 12 variables. Altogether, 200 variants of the model have been estimated. This allows us to examine the relations as proposed by Levine and Renelt (1992), but we only discuss robustness informally.

but the PPP-data shows a clearer pattern.[6)]

The graph illustrates the idea of a transition of corruption when a country goes through the development from being poor to rich. Corruption is seen as a characteristic of »traditional« societies that disappears when they go through the transition to become »rich modern« societies.[7)] Figure 1 shows that a strong relationship exists. It appears convex. However, we will argue that it is linear, and that the relatively low corruption of a few African countries (A) and a group of West European (WE) countries should be explained as special cases. We conclude that there is a corruption transition. The statistical tests confirm that the relation is both significant and robust.

Figure 1. Corruption and the level of GDP per capita (average 1994-96 PPP method)



Note: Sources: IBRD Data (World Development Indicators CD-Rom). The abbreviations used for the markers are defined in Table 5 and discussed in Section III.

Table 1 lists the three most well-known dimensions of the complex transition process. The first two are clear and much researched. The third is sometimes called Lipset's law. It is more unclear: the starting point is more diverse, and the path to the »goal« is more variable. However, all countries who have managed to get through the transition have become democracies.

Rich countries are efficient countries, where transactions have to be fast and transparent. Corruption is a set of »additional« factors making transactions inefficient, slow and murky. This basic insight can be expressed in many ways: Seen from the demand side (the households), the transition hypothesis claims that »honesty« is a »good« with a high income elasticity like democracy. Seen from the supply

6. For three countries the GDP-data were so weak that we had to make rather crude assessments: Albania was taken to be at 75% of Macedonia, while Croatia were put at 75% of Slovenia and Yugoslavia at 75% of Croatia.

7. Two additional hypotheses will not be analyzed, due to lack of data: (i) Some low-corruption traditional societies may have experienced rising corruption in the beginning of the transition. This hypothesis is confirmed in Paldam (2000). (ii) Some very resource-rich countries became rich without going through the whole of the transition process. They are likely to keep traditional patterns of corruption, along with other traditional patterns.

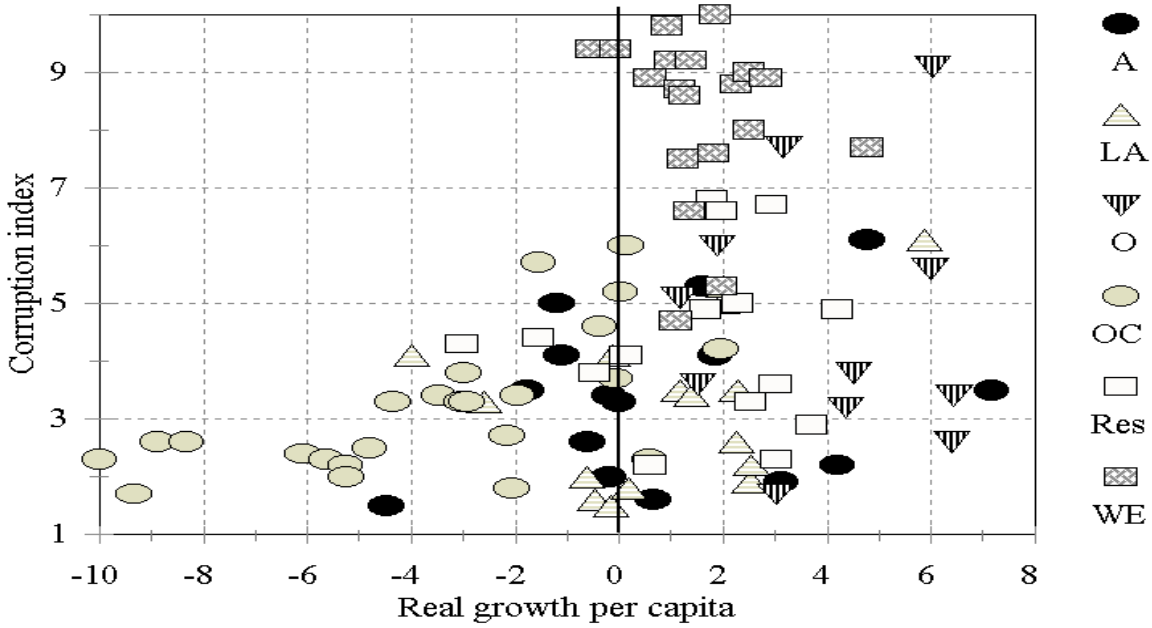
side (the firms), the hypothesis claims that »honesty« is a time saving devise that becomes more necessary as countries grow rich.[8)]

Table 1. Three parts of the big transition

	Stable traditional	LDCs in transition	Stable modern DC
Economic	Poor, stagnating. Large primary sector	High, but unstable growth. Industrial sector share grows	Rich, moderate growth. Small primary sector
Demographic	High birth & mortality rates	Mortality rate down & then birth rate	Both rates low
Political	Theocratic & hereditary systems	Unstable: often one-party or military, but also periods with democracy	Democracy

From the graph and the estimates below we can calculate the time horizons and magnitudes involved: It normally takes 1-200 years to go through the economic transition, and it changes the corruption level from about 2 to 9 κ-points, that is by 7 points. Annual changes are consequently well below 0.1 κ-point per year. Fast transitions of the »Asian Miracle« type still lasts about 40 years, so it does not cause a fall by more than 0.2 κ-points per year. The transition idea is thus a positive causal link from y to κ: $\partial\kappa/\partial y > 0$. Honesty rises with GDP.

Figure 2. Corruption and the real per capita growth rate (1989-98)



II.2 Real growth rate (g) and the hypotheses that honesty is a production factor

The supply side idea just mentioned suggests that honesty is a factor of production, increasing the growth rate. Figure 2 shows the growth rate for GDP per capita, g, at the vertical axis.[9)] A positive

8. The reverse relation, where corruption increases growth and wealth by allowing business to get round bad regulation is also found in the literature (see Neff, 1964). It is dominated by the transition hypothesis

9. The data are based on IBRD World Data, but gaps for 1998 and 1997 have filled from IMF-IFS, the internet sites

connection (κ increases when g does) appears, though it is (much) less strong than on Figure 1.

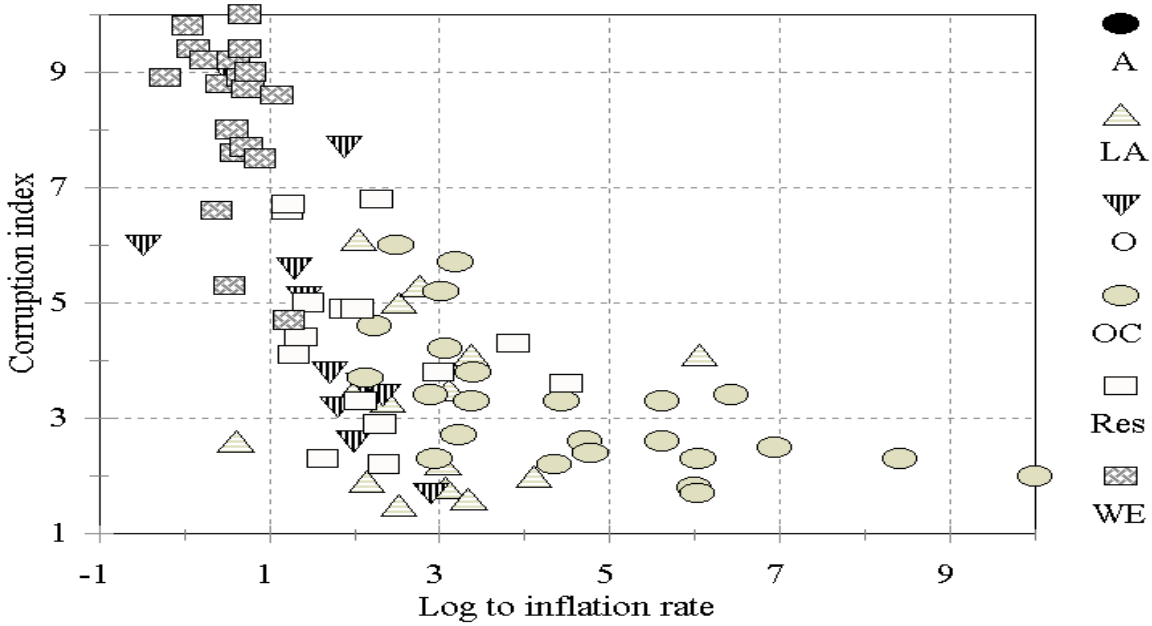
This link has the reverse causality of the one assumed by equation (1). The κ-index for 1999 may cover impressions for 1994-99. They should be compared with growth data for 2000-2005. This is not possible, but Reg 2b (of Table 1) compares the κ-index for 1994-95 with growth rates for 1996-98. The production factor hypothesis suggests a positive signed link from κ to g: $\partial g/\partial \kappa > 0$.

