# The Effect of International Integration on the Level of Corruption
# A Theoretical-Empirical approach

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## *Abstract*

This paper investigates the relationship between a country's international integration level and its corruption situation. Corruption, defined as dysfunction of an institution or system leading to inefficiencies, can be affected by international factors through economic incentives and social norms and values. More integrated countries tend to be influenced by international rules and target corruption reduction. I am going to test the validity of this assumption for all countries by controlling for general development, as well as geographical and historical factors. Econometric analysis for the sample of 182 world economies strongly confirms my predictions. However, exclusion of OECD countries from the sample changes the outcome revealing that corruption may be efficient in the countries with weak rule of law for the short-run and that international integration factors are not helpful enough in anti-corruption movement for this set of countries. Comparison of these results supports the fact that determinants of corruption are not solely complemented by economic and social factors. An overview of the economy and corruption interconnection on the example of Azerbaijan supports my findings.

*To the memory of Azerbaijani people died in Karabakh*

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## *Introduction*

The debate about corruption pervasiveness in some societies in comparison to others has been analyzed for quite a long time. As corruption conflicts with democratic development and market economy regulations, it is considered obligatory for all governments to develop anti-corruption strategies. This problem continues to exist even in economically developed countries and it is very important to investigate the determinants of corruption in particular cases for each country in order to prevent misallocation and misuse of public office for private gain[1].

This topic is of particular interest due to modern development, globalization and rapid integration of the world economy. Many of newly-established governments, as well as economies which changed to free market structure, suffer from the problem of overregulation and government intervention which often leads to the introduction of corruption as a short-term solution for the market failures. Acemoglu and Verdier (2000) argue that governments will have to increase bureaucracy and create misallocation of resources in order to prevent corruption. However, since prevention of corruption is too costly, it may be efficient to allow for some bribes to be gathered by bureaucrats. However, this effect solves the problem only in the short-run and convergence to the long-run brings economy to general inefficiency again.

In order to measure the effect of corruption on development, it is worth accounting for joint evolvement of institutional settings and economic growth. The effect of institutions on the economic environment is accompanied by the influence of economic indicators on institutional settings. It becomes very important to use instrumental variables or any other methods in order to estimate the relationship robust to endogeneity. In his analysis of

[1] See Sandholtz and Gray (2003) for definition of corruption

corruption and growth Mauro (1995) controls for reverse causality and concludes that corruption decreases investments – determinants of economic growth. Thus bureaucratic efficiency may be as an important determinant of economic development as political stability.

Political regulation and governmental policies are of great importance in controlling corruption through developing conditions for market economy, democracy and competition. Sandholtz and Koetzle (2000) propose that a greater degree of state control, weaker democratic principles and institutions together with lower average income level increase national corruption. In another study, Montinola and Jackman (2002) argue that corruption is significantly dependant on political competition and dictatorships are less corrupt on average than partially democratized countries. This study also discusses the positive relation between membership in OPEC (Oil Producing and Exporting Countries) and environment for corruption flourish.

Countries which are more open to the international exchange of goods and services are more likely to import social rules, policies and norms. Those changes lead to the foundation and development of institutions in order to deal with corruption. Although it is well established that corruption has domestic roots, international transactions significantly influence corruption level. Prevailing international norms put restrictions on the countries with weak institutional settings so that it is a must for them to improve the domestic climate in order to attract foreign investments. Although corruption poses substantial barriers for democratic governance and violates norms of openness and market economy, political scientists have quite recently investigated this topic in a cross-country comparative context. According to Sandholtz and Gray (2003) the more a country interacts with international networks of exchange, communication, and organization, the lower its level of corruption is going to be and empirical analysis of two sets of countries strongly confirms the thesis.

In this paper I analyze the effect of international integration factors, measured mainly through foreign direct investment, on the corruption level. Methodology used in the empirical part of the thesis is pure OLS with the use of factor analysis as a data-reduction method. The outcomes of my cross-country analysis for the sample of 182 countries solidify the well-established fact of the positive impact of international norms on anti-corruption movement. Controlling for general development factors, membership in international organizations, as well as religion and population makes my analysis more complete and consistent. In order to check for robustness of my findings I estimate my model for the sample excluding OECD countries and conclude that the positive effect of international integration factors on corruption reduction and economic development is not straightforward. Empirical results from the estimation of the model for the non-OECD sample prove the hypothesis that emerging and developing economies have deep sources of corruption and are mostly overregulated, leaving corruption as a possible efficient decision in the transition period. Comparison of two different results clearly confirms that developed and economically integrated countries are more reactive to international norms than developing countries. In order to control for reverse causality I used the change in corruption measure. However my results did not change significantly from the ones obtained before.

In the first two chapters I describe the determinants of international integration and corruption which are going to be deeply analyzed in my empirical study. The third chapter describes the data and the methodology used in order to make regressions. In the fourth chapter I discuss the results of the estimation and make a comparison of the two basic outcomes. Afterwards I present a key study supporting the applicability of the obtained results for transition economies on the example of Azerbaijan, although further confirmations demand more exploration from other regions. The last section includes concluding remarks and explores implications for future studies on the subject.

## *1 Influence of International Integration*

International integration factors influence each country's economic, judicial and political system in many different ways; as mentioned before those factors can be conditionally divided into economic and social effects according to their impact. Both types of influences bring the system to the change in institutional settings in order to deal with economic crises, market failures and resource misallocation.

Among economic effects it is worth mentioning the openness of international markets, transnational projects, foreign trade volume and changes in relative price indexes. International economic crises, particularly agricultural, overproduction and stock exchange instability have a significant effect on integrated country's economy. International trade development as a condition for general economy upsurge is highly dependant on the world economic inconsistencies. As a direct indicator of market access, openness is a subject for volatility as a consequence of the changes in highly-integrated economies.

Economic agents make choices over maximization of their utility functions according to balances of costs and payoffs which are directly connected to international exchange movements. The dependence of economic actions on the internationally-established currency units brings the possibility of the single money usage in all transactions. Weak economies suffer a lot from currency volatility and tend to fix their exchange rate to the "hard" currency so that to decrease inconstancy during international transactions. However, this strategy has a negative impact also as it brings the economy to the clear dependence and it does not account for domestic shocks which can result in financial crisis.

Some transnational projects may influence the payoffs of corrupt transactions that can make them more auspicious. It depends on the discrepancy in institutional settings resulting in violation of internationally confirmed rules and norms. From the other point of view it may

be more favorable for potential investors and international agents to engage in corrupt projects because of the comparatively high returns from particular industries.

Social and normative influence is considered to be the natural effect of the impact of international community. By international community I distinguish the social system in which agents cooperate both outside and across the states, and the law that governs such transactions. Decisions about economic activities and interactions are closely connected to normative considerations. This brings economic actors to rational balance between utilities and norms so that none of them prevails. In her political economy research Susan Rose-Ackerman (1978) claims that socially-oriented studies of corruption have to consider the normative approach through focusing on the structure of material incentives. Koetzle and Sandholtz (2000) indicate that corruption is closely related to cultural norms and material motivation. Abbot and Snidal (2001) describe the foundation and development of 1997 OECD anti-bribery convention through the role of agents motivated by utility calculations and actors targeting normative considerations. All these studies one more time confirm the close relationship among social factors and the development of institutional settings; however, more detailed investigation is essential for better analysis of the trend of this interconnection.

International society consists of different types of agents such as governments, nongovernmental organizations, private transnational firms and individuals transacting or dealing across states. In order to function properly, this system has to be subordinated to general rules that constitute and identify standards of conduct[2]. A diverse nature and structure of societies makes it necessary and desirable to combine a single legal system and normative institutions in order to expand international cooperation and get increased payoffs from the

[2] See Williams 1968, 204; Cancian 1975, 1; Klotz 1995, 14; Katzenstein 1996,5; and Finnemore and Sikkink 1998, 891

transactions. In this paper I show that the commitment to international law is quite variable across regions and countries, and is substantially dependant on the degree by which country is integrated to the globalizing world community. Another point to mention is that internal factors should definitely be taken into account in order to correctly estimate the link between corruption and international integration.

## *2 Determinants of corruption*

In this study corruption is defined as misallocation and misuse of public office for private gain. This description of corruption includes many aspects of its influence related to almost all aspects of political, economical and social system. It is considered as an action of certain group of people to take the advantage of public authority for obtaining private dividends. In recent literature there are quite a lot of arguments regarding the nature of corruption including the proponents of defining corruption either as economic drag or political phenomenon. The debate is followed by investigation the efficiency of bribery in the short-run for countries with under-developed institutional settings. However, it is quite obvious that the occurrence of corruption is a great obstacle for the natural development of a market economy free of political intervention.

