THE EXTENT OF THE EFFECT OF CORRUPTION ON ECONOMIC GROWTH:
which countries are better off fighting it?

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ABSTRACT

This thesis is aimed at empirically demonstrating that corruption's effect on GDP per capita is correlated with countries' income level: it is negative for high-income countries, but positive for countries where GNI per capita is less than 995 USD. The fixed effects method for the panel data of 152 countries and 14 years is used to find the impact of economic growth determinants: corruption and human capital indices, population and inflation rates as well as foreign direct investment and trade openness estimates. The reasons for corruptive behavior, consequences it brings, and suggestions for feasible policies for the problem eradication are also substantially discussed.

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LIST OF ABBREVIATIONS

2SLS	Two-Stage Least Squares
BI	Business International
CC	Control of Corruption
CPI	Corruption Perceptions Index
EU	European Union
FDI	Foreign Direct Investment
FE	Fixed Effects
GDP	Gross Domestic Product
GE	Government Effectiveness
GNI	Gross National Income
HDI	Human Development Index
ICRG	International Country Risk Guide
IMF	International Monetary Fund
LNGDP_PC	Logarithm of GDP per capita
MRA	Multivariate Meta-Regression Analysis
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
PRS	Political Risk Services
RL	Rule of Law
TI	Transparency International
UN	United Nations
USD	U.S. dollars
USSR	Union of Soviet Socialist Republics
WBES	World Business Environment Survey
WDI	World Development Indicators
WGI	World Governance Indicators

INTRODUCTION

One of the most wide-spread and influential policy problems is corruption. This issue is eternal like the policy itself. Corruption is negatively perceived by society as it is associated with discriminative attitude towards population stratum which is not privileged to enjoy the benefits it can bring. Moreover, corruption is believed to be a significant impediment for economic growth as it can discourage investment activities, deprive the allocation of government revenues from the most important sectors of society's well-being, education and health care, and undermine countries' political stability and government integrity. In short, it can have a negative effect on countries' economic and social conditions, both affecting citizens' lifestyles and standards of living.

This thesis first considers the reasons which encourage people to be involved in corruptive activities, such as weak judicial system, too strict bureaucratic regulations, cultural features and adherence to customs. Then, the effects of a constantly present corruptive environment on the economic growth is discussed.

The main objective of this thesis is to find out whether corruption is a universal problem by analyzing the extent of the effect of corruption on economic growth of world countries depending on their income level. As such, the World Bank criteria for dividing them by 4 main income groups is used: high, upper middle, lower middle and low, totaling to 152 countries for which an almost full data is available.

The thesis is organized as follows. Chapter 1 covers the theoretical part, which discusses types, incentives, and consequences of corruption. Chapter 2 is intended to provide an overview on existing literature stating both for and against corruption's negative influence. Chapter 3 is dedicated for describing the empirical work conducted in this thesis with further discussion of the results and suggestion of possible policy options in Chapter 4.

CHAPTER 1 – THEORETICAL PART

1.1. Problem Statement

Protection is an essential human need, which is not fulfilled in a corruptive environment. However, society has no other options but to obey to the set rules, because of fear of reprisal due to higher extent of lawlessness in more corrupt environments (Transparency International, 2018). Activists who withstand against injustice are usually harshly suppressed, which is an indicator of constrained civil liberties (Gray and Kaufmann, 1998). As an example, according to the analysis conducted by Transparency International (2018), at least one journalist from highly corrupted countries loses his or her life every week due to attempts to speak out against corruption. The indicator is frightening, and such cases are often hidden from the public. Transparency International (2018) also argues that mass media and non-governmental organizations are less protected in the countries with lower Corruption Perceptions Indices.

The corruption term widely ranges in its definitions by the leading international organizations. According to the United Nations, corruption can be defined as "monopoly plus discretion minus accountability", which lists the main 'assistants' contributing for easing the process of law violation; Transparency International determines it as "the abuse of public office for private gain", unveiling a well-known but adroitly hidden fact that authorities, 'the public office', dishonor for their personal benefit; whereas the World Bank stresses the system defect: "a symptom of deep-seated economic, political and institutional weaknesses", which could possibly be eradicated with a well-structured plan (Lučić et al, 2016, p.360). Thus, the main idea stands behind the authorities' misuse of political power and disruption of moral norms. More generally, corruption is mostly an illegal act, correlated with bribery and

abuse, which are both governmental and society problems coming from the institutional drawbacks.