Growth influences the GDP-level (that is y) in the longer run, so a clear (κ, g)-link would demand a simultaneous model. Figure 2 and the regressions below show that the relation from κ to g is weak and fragile.[10)] To make the analysis as simple as possible, we have kept the one-equation exploratory framework. So there might be a small counter-causality bias. To control for that bias, g is used as a right-hand variable, as is further discussed below.

II.3 The inflation rate (p) and the demoralization hypothesis

Corruption is mostly at the expense of the public sector. It is thus related to »public morale«, ie, confidence in and respect for authorities. Economic chaos occurs when economic policies fail, so that the authorities are unworthy of respect and confidence.[11)] Consequently, the more chaotic the economy is, the lower should the κ-index be. The best indication that things are amiss is probably high inflation. The rate of inflation, p, is therefore used as a proxy for economic chaos.

Figure 3. Corruption and the inflation rate (1994-98)



One aspect of the chaos of high inflation is that it causes large and seemingly arbitrary redistributions of wealth. This is likely to cause a further deterioration of »public morale«. The chaos hypothesis is thus a negative connection from p to κ, $\partial \kappa/\partial p < 0$.

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of the regional development banks, and the UN-ECE. The same process is followed for the inflation series.

10. The literature (see Mauro, 1995), Borner, et al (1995), IBRD (1997) and Borner and Paldam (1998) show a (weak) link from corruption to investments, and a strong link from investments to growth.

11. The argument is related to the responsibility hypothesis that is the basis for Vote and Popularity functions (Nannestad and Paldam, 1998). High inflation is found to cause large decreases in the popularity of governments.

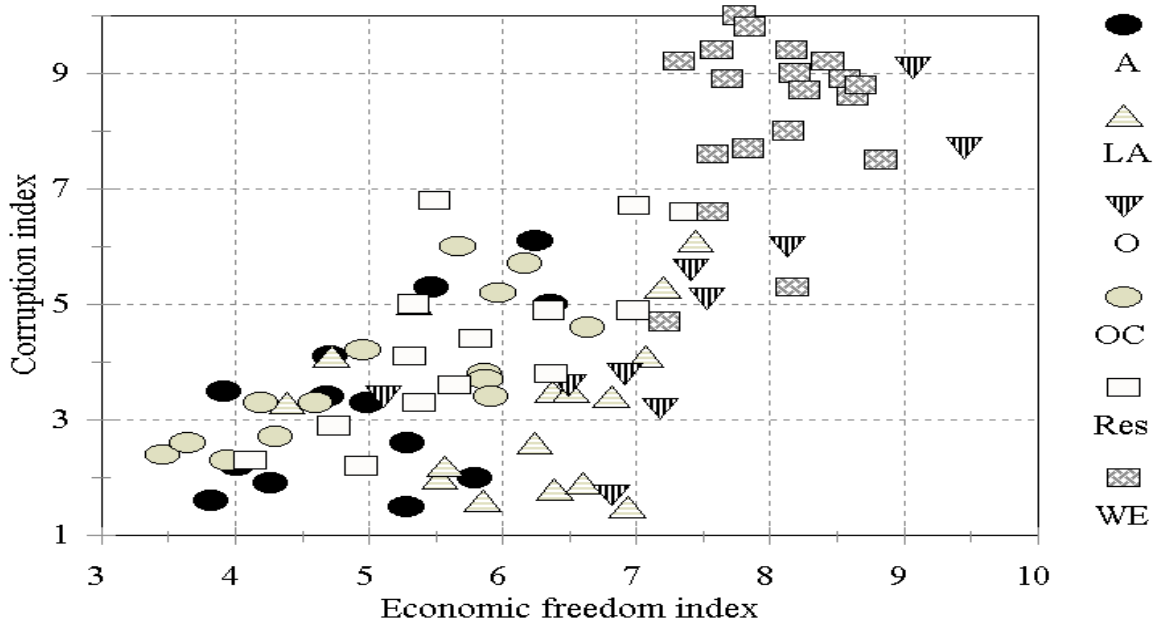
Figure 3 shows a clear connection between corruption and inflation, measured as the logarithm to average annual inflation (CPI,1994-98).[12] As inflation rises so do corruption. This connection will be shown to be fairly robust, even when the size of the effect is somewhat unstable.

The time horizons and magnitudes implied can be found from Figure 3 and the estimates below, show that an increase by 10 (100) times in the inflation rate increases corruption about 1.5 (3.0) points. The rise happens over 5 years, so the effect is large.

II.4 The economic freedom index (ϕ) and the hypothesis of the potential for rent seeking

A major part of corruption is the illegal part of rent seeking (see Mbaku, 1998). We know that some institutions have a higher potential for rent seeking than others. A hypothesis consequently is that corruption is higher the higher the institutional potentials for rent seeking are in a country.

Figure 4. Corruption and the economic freedom index (1985-98)



An ambitious attempt has been made to measure the amount of regulation in the economy by the ϕ-index of »economic freedom« (see netsources), with special emphasis on arbitrary regulation. It gives a measure of the potential for rent seeking.[13] The index measures the reverse direction of the one we discuss: Heavily regulated countries get low scores and vice versa. The ϕ-index has been compiled for 86 of the same countries as the κ-index.[14]

Figure 4 shows the relation between the two indices.[15] The introduction mentions that

12. The observation from Yugoslavia was truncated at log p = 10, as it gave a dominating residual.
13. Inflation is a components of the economic freedom index. To reduce the confluence we purged the ϕ index of the inflation. However, the regressions results hardly changed. The results presented use the standard series.
14. The average for 1985, 1990, 1995 and 1997 is used. Data for 1985 and 1990 are missing for the OC-countries.
15. A recent study, (de Haan and Sturm, 2000) shows that even when the connection between the level of GDP per capita, y, and the ϕ-index is positive, the connection is not robust. However, a strong, robust connection was found between changes in ϕ and the real growth rate.

deregulation (ϕ high) may cause an increase in corruption (κ low), so that $\partial\kappa/\partial\phi < 0$. However, the rent seeking hypothesis predicts the reverse connection, ie that $\partial\kappa/\partial\phi > 0$. So the main hypothesis is a positive causality from the ϕ to κ. Figure 4 shows that the link between the two indices is strong and positive, but we will see that the connection lacks robustness.

II.5 The Gini-coefficient (μ) and the income skewness hypothesis

A skew income distribution may increase the temptations to make illicit gains, and thus increase corruption. A skew income distribution (high Gini, μ) should thus give high corruption (low κ), so we expect that $\partial\kappa/\partial\mu < 0$.

For 75 of the 100 countries the World Bank data file include an estimate of the Gini-coefficient. The estimates are from different years and of a poorer quality than the other data, but we have nevertheless tried to see if a connection appears. It does, as expected, but it is not robust, and adds little explanatory power in the multiple regressions. It has only been included in a couple of regressions in Table 2, but it is a connection worth further study.