One of the main determinants of corruption is governmental regulation and policies which lead to formation of highly bureaucratic societies. As a result of these obstacles, demand for corruption increases and it becomes advantageous for economic agents to arrange a corrupt deal. This is the prerequisite for the emergence of international governmental agreements and conventions against bribery and the struggle with the supply of it. Government intervention in the economic system may lead to overregulation and as a consequence increase of bureaucracy. D. Acemoglu and T. Verdier (2000) confirm this proposition by showing that government intervention transfers resources from one party to another, creating corruption. It becomes essential for governments to modify the legislation and national laws in order to decrease bureaucracy within the government. There are supporters of the opposite view, claiming that corruption is the result of the weakness and inability of government to control the economic processes giving too much freedom for market regulations. Shleifer and Vishny (1993) come to conclusion that the main reason for corruption is the feebleness of a central government to prevent different governmental

agencies and bureaucracies from imposing independent bribes. This work also mentions the importance of the creation of competition among bureaucracies by the government for decreasing the payoffs from corrupt acts. Mungui-Pippidi (2006) in his recent study claims that government and change in legislation cannot deal with corruption within corrupt countries. This analysis implies the importance of individual agents approach and qualitative changes in the society. One unarguable fact is that elective competition and primary freedoms in the country are essential in fighting bribery and have to be deterrents of corruption.

Another interesting issue is the causality emerging between corruption and market failures. It is possible that economic crisis leads to the emergence of weak institutional settings and as a result – corruption increase. Economic crises can be followed by financial market collapse, currency depreciation or foreign exchange market failure. Vinod (2001) on the example of Asian countries confirms the proposition. Fixed exchange rate regime may be one of the possible reasons for a developing economy to crash. Even political decisions and regulations can cause the economy to slowdown. Government initiatives to correct for market failures may even worsen the current economic position. Emergence of corruption in such situation occurs due to lack of independent economic policies, expansionary government intervention and weak market regulations. On the other hand, it is straightforward that bribery decreases efficient trade relations and as a consequence may cause market failures. The present simultaneity among corruption and market crises has to be analyzed in a particular country or region in order to achieve gradual and stable development.

In order to control for institutional settings and the role of government actions in determining the level of corruption, I am going to construct a factor for general development which includes such indices as freedom of speech, economic freedom, political stability, state regulations, quality of life, rule of law, globalization, government effectiveness and control of corruption. GDP per capita is also going to be controlled in this factor. The motivation for

creation of this factor is that those measurements are highly correlated among each other and single factor may fully control for all directions of their influence on the corruption level.

Political regulation causing bribery is closely tied to economic determinants of corruption. The proponents of an economic approach to corruption problem claim that perfect competition leaves no room for excess profit and removes the essence of bribery. Absence of competition and pure monopoly by the economic agents lead to the formation of appropriate environment for corrupt acts. However, it is not the case that competition removes the need for bribery. Di Tella and Bliss (1997) propose that a rational corrupt agent may use the possibility of leading the firm to the bankruptcy extinguishing the source of his income bribe.

Another factor closely connecting economic and political determinants of corruption is political stability, which can directly affect the amount of foreign direct investments and question the sustainability of adequate returns from transnational projects. Closed economies are more likely to use corrupt practices because they are deprived from the competitive pushes against corruption that openness yields. International economic competition makes the weak and corrupt firms expect lower profits from transactions and as a consequence exit from the transnational market. The need for foreign capital could make domestic producers go bankrupt in the absence of interconnections with the world market. In their analysis Ades and Di Tella (1999) claim that "competition from foreign firms reduces the rents enjoyed by domestic firms, and this reduces rewards from corruption". This point has counter arguments also as generally corruption caused by political reasons may reduce international trade. Of course, trade magnitude is basely dependant on economic factors than corruption but it is more likely that international agents would prefer uncorrupt partners in establishing business relations.

In their analysis Montinola and Jackman (2002) point out the significance of political competition on the level of corruption claiming that dictatorships are more corrupt on average than democracies. It may seem, however, that democracy and political instability are highly correlated and an autocratic regime is associated with stable government. So in order to address this puzzle careful analysis has to be done to account for specifics of each regime and its interconnection with corruption. A change in regime from authoritarian to democratic or gain of independence usually is highly correlated with economic crisis and increase in corruption. Despite the structural change in the formation of institutional settings and the emergence of conditions for market economy, this period of transition poses the government many challenges. Lack of initial capital makes the economy highly dependant on foreign direct investments. The amount of foreign economic presence in the economy generally has a significant impact on the improvement of institutional settings in the country in order to form favorable environment for capital inflows in developing and transition countries. International economic integration factors are becoming even more essential in this case. In my analysis I am going to control for international economic integration through constructing a factor which includes foreign direct investments, openness, telecommunications, air-flight and tourism receipts. The expected effect of those factors on the reduction of the level of corruption should be positive.



The evidence shows us that it is possible to fight corruption determined by the lack of institutional settings and caused by economic and political factors in the short term. However, it is worth mentioning one of the main sources and determinants of corrupt act: is the cultural factor. Social and cultural aspects of corrupt behavior are closely tied to the economic activities as the cross-country interactions cause the exchange of values and norms. Despite the fact that it is pretty difficult to measure the social aspect of the society, I am going to use some particular factors which have a close causal relationship with cultural determinants of

corruption. One of them is the effect of the membership in international organizations and participation in anti-corruption conventions which induces a positive effect on the change of norms and rules in the social system but the cultural change is quite a long time-consuming process. A country may stay corrupt regardless of showing perfect economic indicators and having strong institutional settings. However, membership in international organizations can affect a country's stable traditions as a need for financial and economic assistance may oblige the country to follow the anticorruption conventions. A positive and significant effect of international organization membership factor on the average corruption score, while accounting for the financial assistance from organizations in the empirical part of my thesis, would confirm that social and cultural determinants of corruption may be influenced. A lot of research has been done addressing this question and it is strongly confirmed that culture plays a significant role in determining the level of corruption. That is one more reason for regional approach in investigating the sources of corruption. As a measure of regional belonging, the average corruption score of border countries will be accounted for in the estimation part. There are quite a lot of studies claiming that countries with prevailing protestant population are less corrupt compared to the countries with other religious majorities. The purpose of including controls for religion is that countries sharing some common cultural traditions are more likely to have similar norms and values in the society. In order to control for cultural determinants of corruption I use membership in international organization factor and the religious affiliation of the countries' population measure in my empirical analysis.



### *2.1 The Global Struggle against Corruption*

Although researches and discussions play an important role in investigating the determinants of corruption and analyzing the possible ways of its reduction, it is obvious that all that is not enough for the successful struggle with bribery. In order to efficiently deal with corruption a lot of practical actions should be undertaken and this process has started quite

recently through the influence of international and nongovernmental organizations. Despite the fact that the effectiveness of transnational anticorruption movement is still questionable, I am going to describe this practice as evidence of the essential impact of international norms and values. Most international organizations, when cooperating with member states, account not only for financial benefits obtained by governments but also for transmission of anticorruption norms. As trade constitutes a very significant part of the country's economy and states try to be members of international trade organizations, it may be an effective way of proposing anticorruption conventions by putting restrictions on the amount and magnitude of transactions on corrupt governments. The absence of constant control over corruption, rule of law, civil liberties and governance significantly reduces the probability of financial projects. There is still a big need to improve regulations in the future for membership in those organizations such as particular criteria for corruption level in order to assure the fair distribution of financial dividends. Here I overview the main policies and projects of the most significant international financial institutions in this field.

The World Bank is considered one of the main international institutions providing financial and technical assistance for developing and poor countries all over the world. Through its two unique institutions – the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) - the bank plays a crucial role in poverty reduction and improvement of living standards among middle income and poor countries respectively. Among the list of its programs the World Bank has pin-pointed bribery as the main barrier for gradual development and economic growth. Since 1996, it has supported and assisted more than 600 anticorruption projects and administrative suggestions initiated by member states.[3] In order to deal with distortion of the rule of law and formation of strong institutional settings the World Bank proposes the anti-corruption

[3] Information obtained from the World Bank official website – www.worldbank.org

strategy[4], which consists of five elements: increasing political accountability; strengthening civil society participation; creating competitive private sector; improving private sector management; and putting institutional restraints on power. Across its regional branches the organization assesses the extent, cost, dynamics and perceptions of corruption in particular regions. The purpose of this analysis is to construct specific anti-corruption strategy for a country and encourage effective reforms.