The extent of corruption varies around the world with governments, institutions and organizations, ranging from rare to systematic (Gray and Kaufmann, 1998), and bringing serious consequences as corruption can prevent countries from economic development, which is usually achieved though the performance of the combination of several main and many more supplement indicators: attractiveness for foreign investment activities, contribution to human capital development, government budget allocation on education, health care, social security and infrastructure, etc. These aspects are to be coordinated by the central government to reach the long-term goal of promoting the country on a higher level of development.

1.2. Types of corruption

There are many possible forms of corruption such as fraud, extortion, peculation, nepotism, bribery, etc. These are set into categories as follows: bureaucratic corruption, which is also called 'petty corruption', and political and grand corruption. The primary difference between them is that the first two are decentralized, whereas the grand corruption is based on the principle of only one 'beneficiary' of the bribe or any other authorities' illegal act (Emerson, 2017). The name for this type of corruption comes from its scale and consequences, which can affect the entire country's economy. Moreover, only high rank officials are engaged in grand corruption (United Nations Office on Drugs and Crime, 2003). Here, the whole process is centralized, and the size and the quality of the 'benefit' are decided by the one official based on his preferences and degree of power. No other payments are applicable afterwards comparing to the other two categories (Yun, 2015).

The very name of bureaucratic corruption unveils its connectedness to bureaucracy regulations' avoidance. The reasons for the decentralized bureaucratic corruption occurrence

are mostly miscoordination and misallocation of duties, when the actual possessor of a requested governmental good is not obviously defined, because there are often several officials who are in control. Moreover, a complicated hierarchy built in the governmental system also creates a set of complexities, meaning that all the level officials expect to receive some gratitude for the rendered services to be advanced further. So, bribers can be paid for the same good or service more than once (Yun, 2015). Petty corruption is also distinguished by the involvement of small amounts of money and minor positioned authorities' services (United Nations Office on Drugs and Crime, 2003).

Political corruption is different in a way that it is based on avoiding or forcing the law and usually occurs in the state-level legislative processes. Law breakers are interested in finding the ways for evasion, law makers are seeking for the ways of putting the law in their own favor. Both intentions are illegal and lead to criminal liability. Moreover, the election events also fall under this category as they often imply 'vote-buying' behavior (Yun, 2015).

Nevertheless, the degree of the effect of any corruption behavior depends on the range of its prevalence: from rare to systematic. Rare cases essentially bring less harm as the frequency of their occurrence does not contribute much to its extent, which is, however, cannot be said about the systematic incitement, deep-rooted in some societies (Gray and Kaufmann, 1998).

1.3. Incentives for corruptive behavior

For any disease treatment to be effective, not its symptoms, but the root causes should be determined and cured. As there are always two core parties in the accomplishment of any corruptive activity, both expect to receive some benefits from it, whether in a monetary or a service form. Therefore, the incentives for both sides are to be considered.

The benefits which are expected to be received from public workers for an equivalent money repayment are described below:

1. *Government contracts*

   Procurement is an inseparable and defining part of any project implementation as it's responsible for providing necessary goods and services used by the government whether for mandatory or discretionary needs of the state. In case of a service provision, the works are mostly done by the third parties hired by the government (Hart et al, 1997). There is a 'casting' for the firms' services, i.e., the full project plan and the required resources are to be presented to the government authorities to be further selected on a competitive basis. Since government budget usually allocates substantial amounts of money for the selected firm to take the responsibility for the project, the competition is huge as the interest is high. As such, the corruption behavior often takes place for the government contracts (OECD, n.d.-b).

2. *Time saving*

   Bribes offered for carrying out legal regulatory activities are widely perceived as an approved way of speeding them up. However, Gray and Kaufmann (1998) prove its inefficiency by evidencing the time spent with government bureaucrats being higher for the countries with higher Corruption Perceptions Index. So, even though there are proponents for corrupt practices, who state that it helps to get business done more easily and quicker, for example, giving a bribe can speed up the accumulation of

necessary documents such as licenses, visas, contracts and permits, and as so, the World Economic Forum's Global Competitiveness Survey conducted for about 3,000 companies of 59 countries revealed that negotiating the required documents and services to be proceeded takes more time than it would if the established regulations were strictly followed. Kaufmann and Wei (2000) also conducted an empirical research based on three worldwide firm surveys concluding that bribes do not save time and cost of capital but, on the contrary, more resources are wasted.