Table 2. Estimates of economic model: $\kappa_i = c + a_1 y_i + a_2 g_i + a_3 p_i + a_4 \phi_i + u_i$

	Reg 1	Reg 2	Reg 2b	Reg 3	Reg 4	Reg 5	Reg 6	Reg 7
Constant	-10.26 (9.1)	4.49 (20.1)	5.71 (13.3)	6.72 (21.4)	-3.07 (4.1)	8.00 (8.4)	-6.95 (4.4)	-5.47 (3.1)
GDP	1.79 (13.3)						1.46 (6.2)	1.54 (6.1)
Growth		0.24 (3.7)	0.18 (1.3)				-0.06 (1.0)	-0.10 (1.4)
Inflation				-0.82 (8.4)			-0.55 (3.5)	-0.66 (3.6)
Regulation					1.26 (10.9)		0.11 (0.6)	-0.07 (0.3)
Gini (x10)						-0.88 (3.7)		-0.20 (1.4)
N	100	100	41	100	86	75	86	69
R^2	0.64	0.12	0.04	0.42	0.59	0.16	0.75	0.79
Reset	54.0*	1.9	0.20	35.8*	8.7*	4.1(*)	15.2*	11.7*

Note: The numbers in brackets are the t-ratios. A * at the reset test points to problems. Reg 2b looks at the κ-index 1994-95 and growth 1996-98, to catch the causality from κ to g - the sample is much smaller.

II.6 Estimates of the economic submodel

Tables 2 and 3 show a set of regressions for the economic model. The regressions all generate significant coefficients, and when one variable is inserted at a time, everything goes as predicted from the graphs. The GDP-level (Reg 1) has $R^2 = 0.64$, the regulation index (Reg 4) 0.59, inflation (Reg 3) 0.42, the Gini (Reg 5) 0.16 and the growth rate (Reg 2) only 0.12. The Gini and growth thus explain little of the variation in corruption. This is also the case in Reg 2b trying, as much as possible, to catch the reverse causality. The counter-causality bias in the coefficient to the GDP-level must thus be small.

Regressions 6 to 13 in Tables 2 and 3 show that the economic variables have strong collinearity. When all four are included in Reg 6, the R^2-score rises by 0.11 only compared to the Reg 1, where the y-variable is used alone, and the coefficients to growth even changes sign.

Table 3. Estimates of variants of the economic model

	Reg 8	Reg 9	Reg 10	Reg 11	Reg 12	Reg 13
Constant	-9.59 (8.4)	-6.25 (4.7)	-10.20 (7.4)	6.97 (17.7)	-0.15 (0.1)	-6.08 (4.5)
GDP	1.70 (12.4)	1.43 (9.9)	1.45 (5.9)			1.42 (9.8)
Growth	0.10 (2.2)			-0.07 (1.0)		-0.03 (0.6)
Inflation		-0.39 (4.7)		-0.91 (7.1)	-0.46 (2.6)	-0.43 (4.1)
Regulation			0.44 (2.6)		0.95 (5.9)	
N	100	100	86	100	86	100
R^2	0.66	0.71	0.71	0.42	0.62	0.71
Reset	42.4*	37.4*	24.7*	34.2*	20.3*	37.1*

Note: see Table 2.

The coefficient that stays most constant when the other variables are included is the coefficient to y, the GDP-level. It has the bulk of the explanatory power, and it reduces the effect of the other variables. Inflation stays significant throughout, while the regulation index remains significant if either y or p is included, but not if both variables are included. The growth rate becomes mostly insignificant and very unstable. The dominating variable in the pattern is thus y. The underlying transition from a high to a low level of corruption when y rises, is by far the strongest economic effect in our data. This is also the result in Husted (1999) and Paldam (2000).

Table 4. Comparing the linear and two non-linear estimations of the economic model

	Reg 6	Reg 14	Reg 15
	Linear	Log (κ)	Exp (κ)
Constant	-6.95 (4.4)	-6.85 (4.1)	-5.75 (1.3)
GDP	1.46 (6.2)	1.82 (7.3)	1.04 (1.6)
Growth	-0.06 (1.0)	-0.01 (0.2)	-0.31 (1.9)
Inflation	-0.55 (3.5)	-0.45 (2.7)	-1.24 (3.0)
Regulation	0.11 (0.6)	-0.05 (0.2)	0.27 (0.5)
N	86	86	86
R^2	0.75	0.74	0.37
Reset	15.2*	2.2	16.0*

Note: Reg 6 is repeated from Table 2 for easy reference. The coefficients to Reg 14 and to Reg 15 are scaled by 5 and 0.001 respectively.

II.7 The deviations from linearity

The main statistical problem with the models in Table 2 and 3 is that the reset tests indicate problems with the functional form. (The usual battery of tests pointed to no other problem.) Especially when y is used as regressor, some extra curvature remains in the data. The curvature is visible to the naked eye on Figures 1 and 3. It looks as if the non-linearity is due to the NW-group of countries clustering

together at the upper right-hand corner of the two graphs. This »*corner-observation*« plays a role in Section V. Meanwhile Table 4 shows what happens when the κ-index is transformed - to change the curvature - before the regression is run (the coefficients are scaled to be easily comparable).

The pattern in the coefficients is the same in the three models of Table 4. The reset test suggests that the logarithmic form is the best. The next section presents a way to remove the curvature, which is easier to interpret.

III The cultural submodel: $[]_c = b_1 D^{WE}_i + b_2 D^{LA}_i + b_3 D^{OC}_i + b_4 D^{A}_i + b_5 D^{O}_i + b_6 \gamma_i$

Only two culture hypotheses are considered. The first sees corruption as a behavior that follows the main cultural divisions. It is sometimes termed *cultural determinism*, as corruption is taken to be so deeply embedded in certain cultures as to be unchangeable. The second hypothesis relates corruption to democracy - strictly speaking this is a political theory.

III.1 The Ds, dividing the world into cultural areas

»Culture« is a nebulous concept, where all operationalizations are debatable. The present article uses one approach. An alternative is tried in Paldam (2000), using religion as the key to the cultural dimension. A third possibility is Husted (1999) using the classification scheme of Hofstede (1984).

Table 5. The cultural groups

Var	Name and description of group
D^{WE}	19 Old OECD-countries of **W**est **E**uropean type: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Luxembourg, The Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States.
D^{LA}	16 **L**atin **A**merican countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Paraguay, Peru, Uruguay, Venezuela.
D^{OC}	24 **O**ld »**C**ommunist« countries - from East European to Central Asia: Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Rep, Estonia, Georgia, Hungary, Kazakhstan, Kyrgiz Rep, Latvia, Lithuania, Macedonia, Moldavia, Poland, Romania, Russia, Slovak Rep, Slovenia, Ukraine, Uzbekistan, Yugoslavia
D^{A}	15 countries from South of Sahara **A**frica: Botswana, Cameroon, Ghana, Ivory Coast, Kenya, Malawi, Mozambique, Namibia, Nigeria, Senegal, South Africa, Tanzania, Uganda, Zambia, Zimbabwe
D^{O}	11 **O**riental countries from the »Chinese« cultural sphere: China, Hong Kong, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan,[a)] Thailand, Vietnam
D^{R}	**R**esidual no-group of 15 countries: Bangladesh, Egypt, Greece, India, Israel, Jamaica, Jordan, Mauritius, Mongolia, Morocco, Pakistan, Portugal, Spain, Tunisia, Turkey

Note: Many countries have missing observations - in particular most countries in the OC-group are missing data before 1990/91.The variables are dummies with the value one, if a country belongs to the group, else they are zero.

a. Data for Taiwan are from: China Aktuell, Monatszeitschrift, Institut für Asien-kunde, Hamburg.