Another transnational organization considering low corruption level as a requirement for successful partnership is International Monetary Fund (IMF), which is well-known for promoting international monetary cooperation, exchange stability and providing temporary financial assistance. By emplacing conditions on loan provision, the IMF from 1998 (in conjunction with the World Bank) has adopted the Code of Good Practices on Fiscal Transparencies in order to achieve clear and open legal, regulatory, and administrative framework for fiscal management.[5] The organization demands public and fiscal transparency of central and local budgets and disclosure of country reports on payments from multinationals transactions.

Among transnational nongovernmental organizations it is worth mentioning Transparency International (TI), which is considered to be one of the main players in the international anticorruption movement. It is famous for devising and implementing practical actions to fight different corruption areas such as elections, public administration, procurement and business[6]. TI's international network of advocacy and legal advice has a goal of lobbying governments to implement anti-corruption reforms, influence national policies and institutional practices towards a more efficient discouragement, prevention and



[4] Information obtained from the World Bank official website – www.worldbank.org
[5] Information obtained from the IMF official website – ww.imf.org
[6] Information obatined from Transparency International official website – www.transparency.org

punishment of acts of bribery[7]. TI played a crucial role in anti-corruption conventions, being involved in constituting major international agreements such as the United Nations Convention against Corruption and the African Union Convention on Preventing and Combating Corruption. TI was also one of the main constitutors of the OECD's Anti-Bribery Convention. Out of TI's analyical activities it is worth mentioning the annual global corruption report providing useful empirical evidence of corruption all over the world. In the globalizing world there is a big necessity to support anti-corruption movement.



[7] Information obtained from TI official website – www.transparency.org

## *3 Data and Methodology*

The main purpose of the econometrical estimations of the interconnection among corruption and international integration factors is to find some empirical evidence proving the importance but insufficiency of the global influence on bribery. The cross-country data sample consists of 182 states, which reduces to 152 during the estimation of non-OECD[8] sample. Exclusion of highly-developed countries and estimation of the model is done because of a large correlation between developed economy, low corruption and high level of international integration. This may lead to misspesification, as estimation of the whole sample may overlap the real effect of international integration factors on corruption particularly in developing and transition countries. However, the advantage of the large data sample is that the conditions leading to sample selection bias can be relaxed.

Corruption will be used as the dependant variable in all estimations in order to observe the direct effect of determinants on its level. The dependant variables are going to be observed either as factors or separate indicators. In order to control for variety of highly-correlated variables and as a consequence the multicollinearity problem, Factor Analysis will be used which also serves as data-reduction method. General estimation method is Ordinary Least Squares accounting for heteroskedasticity. Despite the fact that time-series analysis seems more appropriate it appeared to be unreliable because of shortage in corruption data. In order to address the problem of simultaneity and the joint determination of corruption with explanatory variables, I am going to use the change in corruption measure so that to reduce the causal relationship. Different specification of the dependant variable will allow us to check for robustness of the main model.



[8] OECD – Organization for Economic Cooperation and Development, includes such countries as Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, South Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States

Determining the level of bribery is very difficult because of the secrecy of corrupt acts so its measurement is usually based on subjective indicators. As the measure of corruption I am going to use the averaged CPI[9] score of all countries for 2005-2007. The point of getting the average indicator of corruption indexes over time is to account for possible dynamics in particular years and normalize the sample[10]. Another reason was to increase the sample size as CPI was not counted for each country in every year. CPI is varying across the 0-10 range, so that a higher score means less corruption and stronger institutional settings. Generally the CPI provides informative data for empirical analysis of corruption as it includes different types of economies. Indicator of change in corruption for the three year period from 2005 to 2007 shows that increase in this measure leads to reduction in corruption and improvement of institutional settings.

The explanatory variables are divided into two groups: those that are variable across time and others that are time invariant. In order to keep consistency with the level of corruption, the independent variables[11] are averaged for three year period 2002-2004. This time period does not overlap with the change in corruption phase used in measurement of dependant variable and as a consequence I expect a reduction in the causal relationship between bribery and international integration factors. I assume that corruption level reacts slowly to the changes in international economic and social factors. By observing explanatory variables during the previous three year span I intend to get more illustrative results.

Variables and factors which are going to be controlled in the estimation part can be divided into several groups regarding the common effect on bribery. Economic integration indicators consist of openness, inflation, economic globalization, Gini income inequality index and foreign direct investment measures. Indicators of international telephone minutes

[9] CPI – Corruption Perception Index from Transparency International issued annually. Methodology together with averaged CPI measures of all countries can be found in Appendix 1.
[10] The CPI country score appeared to be consistent across time
[11] Detailed description and the source indication is provided in Appendix 2

per capita, together with internet users per thousand people, can be considered as economic and social factors having an effect on corruption level. Social integration factors are controlled through literacy rate, religious affiliation (Muslim, Catholic or Protestant), quality of life index, population and years of membership in international organizations such as WTO, IMF, UN and International Telecom. Inclusion of the number of years that countries were members of international organizations have the goal of showing the influence of social norms and values transmitted through those organization on the corruption level. Another point to emphasize is the inclusion of variables to control for financial transactions from international financial organizations such as the IMF and the World Bank. However there may be possible problems associated with the sample selection bias as those organizations finance mostly developing and poor countries, so that the data for this measure are scarce for economically developed countries. Other important development measures, observing state activities heavily correlated with institutional settings and corruption, are going to be controlled through GDP per capita, government effectiveness, rule of law, political stability and state regulations indexes. Possible concerns may arise because of the historical development of institutional settings and high-economic growth in Western Europe and North America as it can affect the identical distribution of sample. This is the reason for including such measures as democracy, freedom of speech and economic freedom indicators. The average corruption score of border countries is going to be included as a regional effects indicator.

Factor analysis revealed three general factors out of twenty indicators, which appeared to have strong causal relationship among each other. The specification of those factors is done according to the correlation matrix results. My expectations about the possible correlations among the variables matched with real results highlighting International Organization Membership, International Economic Integration and Development Factors.

The same happened to occur with non-OECD sample by exclusion of globalization indicator from general development factor list as it appeared to be correlated with economic integration factor group also. Revealed factors are going to be used in regressions parallel to ordinary indicators and possibly reduce collinearity problem. The results of Factor analysis and the contents of all factors can be clearly observed in a rotated factor matrix in Appendix 3.

## *4 Empirical results*

As mentioned before, I am going to estimate two basic regressions including the three factors and other variables on the corruption level for two sets of countries consisting of the whole world and non-OECD countries in order to confirm consistency of statistical results. However, I expect the results from the regressions to be different as my main hypotheses is that international integration has an effect on corruption level but it is not sufficient for transition and developing economies. Later I try to address the problem of possible simultaneity by changing the dependant variable CPI with another measure of difference in CPI from 2007 to 2005. I estimate the main model later by including financial inflows indicators – IMF and World Bank credit per capita and observe the change in the magnitude and sign of the partial effects of other measures. In order to control for variation in heteroskedasticity-consistent standard errors are used in all regressions. The outcomes from first regression are presented in table 1.