3. *Influencing outcomes of legal and regulatory process*

The last listed incentive is due to weak judicial system as it is the main contributor to undermining the trust of citizens and fueling their fear in the face of justice, which can be easily compromised in corrupt countries by interested individuals who acquire the power of either word or money (Gray and Kaufmann,1998). Thus, more powerful people can use this weakness of the system for venal purposes.

The main incentivizing reasons for government employees, who are the leading party engaged in illegal activities as they are in charge for the supplied services, is a substantial amount of money, which is sometimes psychologically accepted as a tax waiver or wage supplement received (Yun, 2015). This way of thinking is probably common to those who have a feeling of guilt and, therefore, try to treat the act of receiving the gratitude as act of necessity. Obviously, corruption is a slippery trail in increasing the income and seeking for personal interests' satisfaction, however, it usually does not happen for no reason and because of a comfortable life: low salaries and a desire to provide the family with prosperity can lead to considering and forcing themselves to commit an act of corruption. As follows, low standards of living can cause using the country system's drawbacks to survive (Gray and Kaufmann, 1998). Mauro (1997, p.5) argues that low-paid public workers may tend to extract bribes because "expected cost of being caught is correspondingly low". Moreover, if benefits

from rent seeking prevail the rewards from productive work, then employees may be willing to engage in illegal activities (Mo, 2001). Nevertheless, civil service position and reputation are worth to be conserved for future well-being. However, myopic perception of well-being and desire to be provided with as much benefits in the present as possible still serve as a strong incentive for public officials to charge bribes. Piplica and Čovo (2011) also state that low income serves as an inventive to conduct corruption.

However, there is another reason, which is peculiar to Commonwealth of Independent States, particularly Central Asian countries (Oka, 2013). Former USSR countries share common history, which affected both the cultural subtleties and their standards of living. Being transition economy countries, as they are often defined, they had to adjust to a different way of market structure, i.e., to suddenly transform from socialism to capitalism (Oka, 2013). Even though the countries reached varying alteration and adaptation levels, most of them are still permeated by a feature, which was perceived as a social norm before the transition, and now creates substantial obstacles to the development: a corruptive behavior (Gray and Kaufmann, 1998). A bribe 'tribute', which is often gifted to get favored by a high standing official, is treated as a way of proving the respectability and a rank of a receiver. This kind of reverence used to be and still is accepted as the nature of things. And although before 1991 it was mainly backed by kinship relationships mercenary use, today it's a widely applied practice, which is not aimed to be eradicated but even more firmly entrenched in the minds of people.

1.4. Consequences

The negative effect of high rates of corruption on economic growth has been repeatedly proven by many researchers and international organizations. The consequences of corruptive behavior are described through the prism of its effect on several indicators of the standards of living of citizens and countries' economic development: investment level, opportunities for human capital advancement through qualitative education and health care enhancement, judicial system quality, political stability and governmental integrity, which all can positively influence country's potential for progress and can be undermined by highly corrupt environment.

1. *Resources aversion from human capital development*

   One of the most significant determinants of economic and social growth is human capital development (Boldeanu and Constantinescu, 2015). Healthy and productive human capital requires enough spending on its basic and essential development needs, health care and education (Fraj and Lachhab, 2015). Undoubtedly, human capital is such a kind of asset that requires constant contribution to its enhancement by raising the level and quality of education and health care services. These are integral, if not predominant, elements of any growth strategy. Moreover, education- and health-directed governmental investments result in economies of scale advantage and positive externalities such as increased concern and interest of the population in the fields' enhancement. Not recognizing it as a crucial part of growth strategies can lead to very deplorable consequences of low growth in the literacy rate and education level, but high mortality and morbidity rates, and, as such, low human capital productivity.