The approach used is to classify the countries into the main *cultural areas* listed in Table 5. The groups are virtually the same as reached by Huntington (1996, Cpt 1). The reader will probably reach the same pattern with a few minor changes - corresponding a few obvious classification problems. They are

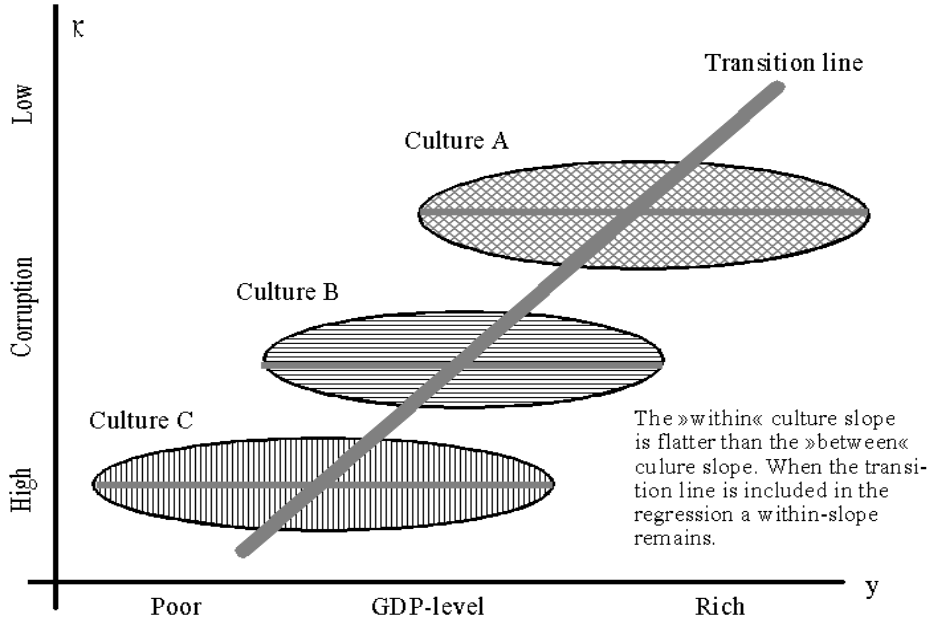
»solved« by putting the difficult cases in the residual group.

The problems are: The κ-index contains only three countries from the Indian cultural area and four countries from the Arab one - they are too few to analyze separately. Some countries (as Israel, Greece, Mongolia and Mauritius) could have been included in several groups. The WE (West Europe) group includes USA, Canada, Australia and New Zealand. So it would be logical to include Spain and Portugal in the LA (Latin American) group. However, Spain and Portugal are now more integrated in Europe than in Latin America. Consequently Spain and Portugal were put in the residual group not to blur the distinction between the WE and the LA groups.[16)]

III.2 Looking at the marker-patterns on Figure 1

The groups are used in the pattern-scheme on the markers shown on Figures 1 to 5. The reader should note that the countries of the 5 cultural areas cluster on most of the graphs, while the countries of the residual groups neither cluster nor stand out as exceptions on any of the graphs.

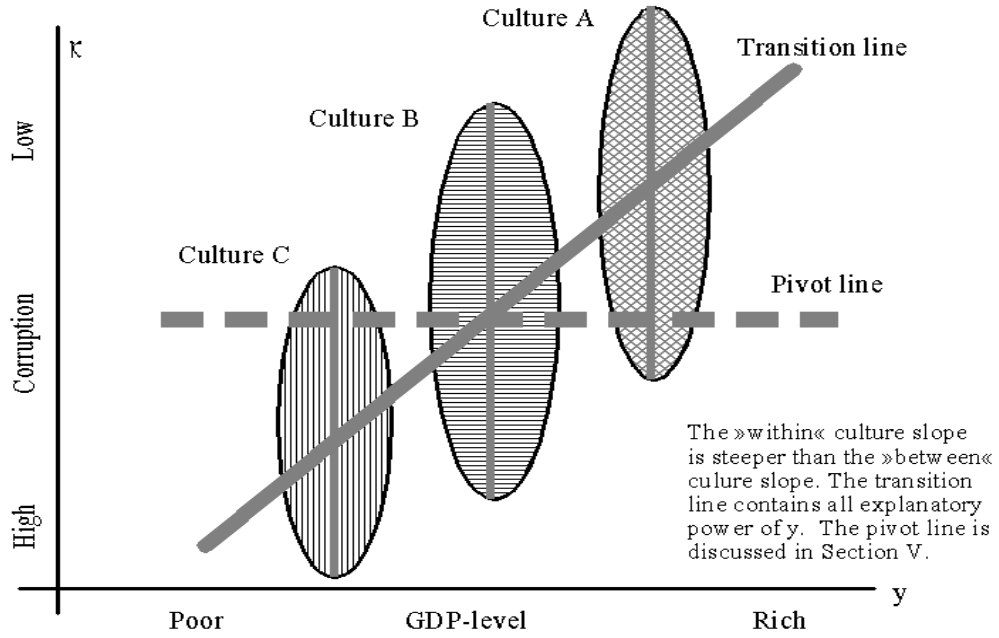
Figure 5. The pattern of cultural clusters according to the culture theory



The most interesting marker pattern is on Figure 1. It is obvious that the countries in the groups cluster. If corruption is culturally determined this should cause countries with similar cultures to have (roughly) the same level of corruption. The cultural theory therefore suggests that the observations cluster as drawn on Figure 5. However, Figure 1 looks different from Figure 5. The NW-group in particular, but also the other groups, are not »flatter« than the transition line, but steeper as drawn on Figure 6. It looks as if the transition line can explain all of the variation along the y-axis. The crucial difference between the two figures is if an »extra« within-slope that differs from the transition slope is evident in the data. This is easy to test, as is done in subsection IV.3, while Section V interprets the result.

16. Experiments were made placing Spain, Portugal and Greece in the WE-group, and Spain and Portugal in the LA-group. It only changed the results marginally, so the »purest« solution was preferred.

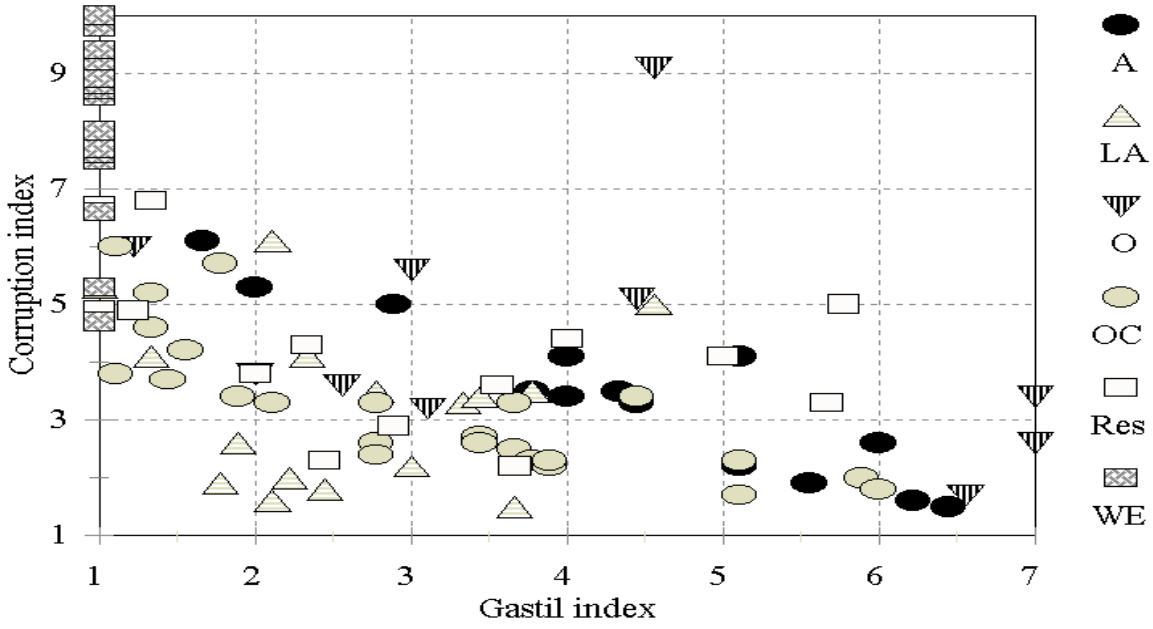
Figure 6. The pattern of cultural clusters according to the seesaw theory, discussed in Section V



III.3 The Gastil-index (γ) and the hypothesis that democracy is transparency

The relation between corruption and democracy has often been discussed. The Gastil-index, γ, (from Freedom House, see netsources) for democracy is used to analyze this question - it is averaged over 15 years. It gives a number between 1 (full democracy) and 7 (no democracy) for the level of democracy of all countries included in the κ-index except Hong Kong. It would be bad if the coefficient $a_6 = \partial\kappa/\partial\gamma_i > 0$, as it means that dictatorship (high γ's) causes low corruption (high κ's).