**Table 1:** ***Estimation results: OLS regression on Average CPI corruption score (2005-2007)***

| | ***All countries*** | | ***Non – OECD countries*** | |
|---|---|---|---|---|
| *Variables* | *Beta (S. E.)* | *t-statistic* | *Beta (S. E.)* | *t-statistic* |
| General Development (factor) | 2.434 (0.21) | 11.55** | 1.25 (0.136) | 9.146** |
| IO Membership (factor) | 0.407 (0.117) | 3.487** | 0.002 (0.065) | 0.025 |
| International Integration | 0.298 (0.052) | 5.767** | 0.07 (0.09) | 0.742 |
| CPI of Border countries | 0.014 (0.096) | 0.146 | -0.012 (0.11) | -0.106 |
| GINI income inequality | -0.017 (0.014) | -1.229 | -0.014 (0.008) | -1.75 |
| Inflation | 0.003 (0.001) | 2.528* | 0.002 (0.000) | 3.182** |
| Openness | -0.004 (0.002) | -2.07* | -0.003 (0.002) | -1.417 |
| Democracy | -0.095 (0.026) | -3.668** | -0.004 (0.03) | -0.137 |
| Population (log) | -0.102 (0.072) | -1.42 | -3.23 (4.007) | -0.807 |
| Islamic population (%) | 0.007 (0.003) | 2.15* | 0.003 (0.002) | 1.195 |
| Catholic population (%) | -0.002 (0.002) | -0.801 | -0.003 (0.003) | -0.958 |
| Protestant population (%) | 0.008 (0.004) | 2.056* | 0.0002 (0.0054) | 0.0446 |
| Literacy rate | 0.0004 (0.005) | 0.089 | -0.0002 (0.003) | -0.087 |
| $R^2$ | *0.9467* | | *0.8449* | |
| *Included observations* | *80* | | *94* | |

*Note: **p<0.01, *p<0.05, standard errors are heteroskedasticity-consistent*

The results of the first empirical models are similar to my predictions as all three factors appeared to have positive effect on the corruption reduction in both samples. An important result is that they are significant for the whole sample case; however for non-OECD countries only the general development factor is significant. So the results confirm that International Economic Integration and IO membership have a positive effect on the corruption across the whole world-countries, but this effect is slightly biased as the exclusion of economically developed countries brings us less convincing results. Increase in income inequality and population appears to have a negative and insignificant effect on improvement of institutional settings for both samples. Surprisingly, democracy and openness have a strong negative effect on corruption, but for developing countries this effect becomes weaker. The corruption score of border countries as a measure of regional factor has a positive effect for all and negative for non-OECD countries, but in both cases the effect is insignificant. Another unexpected result is the linkage of inflation and corruption as increase in first one causes the improvement of corruption situation according to results. As a measure of social factor, literacy rate appears to be not much of influence; however, it changes sign to negative in the second regression. The impact of religious factors is also of much interest as it states that countries with prevailing Islamic and Protestant population are less corrupt, but the effect is statistically insignificant in the non-OECD country set. The Catholic religion has a negative but insignificant correlation with corruption reduction. Finally, I would like to note that R-squared is pretty high in regressions for both country samples, which basically means that most of variability in corruption is explained by the statistical model.

After inclusion of the controls for IMF and World Bank credit per capita my model changes a lot.[12] The International Economic Integration factor becomes negative and insignificant for the whole sample, but for non-OECD countries the effect loses its statistical

[12] The results from the inclusion of IMF and World Bank credit per capita measures can be found in Appendix 4

power. General development and IO membership factors stay unaffected, by the exception of insignificance of the second for the whole sample. Other variables stay mostly unaffected in coefficient sign and magnitude but significance decreases quite visibly. The model still has appropriate goodness of fit measures though. Financial inflows obviously have specific interconnection with international integration factors, however statistically they seem to be not highly-correlated with international integration factors. The fact that the financial inflows indicator was measured mostly for developing and transition countries makes it more likely that there is measurement error bias in the general outcome. As the financial transactions may be observed as part of international integration, the results appear to be inconsistent. By itself, the World Bank and IMF credit per capita have positive effect on improvement of anti-corruption situation for the general sample; however the effect is statistically insignificant. For non-OECD countries the IMF credit per capita estimator becomes negative and insignificant what can be considered as a surprising fact. This outcome confirms my hypothesis that institutional development in transition countries does not have a clear and strong relationship with international financial organizations although the demand for capital inflows and foreign investments is pretty high. The distribution of norms and values through putting restrictions on corrupt countries does not have an expected effect, although it is worth mentioning that this result is consistent only for short terms.

As mentioned before, to reduce inconsistency followed by possible reverse causality I decided to regress three factors obtained on the change in CPI indicators instead of average corruption score for the same time period.[13] Strong correlation of the change in corruption with averaged CPI score confirms the logical importance of this estimation. An assumption behind this estimation is that change in corruption from 2005 to 2007 is less likely to have a direct effect on the explanatory variables averaged for the 2002-2004 period. However, as

[13] The results obtained from the regression of Development, IO Membership and International Integration factors separately and together with the whole set of explanatory variables on the Change in Corruption can be found in Appendix 5

change in corruption is happening very slowly, there might be an indirect effect through correlation with corruption difference in the previous time period. The results from pure regression including General Development, IO Membership and International Integration factors show that results differ from the outcome of the main model. Change in corruption is positively and significantly affected by the influence of international integration. General development and IO membership factors appeared to be statistically insignificant and the first one becoming negative for the whole sample. This outcome changes even more considerably for non-OECD sample as all the factors except general development change their sign becoming statistically insignificant. It is worth noting that variability in the data is not properly estimated by this econometrical model as R-squared is very small for both set of samples. Later on I include all explanatory variables in the model together with IMF and World Bank credit per capita measures. The results do not change substantially as all factors become statistically insignificant.

Summarizing the results of the model from the change in dependant variable, we can observe nearly the same dynamics as in the case before: successful international integration appears to be an important factor for a better change in corruption in the next time period. However the result is not constant for the non-OECD sample as the direction of the effect changes becoming statistically unimportant. This finding confirms the proposition that the transmission of social values through globalization is happening gradually and that corruption may have stayed unaffected by the transnational financial projects. Improvement in institutional settings is a very slow process which makes it complicated for states to have a rapid influence. Convergence to the level of economically developed countries may happen in the long-term period in the case of substantial influence on internal sources of corruption.

## *5 Corruption in Azerbaijan*

As a country passing through large oil production boom, Azerbaijan is passing through significant changes in its macroeconomic situation and is facing an economic upsurge. Large revenues following the oil boom accelerated economic development and brought the country to high rates of real GDP growth, substantial current account surpluses and improvements in the international position during 2005-2007. Large oil-related capital inflows have enabled the government to raise wages, decrease the unemployment rate and increase development expenditures by more than 80 percent during the last three years. As a consequence, the poverty rate declined and relative progress in non-tradable transactions can be observed. It is worth mentioning that the large current account surplus has led to a considerable increase in gross official reserves and foreign assets, whose sum has substantially exceeded the size of external debt. Non-oil real GDP, which excludes oil and gas production and transmission, increased as non-tradable industries gained from growing government expenditures and banking credits. Despite generally increasing economical and financial indicators, huge oil-related foreign direct investments, expansionary government policies and the significant increase in public expenditures cause hyperinflation. The economy of Azerbaijan is likely to live through "Dutch Disease" as the absence of economy diversification and enormous exploitation of oil reserves may cause economic and financial crisis. It is a well-known fact that "Dutch Disease" syndrome is usually associated with high levels of corruption and stagnation of non-tradable industries. That makes it even more essential for the government to obtain technological growth in non-oil productions and broaden country specialization. There should be strong policies securing right pace of oil-revenue redistribution so as structural reforms fighting overregulation in the economy. Further diversification of the economy is also essential in order to decrease the dependence from oil revenues.

Despite generally improving international integration and increasing foreign economic presence in the country, there are still quite a lot of barriers for long-term gradual development. There is a big demand in improvement of institutional settings as foreign direct investments require secure property rights and uniform financial distribution. Poor results of CPI corruption score[14] are direct evidence of the problems in economic freedom and regulations. According to TI general overview, business climate in Azerbaijan is not favorable. There is a need in more expansionary state policy and social support for protection of interests of potential investors. Despite quite substantial efforts by the government to reduce corruption through establishment of State Anticorruption Commission and adoption of relevant legislation, corruption perception is still very high. Obviously there are problems with conforming to the rules set by the government.