Figure 7. Corruption and the Gastil-index for Democracy (1990-98)



The *bad* hypothesis (where $\partial\kappa/\partial\gamma_i > 0$) is that dictatorship concentrates the group of the corrupt, and hence reduces the amount extorted (see Wintrobe, 1998). The *nice* hypothesis (where $\partial\kappa/\partial\gamma_i < 0$) is that

Democracy (low γ) increases transparency, and hereby corruption is *reduced* (κ becomes high). It is, eg, the very idea behind Transparency International. Figure 7 shows the relation between democracy (γ) and corruption (κ). The connection is clearly negative, in accordance with the nice theory, but the fit does not looks too convincing, as most of the correlation on Figure 7 is due to a dominating block along the democracy axes at the top left-hand side of the graph.

The political transition changes stable traditional political systems to stable democracy as listed in Table 1. However, the democratic transition normally takes place late and after several false starts: many countries become democracies one time after the other until democracy finally takes roots. Here the transitions in both the κ and the γ variable have led to low-corruption democracies. The basic picture may thus be due to the common factor of the GDP-level, explaining *both* the κ- and γ-indices.

Table 6. Estimates of the culture model:

$$\kappa_i = c + b_0 D^R + b_1 D^{WE}{}_i + b_2 D^{LA}{}_i + b_3 D^{OC}{}_i + b_4 D^A{}_i + b_5 D^O{}_i + b_6 \gamma_i$$

	Reg 16	Reg 17	Reg 18	Reg 19
Constant	5.91 (14.2)		4.39 (11.5)	7.03 (20.1)
Residual group		5.91 (14.2)		
West Europe	2.90 (6.2)	8.81 (29.3)	3.89 (7.6)	
L America	-1.03 (2.3)	4.88 (12.4)	-0.90 (1.7)	
Old Comm	-1.05 (2.6)	4.86 (12.7)	-1.17 (2.4)	
Africa	-0.17 (0.4)	5.74 (10.9)	-1.05 (1.9)	
Orient	0.71 (1.4)	6.63 (12.0)	0.32 (0.6)	
Democracy	-0.53 (5.8)	-0.53 (5.8)		-0.86 (8.3)
N	99	99	99	99
R^2	0.74	(0.94)	0.42	0.42
Reset	0.0	0.0	0.0	22.4*

Note: The dummies plus the residual culture add to 1. The residual culture or the constant must therefore be deleted. The R^2-score is calculated differently in Reg 17, where the constant is »hidden« as a tie.

III.4 Estimates of the cultural submodel

Table 6 gives the estimates of the pure culture model. Reg 16 and Reg 17 are substantially the same, but the reader may find one of the two easier to understand.

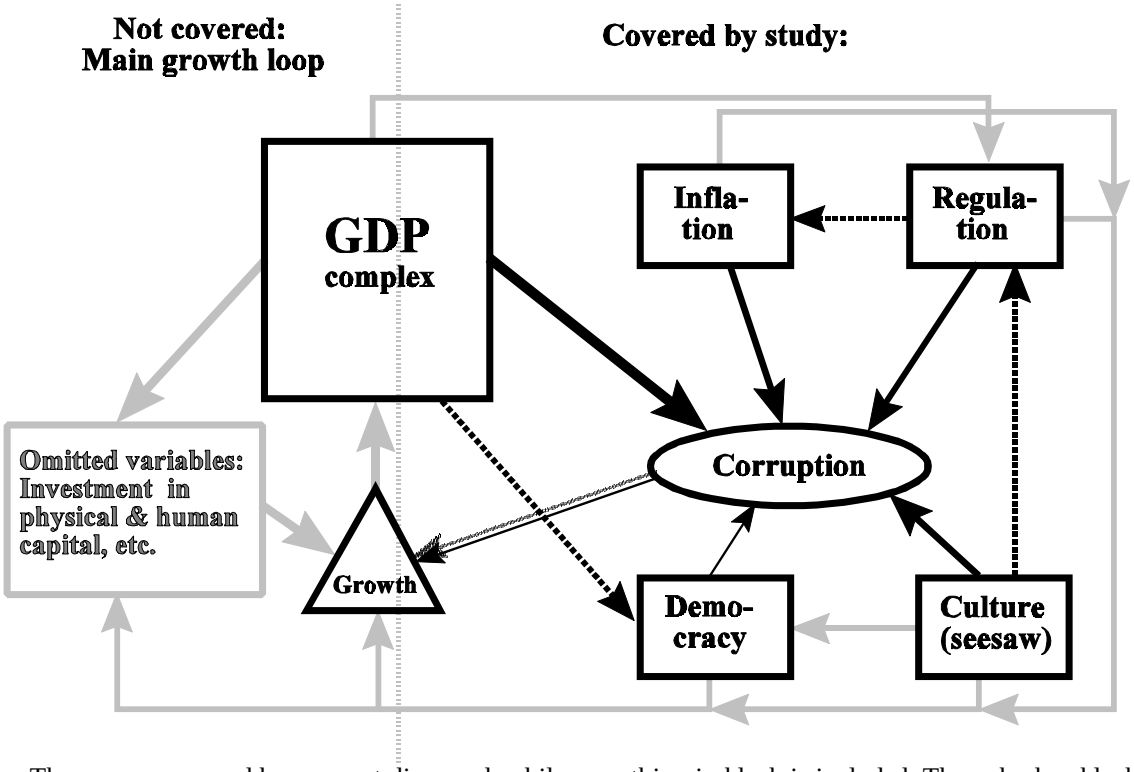
The pattern reported in the table is quite significant, though some of the cultural groups are »average« ones, producing coefficients that do not differ from the constant. The cultural dummies remove any signs of curvature from the data. The reset tests are almost zero, when these dummies are included. The two most significant cultural areas are the West European and the Latin American. They have a positive and a negative coefficient, respectively. The pattern in the cultural area dummies will be further discussed in Section V after the economic model has been included.

Note also the highly significantly negative coefficient to democracy. On the face of it, it appears that the more democracy, the less corruption. This is surely a happy result, so it is important to study if it goes away in estimates of the mixed model.

IV The full model

When the full model is put together, the two crucial questions are: Which of the effects remains robust? How is the interaction between the two parts of the model?

Figure 8. The main causal structure assumed and some omitted parts of the structure



Note: The grey arrows and box are not discussed, while everything in black is included. The unbroken black arrows are estimated. Their widths indicate the importance found. Broken arrows points to relations found, but not estimated. The shaded arrow from corruption to growth is estimated the wrong way, but found to be weak.

IV.1 The structure analyzed

Figure 8 is a summary of the causal connections analyzed, and the main omitted connections. To estimate everything would demand a complex model using much more data than we have. So we estimate the reduced model (1).[17)] It is a great simplification that the growth connection is weak as it allows us to disregard the whole of the growth loop. The second simplification is that the (grey) »outer rim« of possible feedback links is disregarded. Tables 7 and 8 show estimates of model (1). The interaction of the economic and culture terms is studied in two ways giving much the same result:

A Table 7 joins the two submodels and estimates $\kappa_i = c + []_e + []_c$. It allows us to study the robustness of the effects found in the two submodels

B Table 8 adds multiplicative interaction between the coefficients and estimate $\kappa_i = c + []_c + y[]_c$. It allows us to estimate the within-culture slopes.

17. We have checked the key coefficients by TSIV-estimates for different instruments. For the unstable coefficients the results depended much on the instruments, but the robust coefficients (to y and p) changed very little, and their t-ration dropped only by 25-30%, so they remained very significant.

IV.2 Joining the two parts of the model: The robustness analysis

Table 7 shows what happens when both submodels are joined. By far the most powerful variable remains y, the GDP-level. It is reasonably constant and significant throughout. Contrarily, the growth variable (g) remains insignificant and changes sign.

Table 7. Estimates of the mixed model:

$$\kappa_i = c + a_1 y_i + a_2 g_i + a_3 p_i + a_4 \phi_i + b_1 D^{WE}{}_i + b_2 D^{LA}{}_i + b_3 D^{OC}{}_i + b_4 D^{A}{}_i + b_5 D^{O}{}_i + b_6 \gamma_i$$

	Reg 6	Reg 16	Reg 20	Reg 21	Reg 22	Reg 23	Reg 24
	Economic	Culture	Mixed	Variants			
Constant	-6.95 (4.4)	5.91 (14.2)	-7.02 (3.1)	-7.06 (4.2)	1.47 (0.9)	-4.22 (2.4)	-8.08 (4.6)
GDP level	1.46 (6.2)		1.31 (4.7)	1.19 (5.0)		1.14 (5.7)	1.56 (8.6)
Growth	-0.06 (1.0)		0.05 (0.8)	0.06 (1.0)	0.08 (1.1)		
Inflation	-0.55 (3.5)		-0.18 (1.1)	-0.15 (0.9)	-0.13 (0.7)		
Regulation	0.11 (0.6)		0.19 (1.0)	0.33 (1.7)	0.66 (3.3)		
West Europe		2.90 (6.2)	1.13 (2.2)	1.16 (2.2)	1.71 (3.0)	1.69 (2.8)	
L America		-1.03 (2.3)	-0.89 (2.1)	-0.93 (2.2)	-1.09 (2.3)	-1.09 (2.8)	
Old Comm		-1.05 (2.6)	-0.06 (0.1)	0.09 (0.2)	0.12 (0.2)	-0.81 (2.3)	
Africa		-0.19 (0.4)	0.45 (1.0)	0.36 (0.8)	0.03 (0.1)	0.43 (1.0)	
Orient		0.71 (1.4)	-0.96 (1.7)	-1.01 (2.0)	-0.70 (1.1)	-0.21 (0.4)	
Democracy		-0.53 (5.8)	-0.05 (0.4)		-0.27 (2.2)	-0.22 (2.3)	-0.21 (1.9)
N	86	99	85	86	85	99	99
R^2	0.75	0.74	0.82	0.82	0.77	0.81	0.67
Reset	15.2*	0.0	1.4	4.2 (*)	2.8	0.6	44.6*

The remaining three »real« variables, p, ϕ and γ, keep their signs, but loses significance in the mixed model. In particular we note that the coefficient to democracy is greatly reduced by GDP in Reg 20. The most reasonable interpretation is that the connection between γ and κ is mainly due to confluence with the GDP. It is dubious if democracy *in itself* reduces corruption.

The coefficient to inflation is »knocked out« by the culture dummies. The reduction of the coefficient is mainly an effect of the negative coefficient to the Latin American cultural dummy. Inflation is a variable that follows the »culture pattern« as much as it follows the pattern of corruption. Casual observation and studies as Blomström and Meller (1991) and Lal and Myint (1996) show a cultural element in the choice of economic system. A country is likely to have the same economic system as other countries within its cultural area.[18)] It is also known that some economic systems are more inflationary than others. Further, the more inflationary systems have relatively heavy regulatory policies. The cultural

18. Two Import Substitution Industrialization policy-regimes have dominated two of the cultural areas: »Cepalism« in Latin America from the 1930s to the 1980s, and »African Socialism« in Africa from the late 1960s to the late 1980s. The members of the »Old Communist« group have changed their economic system in the 1990s.

dummies on the one hand and the economic regulation index, ϕ, inflation, p and the κ-index on the other hand may thus have complex interactions.

It follows that the countries of some cultures have chosen regulatory policy regimes that make them both more inflationary and more corrupt. They become more corrupt, as the regime has (i) a greater rent seeking potential, and (ii) as it generates more inflation. The effect of inflation on corruption is thus *negative* (increasing corruption), but *not robust*.

IV.3 Comparing the within-culture slopes and the between-culture slope

Table 8 shows five regressions. The crucial question is if we can identify a within-culture slope that differs from the transition slope.

Table 8. Controlling for multiplicative interaction

$$\kappa_i = c + a_1 y_i + a_2 p_i + b_1 D^{WE}_i + b_2 D^{LA}_i + b_3 D^{OC}_i + b_4 D^{A}_i + b_5 D^{O}_i + d_1 y_i D^{WE}_i + d_2 y_i D^{LA}_i + d_3 y_i D^{OC}_i + d_4 y_i D^{A}_i + d_5 y_i D^{O}_i$$

		Reg 25	Reg 26	Reg 27	Reg 28	Reg 29
	Constant	4.39 (13.6)	-6.41 (4.7)	-7.31 (2.7)	-4.99 (4.5)	-6.33 (2.4)
GDP-level	y		1.33 (8.1)	1.44 (4.4)	1.22 (7.4)	1.38 (4.3)
Inflation	p				-0.24 (2.6)	-0.25 (2.6)
Culture area	D^{WE}	7.24 (0.4)	1.81 (3.9)	18.94 (1.1)	1.60 (3.4)	18.95 (1.1)
dummies	D^{LA}	-10.85 (2.2)	-1.06 (2.6)	0.86 (0.2)	-0.88 (2.2)	0.10 (0.0)
	D^{OC}	-8.92 (3.1)	-0.84 (2.2)	2.78 (0.7)	-0.26 (0.6)	4.40 (1.2)
	D^{A}	-9.03 (3.11)	0.25 (0.6)	2.67 (0.7)	0.30 (0.7)	3.27 (0.9)
	D^{O}	-16.71 (4.7)	-0.44 (0.9)	-5.01 (1.2)	-0.51 (1.1)	-4.14 (1.0)
Interaction:	yD^{WE}	-0.35 (0.2)		-1.78 (1.0)		-1.82 (1.0)
within-culture	yD^{LA}	1.21 (2.0)		-0.23 (0.4)		-0.12 (0.2)
slopes	yD^{OC}	0.98 (2.7)		-0.46 (1.0)		-0.58 (1.2)
	yD^{A}	1.12 (2.8)		-0.32 (0.7)		-0.39 (0.8)
	yD^{O}	1.96 (4.8)		0.52 (1.1)		0.41 (0.8)
	N	100	100	100	100	100
	R^2	0.75	0.78	0.79	0.80	0.81
	Reset	9.0*	7.8*	9.9*	8.5*	8.4*

Compare first Regs 25 and 26. The estimates in Reg 25 of the five separate slopes for the countries in each group are: -0.35 (WE, 19), 1.21 (LA, 16), 0.98 (OC, 24), 1.12 (A, 15) and 1.96 (O, 11), where the numbers in the brackets refer to the number of countries in the group. The slope for the WE countries is insignificant as it is estimated on data with very little variation on the y-axis. The average within-group slope is 0.98, or 1.31 without the insignificant WE-group. This is the same as 1.33, the coefficient to y (in Reg 26). Therefore, it comes as no surprise that when we include y and p in Regs 27

and 29 *none* of the within-slopes becomes significant, and the coefficient to y remains virtually unchanged.

We conclude that a separate within-culture slope does not exists in the data. Figure 6 is a better representation of the data than Figure 5.

IV.4 Has the effect of culture vanished?