**Figure 1. Corruption index change in Azerbaijan during 1999-2007 years**

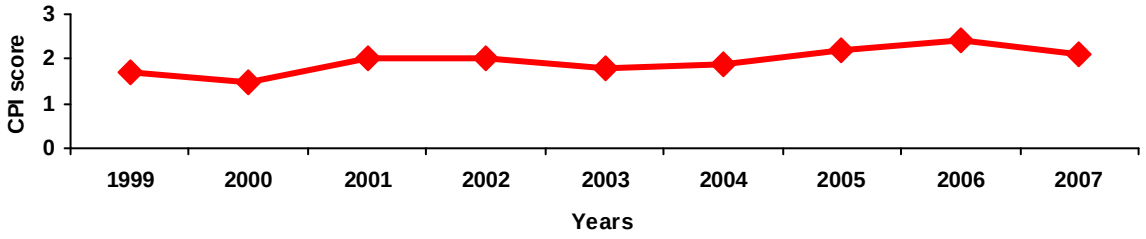
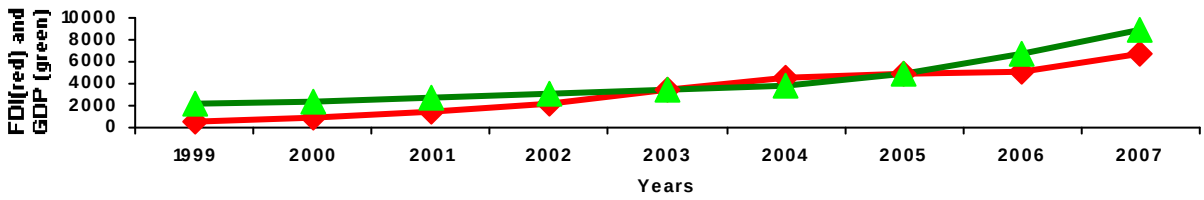



**Figure 2. FDI and GDP per capita movement in Azerbaijan during 1999-2007 years**




From figures 1 and 2 we can clearly see that despite gradual significant increases in the amount of foreign direct investments and GDP per capita levels, the function of the dunamics in corruption is not monotonic followed by slight ups and downs in the level of CPI

[14] The latest results of CPI for Azerbaijan can be observed in Appendix 6

for the same period. It is quite unusual to observe such high development degrees parallel to low institutional settings level. There are quite a few possible hypotheses linking such high degrees of corruption with economical upsurge viewed in Azerbaijan. One of them is the eventual corruptness followed by high capital inflows. Despite political stability there are obvious barriers for economic competition and the prevalence of market economy rules, which cause increase in corruption.

Among the reasons for high corruption a number of historical, religious and regional arguments can be provided. As a result of being former Soviet state, the Azerbaijan suffers from traditionally large bureaucracy, overregulation and weak rule of law. The transition period can be considered as one of the main catalysts of corruption. The foundation of newly-established democratic institutions and market economy is usually followed by high bribery. However, it is not the decisive determinant of the general misregulation in institutional settings. Observing the latest CPI scores of the other two South Caucasian countries – Georgia and Armenia[15] we can conclude that despite common regional and historical factors, the dynamics of change in institutional settings in Azerbaijan is slightly different. For the period of 2004-2007 Georgia rapidly improved its standing in corruption perception index table and passed Azerbaijan. Despite the absence of significant improvement dynamics in Armenia, the observations show that the level of corruption there has been higher than in Azerbaijan for the last five years. The comparison with those two countries shows that, according to its corruption level, Azerbaijan is below both neighbor countries. However, it is worth noting another point such as the factor of natural resources, and as a consequence huge foreign direct investments. As the only oil-producing country in the South-Caucasian region, Azerbaijan is more open to international capital inflows and transactions. However, the factor

[15] The CPI scores of Armenia and Georgia together with the graph can be found in Appendix 7

of international integration does not have the expected effect on the level of institutional settings in Azerbaijan.

My view of this particular situation is somehow going along the empirical findings obtained in the section above. First of all, my hypothesis claims that international integration positively influences the reduction in corruption through distribution of social and normative factors but for developing and transition countries this effect is not straightforward. Strong internal determinants of bribery appear to restrain the impact of international society and corruption may be efficient in bureaucratic and overregulated societies in the short-term. High development of Azerbaijan is linked to huge financial expansion as a consequence of huge foreign direct investments in existing profit-making natural resources. Despite the weak institutional settings in the country, high international presence can be explained by too high returns from investment. This may be the result of materialistic motivation of international investors who do not efficiently push for reforms and improvement in the business climate. Foreign community became indifferent about the insecure property rights and potentially inequitable revenue distribution. In particular situations foreign investors even prefer to support corruption in order to increase their profits and by-pass regulations. As a result, corruption is not efficiently affected by international organizations and social factors. However this situation is less likely to remain in the long-run as an economy will converge to its equilibrium and initial inefficiency in the institutional settings will cause slowdown. However, it is worth noting once more that change in corruption reacts too slowly to causing factors and simultaneous relationship affects the speed of change in institutional regulations. So that makes it relevant for the government to determine the sources of corruption and follow particular restructuring program which will efficiently reduce the bribery and allow the gradual economical growth to persist. It is important to control for international influence factors as increasing capital inflows encourage the unpunished corrupt acts to occur. The

globalizing effect of enforcing anti-corruption movement should be taken into account for efficient achievement of the economy targets.

## *Conclusion*

The results of the analytical part of my thesis provided confirmation for the theoretical hypothesis regarding interconnection of international integration and corruption. The estimation of the model against two sets of countries makes the results more robust and allows comparisons of the developed countries' institutional environment and transition countries' convergence to that level. The influence of international integration on reduction of corruption may occur through the effect of normative and social factors from the membership in international organizations and financial transactions among the countries. The motivation for countries to become less corrupt is linked with all the benefits that international integration may bring including foreign direct investments, credits and loans leading to upsurge in economy.

The estimation of all countries sample confirms the positive influence of international integration on anti-corruption movement. For non-OECD countries this effect becomes insignificant. Inclusion of controls for financial transactions from international organizations makes the impact of international integration factors insignificant for non-OECD and even negative for all countries. This unexpected result can be caused by sample selection bias as the data for IMF and World Bank credit per capita is valid only for transition and poor countries. The model fits pretty well explaining the most variability in the data.

Despite the crucial causal relationship between bribery, international integration and economic development, I managed to reduce the simultaneity problem by averaging the corruption for the next period comparatively to other factors of interest. As an alternative way to control for this problem I used change in corruption measure instead of CPI average score. Slow dynamics of corruption change make it even more appropriate to observe the direct effect of economic and social factors on bribery in the future period. The outcome from the estimation of the initial factors on change in corruption measure confirms my hypothesis

claiming that countries with poor institutional settings tend to react slowly to foreign influence and that internal sources of corruption are weakly correlated with international integration factors.

The efficiency of the globalization on particular countries corruption level is not straightforward as the determinants of bribery in developing countries are not strongly correlated with international integration factors. The case study of Azerbaijan confirms my suggestion once more. Despite huge economic development caused by high foreign investments in the oil industry, the corruption is still on the high level. Institutional development is almost stagnant despite high international integration of the country and governmental regulations aiming to reduce corruption. One of the possible reasons for such situation may be extremely high returns of foreign investors so that they do not push for adequate business climate formation and secure property rights enforcement. In the long term, however, the positive impact of international integration factors on institutional settings development is likely to happen.

This topic appears to be relevant nowadays as in globalizing world there is a direct movement of economical and regulatory convergence for better cooperation. As corruption is a great obstacle for the successful development it is very important to analyze its sources. This paper presents an interesting hypothesis and may be useful in further analyses of the topic. Lack of time-series data for corruption measure made the analysis become relevant only for short-term period. In order to fully address the problem there is a need for longer periodical and more extended analysis of the interrelation of regional and local determinants of corruption with foreign presence in a country.

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# *Appendices*

## *Appendix 1*

### 1.1 CPI Methodology[16]

The Corruption Perception Index is calculated according to the amount of corruption perceptions existing among politicians and public officials. The CPI Index is composed from poll of polls including corruption data from business and expert surveys. The analysis is provided by independent institutions around the world and locally by experts living in the country. Corruption according to TI is defined as "the abuse of public office for private gain", and CPI focuses mostly on public sector, controlling for political and administrative corruption. Surveys, constituting CPI Index, are concentrated on the corruption perceptions among public officials and public procurement, misuse of public funds and the strength of state anti-corruption policies. CPI controls for corruption data from last two years (CPI 2007 includes observations from 2006 and 2007) in order to smooth the effect of the survey outcomes. Index calculation is done by the analysis of 14 sources from 12 institutions. Sources are measuring the general degree of corruption through the magnitude and frequency of bribes in political and public sectors. Sources have to provide a ranking of countries and estimate the general level of bribery. Surveys mixing corruption with nationalism, political instability or decentralization are excluded from the data. In order to qualify the data has to be reliable and well-documented.

Because of the different distribution of survey sources, standardization is done through the matching percentiles technique. The purpose of this procedure is to obtain the mean indicator for each country which will be located in the boundary of 0 and 10. Later, a beta-transformation is carried over those scores, which results in the standard deviation

[16] Information obtained from Transparency International website – www.transparency.org

increase among all countries. All indicators for each country are averaged in order to obtain a final CPI score. The reliability of the CPI data is proved by the high correlation among sources.