The effect of the cultural areas decreases when the transition is included as seen from the block of cultural dummies in Tables 7 and 8. The only culture-variable that keeps the same sign and is mostly significant in the mixed model is »Western Europe«. We conclude that the WE-group is relatively uncorrupt, even when the wealth of the countries is considered.

In most of the mixed models (from Reg 20) it still appears that Latin America is relatively corrupt, but the coefficient is far from stable. The interaction between culture, inflation and regulation (just discussed) might work to produce precisely that result. Spain and Portugal (in the residual group), which have chosen the WE-economic system have both got almost WE-levels of corruption.

The »old communist« countries are also (mostly) negative outliers corruption-wise though the coefficient is far from robust. The deviation is probably caused by the (often) chaotic process of transition from socialism and the ensuing high inflation. However, the negative deviation becomes negligible when the low GDP-level and the high inflation of these countries are included in the model.

Finally, note that the remaining two groups even change signs from the culture model (Reg 16) to the mixed model (Reg 20). This shows that Africa has high corruption *only* due to poverty - not for cultural reasons. The oriental countries are a little more corrupt than they should be at their present level of development. However, one may argue that since they became rich quickly, they have not had the time to adjust the corruption level.[19)]

When these findings and arguments are contemplated, little of the »culture theory of corruption« remains. Cultural factors can probably still be found when the more detailed pattern of corruption is analyzed, but the present article looks at the grand pattern only.

V Interaction and dynamics of the economic transition and corruption

The empirical analysis in Section IV confirmed the impression created from looking at Figure 1. The stylized picture of interaction of culture and the economic transition on corruption is as depicted on Figure 6. The present section takes this picture for granted and presents an interpretation.

V.1 The seesaw model

The first simple deduction from Figure 6 is that it shows that culture influences the GDP *more* than it influences corruption. However, since the underlying transition pattern is strong, corruption must have *an inherent tendency to tip either way in a seesaw way*. In other words, countries tend to become either too corrupt or too clean for their GDP level and culture. The case of the two neighboring countries

19. From casual observation it appears that the process of adjustment is going on. The populations in countries as Japan and South Korea seem to react rather strongly to the »good old ways« of large-scale mutual gift giving that has characterized the relation between politics and business.

Argentina and Chile come to mind. They have almost the same GDP-level and similar cultures. It is surprising that their κ-scores are as different as 3.0 and 6.9 respectively. A *seesaw model* hence needs to be constructed. Fortunately this is an easy job.[20)]

The model builds upon four points (A) to (D) given in Table 9. Most of the mechanisms are self-explanatory, so only a few comments to each of the four points are needed to put the model together.

Table 9. Four mechanisms behind the seesaw mechanics

	Mechanism	High corruption ⇦ ⇦ ⇦	⇨ ⇨ ⇨ Low corruption
A	Incidence	Wages down will chase out honest	Labor markets clear for honest
B	Punishment	Everybody cannot be punished	Some can be punished
C	Advertisement	Flaunting R advertizes »business«	Flaunting R alerts police
D	Welfare	R can be enjoyed without fear	R must be consumed in secret

Note: R is the proceeds from corruption.

It is easy to formalize (A) by a simple sorting model with two types of jobs, where one has a corruption potential and the other has none. One equilibrium with the same wage occurs if all are honest. However, if there are two types of workers - one corrupt and one uncorrupt - who are indistinguishable for the employer another equilibrium emerges. The corrupt create an extra demand for jobs with a high corruption potential competing down their salaries - and vice versa for the jobs with no such potential. The relatively low salaries for the high-potential jobs will then drive away the honest. So the corrupt will get the high-potential jobs, while the honest concentrate in jobs without such potentials. This will surely increase corruption.

(B) Everybody cannot be punished, so with high corruption it is a low-risk activity, and vice versa. (C) To run a corruption »business« advertizing to the customers is important. This can be done more effectively the lower the risk of punishment. In very corrupt societies one sees civil servants, with a negligible salary, being men above town, driving fine new Mercedes. This is not only welfare enhancing in itself (D) for these civil servants. It also advertises their business.

Conversely, in a low-corruption environment: Here both (D) the consumption of the proceeds of corruption and (C) the advertisement of the corruption business must take place with great care and fear. If it comes to the attention of too many, it will eventually attract the police (B).

The relative income hypothesis adds a powerful mechanism. When the corrupt lives relatively well, it acts as a spur for the uncorrupt to join the club. In a low-corrupt society everybody develops a similar lifestyle, so using the proceeds of the corruption is not easy.

The arrows in the top boxes (of Table 4) indicate that the pattern is dynamic. A *pivot* must thus exist. If corruption is above the pivot, the seesaw swings toward still more corruption. If it is below the pivot, the seesaw swings the other way. It is well known that countries - or individual sectors within a country - that has turned bad, have a hard time turning honest. Though, once a bad sector gets over the

20. The name of the mechanism is new, but it is built from old, well known parts. The model was used already in various versions in Andvik and Moene (1990) and Paldam (1990), who both refer back to predecessors. See also Chand and Moene (1999) for a new generalization.

pivot, it will converge to honesty.

A whole set of mutually enforcing mechanisms may thus drive countries away from the central path given by the transition model. The seesaw has an inherent tendency either to tip toward more corruption or less corruption.

V.2 Some speculation on the dynamics

The analysis till now is rather data-near, and it is backed up by the statistical analysis. Two mechanisms have been reached: An »underlying« transition path of corruption and the seesaw dynamics away from the line. These two mechanisms must interact. It is worth to move a little ahead of the testable and speculate about the interaction. Two main questions will be discussed:

(Q1) What is the location of the pivots on which the seesaws turn? On Figure 6 we have drawn them as a vertical line. As long as we do not know anything else, this is the theory produced by Occam's Razor. However, all we need is the pivot line to be flatter than the transition line.[21)]

With a flat pivot line we should observe that as countries become richer it becomes more likely that they are above the pivot line, and the seesaw dynamics should take them to low corruption. Note that the WE-countries have a very steep within-slope. This suggests that (nearly) all of the WE-cultural area is above the pivot-line. As other countries have high (and stable) corruption other countries must be below the pivot line. It must consequently be flatter than the transition line. It is further evidence of a flat pivot line that also the richest Oriental countries have converged to low corruption.

Note that this explains the *corner observation* of subsection II.7. That is, it explains why the WE-block is in the upper-right corner of Figure 1, and thus the non-linearity of the corruption function.

(Q2) How is the long-run dynamics of such a system? Seeing a mechanism working in both causal directions is easy:

The dynamics *from transition to corruption*: Countries that become richer have (as already suggested) a growing probability for passing the pivot of the seesaw. On Figure 6 the oval culture-areas are drawn with most of the area below the pivot-line for poor countries, and with most of the area above the pivot line for the rich countries. The inherent dynamics therefore become more and more helpful for getting rid of corruption as countries grow richer. By this mechanism the transition causes a reduction in corruption.

The dynamics *from corruption to transition*: If honesty is a factor of production, the relatively honest countries grow faster, and therefore make a faster transition.[22)] By this mechanism a reduction in corruption leads to a faster transition. If this mechanism stood alone, the absence of corruption in the DCs would be a result of a self-selection process.

Both mechanisms may work at the same time. The transition of corruption may be an integral part of the complex process of the grand economic transition. Fortunately some parts of the simultaneous interaction are weak - we have concentrated on a few of the stronger parts involving corruption.

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21. I think that the pivot-line may have some little dependency on the GDP-level. Short-run risk reduction is at a greater premium in LDCs than DCs, as the dire consequence from an income loss is much higher (even fatal). The temptation of corruption is thus higher in LDCs.

22. The estimates give little support for this mechanism.

VI Conclusions

The article attempts to explain the large pattern in the corruption index from Transparency International. A simple one-equation corruption equation that could accommodate a set of 7 simple operational hypotheses proved to explain most of the pattern. The results will first be summarized, and a few policy implications are then considered.