**1.2 Average CPI Corruption Score for all countries for the 2005-2007 years**

| | | | | | |
|---|---|---|---|---|---|
| Afghanistan | 2.15 | Congo, Republic | 2.2 | Indonesia | 2.3 |
| Albania | 2.63 | Costa Rica | 4.43 | Iran | 2.7 |
| Algeria | 2.97 | Cote d'Ivoire | 2.03 | Iraq | 1.87 |
| Angola | 2.13 | Croatia | 3.63 | Ireland | 7.43 |
| Argentina | 2.87 | Cuba | 3.83 | Israel | 6.1 |
| Armenia | 2.93 | Cyprus | 5.53 | Italy | 5.03 |
| Australia | 8.7 | Czech Republik | 4.77 | Jamaica | 3.53 |
| Austria | 8.47 | Denmark | 9.47 | Japan | 7.47 |
| Azerbaijan | 2.23 | Djibouti | 2.9 | Jordan | 5.23 |
| Bahrain | 5.5 | Dominica | 5.05 | Kazakhstan | 2.43 |
| Bangladesh | 1.9 | Dominican Republic | 2.93 | Kenya | 2.13 |
| Barbados | 6.83 | Ecuador | 2.3 | Kiribati | 3.3 |
| Belarus | 2.27 | Egypt | 3.2 | Kuweit | 4.6 |
| Belgium | 7.27 | El Salvador | 4.07 | Kyrgyzstan | 2.2 |
| Belize | 3.4 | Equatorial Guinea | 1.97 | Laos | 2.6 |
| Benin | 2.7 | Eritrea | 2.77 | Latvia | 4.57 |
| Bhutan | 5.5 | Estonia | 6.53 | Lebanon | 3.23 |
| Bolivia | 2.7 | Ethiopia | 2.33 | Lesotho | 3.3 |
| Bosnia and Herzegovina | 3.03 | Fiji | 4 | Liberia | 2.15 |
| | | Finland | 9.53 | Libya | 2.57 |
| Botswana | 5.63 | France | 7.4 | Lithuania | 4.8 |
| Brazil | 3.5 | Gabon | 3.07 | Luxembourg | 8.5 |
| Bulgaria | 4.03 | Gambia | 2.5 | Macao | 6.15 |
| Burkina Faso | 3.17 | Georgia | 2.83 | Macedonia | 2.9 |
| Burundi | 2.4 | Germany | 8 | Madagascar | 3.03 |
| Cambodia | 2.13 | Ghana | 3.5 | Malawi | 2.73 |
| Cameroon | 2.3 | Greece | 4.43 | Malaysia | 5.07 |
| Canada | 8.53 | Grenada | 3.45 | Maldives | 3.3 |
| Cape Verde | 4.9 | Guatemala | 2.63 | Mali | 2.8 |
| Central African Republic | 2.2 | Guinea | 1.9 | Malta | 6.27 |
| | | Guinea-Bissau | 2.2 | Mauritania | 2.85 |
| Chad | 1.83 | Guyana | 2.53 | Mauritius | 4.67 |
| Chile | 7.2 | Haiti | 1.73 | Mexico | 3.43 |
| China | 3.33 | Honduras | 2.53 | Moldova | 2.97 |
| Colombia | 3.9 | Hong Kong | 8.3 | Mongolia | 2.93 |
| Comoros | 2.6 | Hungary | 5.17 | Montenegro | 3.3 |
| Congo, Democratic Republic | 2 | Iceland | 9.5 | Morocco | 3.3 |
| | | India | 3.23 | Mozambique | 2.8 |

| | |
|---|---|
| Myanmar | 1.7 |
| Namibia | 4.3 |
| Nepal | 2.5 |
| Netherlands | 8.77 |
| New Zealand | 9.53 |
| Nicaragua | 2.6 |
| Niger | 2.43 |
| Nigeria | 2.1 |
| Norway | 8.8 |
| Oman | 5.47 |
| Pakistan | 2.23 |
| Palestine | 2.6 |
| Panama | 3.27 |
| Papua New Guinea | 2.23 |
| Paraguay | 2.37 |
| Peru | 3.43 |
| Philippines | 2.5 |
| Poland | 3.77 |
| Portugal | 6.53 |
| Qatar | 5.97 |
| Romania | 3.27 |
| Russia | 2.4 |
| Rwanda | 2.8 |
| Saint Lucia | 6.8 |

| | |
|---|---|
| Saint Vincent and | 6.1 |
| Samoa | 4.5 |
| Sao Tome and Principe | 2.7 |
| Saudi Arabia | 3.37 |
| Senegal | 3.37 |
| Serbia | 3.07 |
| Seychelles | 4.03 |
| Sierra Leone | 2.23 |
| Singapore | 9.37 |
| Slovakia | 4.63 |
| Slovenia | 6.37 |
| Solomon Islands | 2.8 |
| Somalia | 1.75 |
| South Africa | 4.73 |
| South Korea | 5.07 |
| Spain | 6.83 |
| Sri Lanka | 3.17 |
| Sudan | 1.97 |
| Suriname | 3.23 |
| Swaziland | 2.83 |
| Sweden | 9.23 |
| Switzerland | 9.07 |
| Syria | 2.9 |

| | |
|---|---|
| Taiwan | 5.83 |
| Tajikistan | 2.13 |
| Tanzania | 3 |
| Thailand | 3.57 |
| Timor-Leste | 2.6 |
| Togo | 2.35 |
| Tonga | 1.7 |
| Trinidad and Tobago | 3.47 |
| Tunisia | 4.57 |
| Turkey | 3.8 |
| Turkmenistan | 2 |
| Uganda | 2.67 |
| Ukraine | 2.7 |
| United Arab Emirates | 6.03 |
| United Kingdom | 8.53 |
| Uruguay | 6.33 |
| USA | 7.37 |
| Uzbekistan | 2 |
| Vanuatu | 3.1 |
| Venezuela | 2.2 |
| Viet Nam | 2.6 |
| Yemen | 2.6 |
| Zambia | 2.6 |
| Zimbabwe | 2.37 |

*Appendix 2*

**Detailed Description and Sources of Independent Variables**

| Variable | Description | Source |
|---|---|---|
| Years IMF Member | Cumulative years of the membership in the IMF | International Monetary Fund (2008) |
| Years UN Member | Cumulative years of the membership in the UN | United Nations (2008) |
| Years WTO/GATT Member | Cumulative years of the membership in the GATT and WTO | World Trade Organization (2008) |
| Years International Telecom | Cumulative years of the membership in the International Telecom | International Telecom (2008) |
| Number of IO Memberships | Number of memberships in International Organizations | CIA World Factbook (2008) |
| Freedom of Speech | Inverted Index of Freedom of Speech from 0 – the worst to 100 – the best | Freedom House (2008) |
| Economic Freedom | Index of Economic Freedom, including Business, Trade, Fiscal Freedoms ranging from 0 – not free to 100 - free | Heritage Foundation (2008) |
| Internet Users per 1000 | Number of Internet users per 1000 people averaged for 2002-2004 years | World Bank Development Indicators |
| Telephone users per 1000 | Number of Telephone users per 1000 people averaged for 2002-2004 years | International Telecom (2006) |
| Quality of Life Index | Combined Index including Cost of Living, Freedom, Economy, Health, Infrastructure, Risk and Safety, Climate and Culture ranging from 0 – the worst to 100 – the best | International Living (2008) |
| Rule of Law Index | Rule of Law Index ranging from -2.5 (the worst governance) to 2.5 (the best governance) | World Bank Institute, Governance and Anti-Corruption Resource Center (2003) |
| Control of Corruption Index | Control of Corruption Index ranging from -2.5 (the worst governance) to 2.5 (the best governance) | World Bank Policy Research Working Paper (2003) |
| Average GDP per capita | Averaged measure of Real GDP per capita for 2002-2004 | World Bank development Indicators |
| Political Stability Index | Index of Political Stability ranging from -2.5 (unstable) to 2.5 (stable) | World Bank Institute, Governance and Anti-Corruption Resource Center (2003) |
| Regulations Index | Index showing the degree to which states encourage foreign investments and trade ranging from -2.5 (the worst) to 2.5 (the best) | World Bank Institute, Governance and Anti-Corruption Resource Center (2003) |