VI.1 Summary of results

The above statistical tests have produced three strong and three tentative conclusions. It is well known from the literature that it is hard to find really robust coefficients in cross-country regressions, so also the tentative conclusions will be listed - in order of strength:

By far the most important determinant of corruption turned out to be real GDP per capita. Into the complex transition from a poor traditional country to a wealthy liberal democracy also comes a dramatic reduction in the level of corruption. The corruption transition is not placed at a precise location along the transition path, but follows an *underlying transition-trend toward less corruption*.

The transition has a strong cultural factor, making countries with the same »basic culture« cluster along the transition path. However, *countries are more similar in GDP-level than in the level of corruption within the same cultural area*. Culture is thus an inferior explanation of the level of corruption. We have interpreted this finding as a demonstration of a *seesaw dynamics of corruption around the transition-trend*: countries tend to have either too much or too little corruption relative to the transition trend.

Inflation increases the level of corruption with a relative short time horizon - such as 5-10 years. This effect is strong, but not fully stable. Inflation is partly a consequence of the economic system of countries, and countries within the same cultural area often have similar economic systems, so the effect of inflation interacts with the cultural areas.

Of the three tentative conclusions the first is still likely, while the others are very dubious: Countries with many regulations - little »economic freedom« - have a large potential for rent seeking. They also tend to have high corruption. The effect is often quite high, but it proves fragile. This effect interacts with the inflation variable and the cultural areas. Democracy seems to decrease corruption, but both variables interact strongly with the level of transition, so the independent effect of democracy is dubious. Low corruption might lead to higher growth, but the effect is small and fragile. Honesty is thus a weak and dubious factor of production.

VI.2 Some policy implications

The analysis leads to four policy conclusions. The first two are »big« as they deal with the long run and with the cultures of countries. These conclusions are not useful to the reforming politician.

The first conclusion is that economic growth, by increasing the speed of transition, also (eventually) cures the social ill of corruption. The second conclusion is the negative finding that the »cultural determinism« view of corruption failed.[23)] Corruption varies greatly within the same cultural

23. This view is reflected in statements such as: In »Latin America« or »Africa« nothing can be done about corruption. Corruption is so deeply integrated into the culture as to be almost a »law of nature«.

area. This variance has been ascribed to the inherent seesaw dynamics of corruption.

The last two policy conclusions are for »now«, so they are more useful: Our results give another reason to fear high inflation: it quickly increases corruption. Finally the seesaw pattern found in corruption suggests that it has pivots. A small push to reduce corruption (in a sector or a whole country) is unlikely to push corruption over the pivot. Such mediocre efforts are likely to have transitory effects only. However, by a sufficiently big push corruption may cross the pivot, and then it will fall by itself.

Printed references:

Andvik, J.C., Moene, K.O., 1990. How Corruption may Corrupt. *Journal of Economic Behavior and Organization* 13: 63-76

Bardham, P., 1997. Corruption and Development: A Review of Issues. *Journal of Economic Literature* 35: 1020-46

Blomström, M., Mellor, P., eds, 1991. *Diverging Paths. A Century of Scandinavian and Latin American Development*. John Hopkins University Press (for the Interamerican Development Bank).

Borner, S., Brunetti, A., Weder, B., 1995. *Political Credibility and Economic Development.* Macmillan: London

Borner, S., Paldam, eds., 1998. *The Political Dimension of Economic Growth*. Macmillan for the IEA: London

Chand, S.K., Moene, K.O., 1999. Rent Grabbing and Russia's Economic Collapse. Memo No 25/99. Department of Economics, Oslo University

China Aktuell, Monatszeitschrift, Institut für Asienskunde, Hamburg. (Source for data for Taiwan)

de Haan, J., Sturm, J.-E. 2000. On the relationship between economic freedom and economic growth. *European Journal of Political Economy* 16 (2) forthcoming

Elliot, K.A., ed. 1997. *Corruption and the Global Economy*. Institute for International Economics: Washington DC

Heidenheimer, A.J., Johnson, M., LeVine, V., eds., 1989. *Political corruption. A Handbook.* Transaction Pub.: New Brunswick, NJ.

Heywood, P., ed., 1997. *Political Corruption*. Blackwell: Oxford

Hofstaedter, R., 1948. *The American Political Tradition & the Men Who Made It.* Knopf: NY (many reprints)

Hofstede, G., 1984. *Culture's Consequences - International Differences in Work–Related Values*. Saga: London

Huntington, S.P., 1996. *The clash of civilizations and the remaking of world order*. Simon & Schuster, UK: London

Husted, B., 1999. Wealth, Culture, and Corruption. *Journal of International Business Studies* 30: 339-60

IBRD, 1997. *World Development Report. The State in a Changing World.* Oxford UP & World Bank: Washington DC

IBRD data, 1997, 1999. *World Bank Atlas* and *World Development Indicators* (CD-Rom)

Jain, A. K., ed., 1998. *Economics of Corruption*. Kluwer Academic Publ.: Dordrecht

Klitgaard, R., 1988. *Controlling Corruption*. University of California Press: Berkeley

Lal, D., Myint, H., 1996. *The Political Economy of Poverty, Equity, and Growth. A Comparative Study*. Clarendon Press, Oxford UP: Oxford

Lambdorff, J. G., 1998. Corruption in comparative perception. Cpt 5 in Jain (1998)

Levin, M., Satarov, G., 2000. Corruption and institutions in Russia. *European Journal of Political Economy* 16: 113-132. In special issue: Hillman, A.L., Swank, O., eds. The Economic Consequences of Political Culture

Levine, R., Renelt, D.D., 1992. A Sensitivity Analysis of Cross-Country Growth Regressions. *American Economic Review* 73: 31-43

Mauro, P., 1995. Corruption and Growth. *Quarterly Journal of Economics* 106: 681-712

Mauro, P. 1997. The Effects of Corruption on Investment and Government Expenditure: A Cross-Country Analysis. Cpt 4 in Elliot (1997)

Mbaku, J.M., 1998. Corruption and Rent-Seeking. Cpt 10 in Borner and Paldam (1998)

Nannestad, P., Paldam, P., 1997. The VP-function: A survey of the literature on vote and popularity functions after 25 years. *Public Choice* 79: 213-245

Neff, N.H., 1964. Economic Development Through Bureaucratic Corruption. *American Behavioral Scientist* 8: 8-14. Reprinted as Chapter 24 in Heidenheimer, Johnson and LeVine (1889).

Paldam, M., 1990. Korruption og økonomisk udvikling. *Økonomi & Politik*, 63 (3): 3-20

Paldam, M., 2000. Corruption and religion. Adding to the economic model. Working paper available from: <http://www.martin.paldam.dk>

Shleifer, A., Vishny, R., 1993. Corruption. *Quarterly Journal of Economics* 108: 599-617 (also in Shleifer and Visny, 1999)

Shleifer, A., Vishny, R., 1999. *The Grabbing Hand.* Harvard UP: Cambridge, MA

Rose-Ackerman, S., 1978. *Corruption: A Study in Political Economy.* Academic Press: NY

Rose-Ackerman, S., 1999. *Corruption and Government: Causes, Consequences, and Reform.* Cambridge UP: Cambridge, UK.

Wintrobe, R., 1998. *The Political Economy of Dictatorship*. Cambridge UP: Cambridge UK

Netsources:

Fraser Institute. Data on »economic freedom« are available from <http://www.fraserinstitute.ca/econ.htm> See also Gwartney and Lawson (1997, 1999) under printed references

Freedom House: The Gastil-index is available from <http://www.freedomhouse.org>. See also under printed references

IBRD Anti-corruption knowledge resource center. Much information available including *An Annotated Bibliography*. No date, but frequently updated. Address: <http://www.worldbank.org/html/extdr/anticorruption>

Internet Center for Corruption Research. A Joint Initiative of Göttingen University and Transparency International. Source for Corruption Index. Address: <http://www.gwdg.de/~uwvw/icr.htm> or <http:/www.transparency.de>