| | | |
|---|---|---|
| Government Effectiveness Index | Index describes the ability of states to effectively deliver public services and make policy ranging from -2.5 (the worst governance) to 2.5 (the best governance) | World Bank Institute, Governance and Anti-Corruption Resource Center (2003) |
| Globalization Index | Index including economic, social and political globalization, ranging from 0 (the worst) to 1 (the best) | Ben Lockwood, Michela Redoano, (2005) |
| Average FDI | Average foreign direct investments for 2002-2004 years | World Bank Development Indicators |
| Number of Airports per capita | Overall number of airports per capita | CIA World Factbook (2008) |
| Tourism Receipts | International Tourism Receipts in Million Current US$ | Development Data Group, The World Bank. 2007 |
| Democracy Index | Combined and inverted Civil Liberties and Political Rights from 2 (democratic) to 14 (nondemocratic) | Freedom House (2006) |
| CPI of border countries | Average CPI score of land-border countries for 2005-2007 period | Transparency International (2008) |
| Openness | Exports plus Imports divided by GDP, averaged for 2002-2004 years | Penn World Table 6.1 |
| Population | Log of average population for 2002-2004 period | World Bank development Indicators |
| Protestant percentage | Percentage of population identified as Protestant | CIA World Factbook, Wikipedia |
| Islam percentage | Percentage of population identified as Muslim | CIA World Factbook, Wikipedia |
| Catholic percentage | Percentage of population identified as Catholic | CIA World Factbook, Wikipedia |
| World Bank credit per capita | World Bank Credit per capita averaged for 2002-2004 years | World Bank development Indicators |
| IMF credit per capita | IMF credit per capita averaged for 2002-2004 years | International Monetary Fund |
| Literacy rate | Percentage of population above 15 able to read and write | World Bank development Indicators |
| GINI Index | Inverted estimate of inequality averaged for 2002-2004 years, ranging from 0 (high inequality) to 100 (low inequality) | World Development Indicators Online |
| Inflation rate | Average inflation rate for 2002-2004 years | International Monetary Fund |

## *Appendix 3*

### 3.1.1 Rotated Component Matrix (All countries)

| Variables | *Components* | | |
|---|---|---|---|
| | General Development | IO Membership | International Integration |
| IMF years | - .009 | ***.851*** | .053 |
| WTO/GATT years | .383 | ***.530*** | .097 |
| UN years | -.160 | ***.889*** | .046 |
| INT. Telecom years | .392 | ***.724*** | .150 |
| Number of IO Memberships | .408 | ***.577*** | .406 |
| Freedom of Speech Index | ***.826*** | .111 | .010 |
| Economic freedom Index | ***.852*** | .028 | .096 |
| Internet users per 1000 | ***.881*** | .078 | .235 |
| Telephone usage per 1000 | ***.928*** | .089 | .139 |
| Quality of Life Index | ***.755*** | .192 | .221 |
| Rule of Law Index | ***.951*** | .125 | .115 |
| Control of Corruption Index | ***.930*** | .190 | .116 |
| GDP per capita (average) | ***.831*** | .143 | .272 |
| Political Stability Index | ***.847*** | -.005 | -.025 |
| Regulations Index | ***.947*** | .122 | .092 |
| Government Effectiveness Index | ***.909*** | .127 | .174 |
| Globalization Index | ***.704*** | .276 | .400 |
| FDI (average) | .184 | .112 | ***.866*** |
| Number of airports per capita | -.016 | .078 | ***.877*** |
| Tourism receipts | .287 | .142 | ***.877*** |

*Note*: Extraction Method: Principal Component analysis
Rotation Method: Varimax with Kaiser Normalization (rotation converged in 4 iterations)
Factor Scores obtained by Anderson-Rubin Method

### 3.1.2 Rotated Component Matrix (Non-OECD countries)

| Variables | *Components* | | |
|---|---|---|---|
| | General Development | IO Membership | International Integration |
| IMF years | -.039 | ***.842*** | -.032 |
| WTO/GATT years | .055 | ***.489*** | -.254 |
| UN years | -.109 | ***.896*** | .038 |
| INT. Telecom years | -.019 | ***.872*** | .116 |
| Number of IO Memberships | .043 | ***.611*** | .335 |
| Freedom of Speech Index | ***.671*** | .111 | -.466 |
| Economic freedom Index | ***.787*** | -.022 | -.165 |
| Internet users per 1000 | ***.808*** | -.073 | .108 |
| Telephone usage per 1000 | ***.850*** | -.133 | .150 |
| Quality of Life Index | ***.643*** | .168 | .184 |
| Rule of Law Index | ***.925*** | .083 | -.067 |
| Control of Corruption Index | ***.886*** | .026 | .067 |
| GDP per capita (average) | ***.481*** | -.170 | .287 |
| Political Stability Index | ***.697*** | -.075 | .047 |
| Regulations Index | ***.925*** | .083 | -.067 |
| Government Effectiveness Index | ***.854*** | .039 | .171 |
| FDI (average) | .169 | .142 | ***.806*** |
| Number of airports per capita | .118 | .124 | ***-.411*** |
| Tourism receipts | .219 | .323 | ***.727*** |

*Note*: Extraction Method: Principal Component analysis
Rotation Method: Varimax with Kaiser Normalization (rotation converged in 4 iterations)
Factor Scores obtained by Anderson-Rubin Method
Globalization Index is excluded from the variables list due to high correlation with other factors

### 3.2.1 Component Transformation Matrix (All countries)

| *Component* | *General Development* | *IO Membership* | *International integration* |
|---|---|---|---|
| *General Development* | **.922** | .258 | .290 |
| *IO Membership* | -.384 | **.718** | .580 |
| *International Integration* | .059 | .646 | **-.761** |

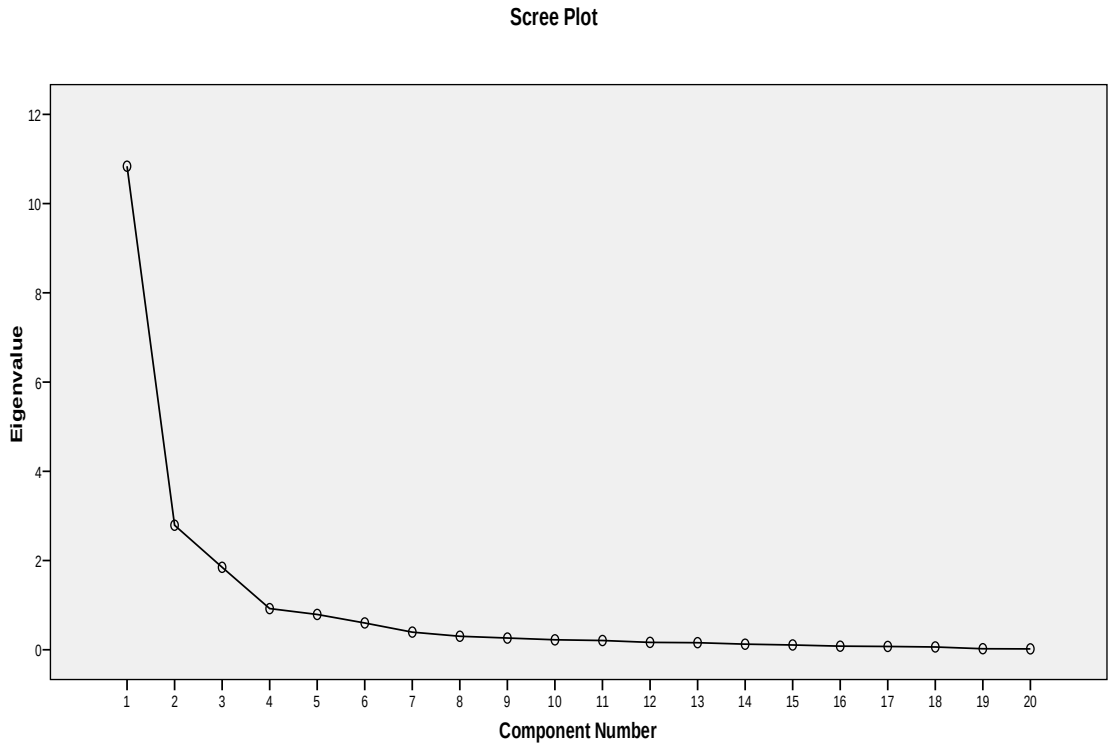
Note: Extraction method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization

### 3.2.2 Component Transformation Matrix (Non-OECD countries)

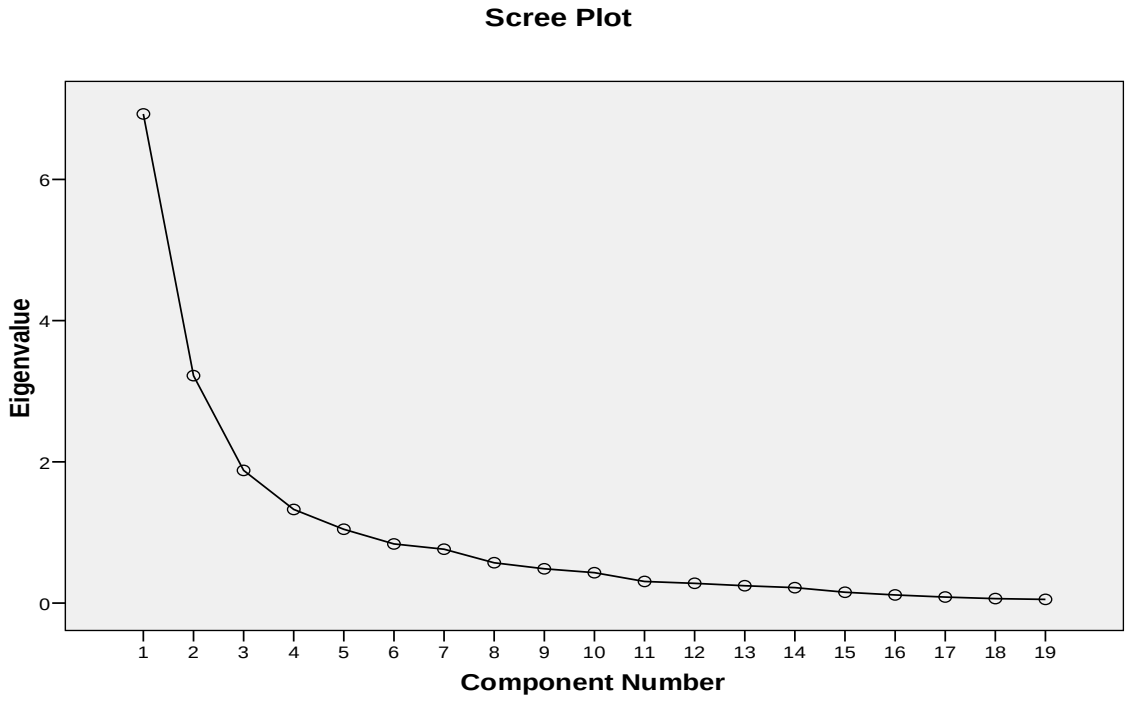
| *Component* | *General Development* | *IO Membership* | *International integration* |
|---|---|---|---|
| *General Development* | **.998** | .016 | .059 |
| *IO Membership* | -.031 | **.967** | .254 |
| *International Integration* | .053 | .255 | **-.966** |

Note: Extraction method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization

### 3.3.1 Scree Plot (All countries)




### 3.3.2 Scree Plot (Non-OECD countries)



*Appendix 4*

**Estimation results: OLS regression on Average CPI corruption score including IMF and World Bank credit per capita (2005-2007)**

| | ***All Countries*** | | ***Non-OECD Countries*** | |
|---|---|---|---|---|
| *Variables* | *Beta (S. E.)* | *t-statistic* | *Beta (S. E.)* | *t-statistic* |
| General Development (factor) | 2.12 (0.36) | 5.83** | 0.86 (0.188) | 4.57** |
| IO Membership (factor) | 0.23 (0.15) | 1.47 | 0.22 (0.107) | 2.08* |
| International Integration (factor) | -0.75 (0.48) | -1.55 | 0.177 (0.12) | 1.465 |
| CPI of Border countries | -0.03 (0.14) | -0.22 | -0.207 (0.13) | -1.64 |
| GINI income inequality | -0.02 (0.01) | -1.39 | -0.004 (0.01) | -0.496 |
| Inflation | 0.04 (0.014) | 2.81* | 0.005 (0.01) | 0.36 |
| Openness | -0.003 (0.003) | -0.82 | -0.002 (0.002) | -0.99 |
| Democracy | -0.118 (0.04) | -2.96* | 0.001 (0.026) | 0.048 |
| Population (log) | -0.14 (0.111) | -1.25 | -3.04 (2.07) | -1.47 |
| Islamic population (%) | 0.009 (0.004) | 2.04* | 0.005 (0.003) | 1.468 |
| Catholic population (%) | -0.002 (0.003) | -0.604 | -0.003 (0.003) | -0.98 |
| Protestant population (%) | -0.018 (0.008) | -2.226* | 0.0003 (0.005) | 0.07 |
| Literacy rate | 0.001 (0.006) | 0.27 | 0.004 (0.004) | 0.89 |
| IMF credit per capita | 7.88 (4.03) | 1.95 | -2.30 (3.14) | -0.07 |
| World Bank credit per capita | 5.828 (9.572) | 0.608 | 15.04 (10.86) | 1.385 |
| $R^2$ | 0.874 | | 0.737 | |
| *Included observations* | 36 | | 63 | |

*Note: **p<0.01, *p<0.05, standard errors are heteroskedasticity-consistent*

## *Appendix 5*

### 5.1 Estimation results: OLS regression of three factors on Change in Corruption from 2005 to 2007

| | ***All Countries*** | | ***Non-OECD Countries*** | |
|---|---|---|---|---|
| *Variables* | *Beta (S. E.)* | *t-statistic* | *Beta (S. E.)* | *t-statistic* |
| General Development (factor) | -0.07 (0.055) | -1.29 | 0.007 (0.045) | 0.177 |
| IO Membership (factor) | 0.003 (0.049) | 0.063 | -0.014 (0.058) | -0.24 |
| International Integration (factor) | 0.103 (0.022) | 4.48 | -0.069 (0.068) | -1.02 |
| $R^2$ | 0.06 | | 0.01 | |
| *Included observations* | 86 | | 102 | |

*Note: **p<0.01, *p<0.05, standard errors are heteroskedasticity-consistent*

### 5.2 Estimation results: OLS regression on Change in Corruption from 2005 to 2007

| | ***All Countries*** | | ***Non-OECD Countries*** | |
|---|---|---|---|---|
| *Variables* | *Beta (S. E.)* | *t-statistic* | *Beta (S. E.)* | *t-statistic* |
| General Development (factor) | -0.399 (0.18) | -2.22 | -0.127 (0.119) | -1.067 |
| IO Membership (factor) | 0.139 (0.124) | 1.13 | -0.03 (0.099) | -0.309 |
| International Integration (factor) | 0.653 (0.38) | 1.71 | -0.049 (0.111) | -0.439 |
| CPI of Border countries | -0.074 (0.093) | -0.797 | -0.006 (0.095) | -0.064 |
| GINI income inequality | 0.022 (0.01) | 1.61 | 0.015 (0.008) | 1.727 |
| Inflation | -0.025 (0.01) | -2.47 | -0.007 (0.009) | -0.813 |
| Openness | -0.004 (0.002) | -1.78 | -0.004 (0.002) | -2.057 |
| Democracy | 0.074 (0.033) | 2.23 | 0.038 (0.025) | 1.49 |
| Population (log) | -0.052 (0.067) | -0.767 | 9.8 (1.16) | 0.842 |
| Islamic population (%) | -0.006 (0.002) | -2.81 | -0.004 (0.001) | -3.13 |
| Catholic population (%) | -0.001 (0.002) | -0.64 | -0.003 (0.002) | -0.118 |
| Protestant population (%) | 0.003 (0.004) | 0.65 | -0.006 (0.004) | -1.22 |
| Literacy rate | -0.005 (0.004) | -1.27 | -0.002 (0.003) | -0.8495 |
| IMF credit per capita | -4.89 (3.52) | -1.39 | -1.63 (1.54) | -1.054 |
| World Bank credit per capita | 5.764 (6.673) | 0.86 | 3.029 (6.595) | 0.459 |
| $R^2$ | 0.578 | | 0.372 | |
| *Included observations* | 36 | | 62 | |

*Note: **p<0.01, *p<0.05, standard errors are heteroskedasticity-consistent*

*Appendix 6*

**CPI results of Azerbaijan during 1999-2007**

| *Years* | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|
| *CPI* | 1.7 | 1.5 | 2 | 2 | 1.8 | 1.9 | 2.2 | 2.4 | 2.1 |

*CPI index varies from 0 – the most corrupt to 10 – the least corrupt*

*Appendix 7*

**Corruption Perception Index Change in Azerbaijan, Georgia and Armenia for the period of 2003-2007**