   The resources misallocation comes from often successful attempts of public funds diversion, distributed for the development of educational system and health care in the

country (Shleifer and Vishny, 1993; Tanzi and Davoodi, 1997; Fraj and Lachhab, 2015). It often happens because the goals and the level of required improvements are ambiguous to be determined strictly. As so, in-charge people create an appearance of stormy activities towards development, while trying to fetch part of allocated resources for themselves by decreasing either the scope or the costs of project implementation, or even both, and, as such, replenishing their personal capital. Therefore, in the long run, it results in no significant changes to the level of productivity as not enough contribution was made towards human capital enhancement.

2. *Investments unattractiveness*

Corruption does not only impede the acquisition of knowledge but can also discourage investments and undermine business management (Mauro, 1997). It happens because often investors are 'forced' to get engaged in the process of corruption by paying the bribes and accepting the set rules of gratitude distribution to the authorities (Oka, 2013). Disinclined domestic and foreign investment is also due to the market dishonesty (Shleifer and Vishny, 1993; Fraj and Lachhab, 2015). Successful business strategies are difficult to be implemented in an unstable and unreliable environment. Thus, the incentives to be engaged in such precarious business activities weaken.

Moreover, competitive environment is a prerequisite for healthy economy as it regulates supply and demand and clears the markets. Corruption distorts it because it provides with privileges, which are sometimes unavailable for others, so that the oligopolies and monopolies are formed (Gray and Kaufmann, 1998; Chêne, 2014).

Corruption can also cause a significant damage to the existing investment projects as it prefers cheaper equipment, which are often of a low quality. Firstly, this kind of

equipment amortize quicker, so that further renewals and improvements are required earlier. Secondly, it is more likely to be prone to the emergency situations also due to a non-satisfactory quality. As a result, both security and productivity of the investments are doubtful.

3. *Political and social instability*

IMF claims that "Many of the causes of corruption are economic in nature, and so are its consequences – poor governance clearly is detrimental to economic activity and welfare" (Lučić et al, 2016, p.363).

It is essential for the government to be trustworthy for its citizens as people literally entrust their lives and fates in the hands of a few people, who represent the government. Political stability is an index of the government efficiency and integrity, its legislative and executive power (Lambsdorff, 2003), it ensures both citizens and foreign investors in the solidity and reliability of the country. Thus, political stability should be the number one goal of any nation leader.

Nevertheless, this goal is often backed up and disregarded, allowing for corruption to prevail. Corruption has nothing common with stability if taxes which citizens pay and laws they agreed to follow are misused. Corruption is a deliberate choice of the government and the main obstacle in implementing the generally promised stability plan. It is an indicator of the weak governance, reliability threat and focus on personal benefit (Lambsdorff, 2003). Thus, corruption undermines the political stability and government trustworthiness.

Human rights, freedoms of movement, beliefs, actions, expressions and personalities are what a human being possesses by birth, by default. Nevertheless, it all must be protected, ensured and no one has the right to encroach on it. Inequality in opportunities resulted from corruption is a socioeconomic problem, which can

eventually spill over into indignation of society and political instability (Mo, 2001). Providing with a civil liberty, with equal possibilities and rights is the governmental duty, and the corruption is a direct path to the violation of these values (Lambsdorff, 2003).

4. *Judicial system untrustworthiness*

   Judiciary is the other influential authority sector, which duty is to set pervasive and appropriate laws, protect rights for freedom of speech, action and property (Lambsdorff, 2003). Corruption affects this part of the governmental system as well, supporting the illegal actions of selling the laws and taking judicial decisions in favor of the paying party. Thus, the government integrity system suffers huge shortcomings.

5. *Government revenues miscalculation*

   One more significant drawback coming from corruption prevalence is miscalculation of the government earnings, i.e. tax revenues (Yun, 2015). Since corruption is a hiddenly received revenue, it cannot be legally taxed. So, the money could be considered as gone for no cost item. Moreover, in cases, when corruption helps individuals to exercise tax evasion, government treasury suffers from lower revenues received (Chêne, 2014).

All the listed growth determinants are directly affected by the corruption. Education and health care systems' deterioration, public and private investment recession, political instability and disintegration can lead to hardly recoverable situation, which could not just affect the country getting stuck on the same level of development but result in a decline in the living standards. As such, the negative consequences of the corruption can take a long-run path (Fraj and Lachhab, 2015).

CHAPTER 2 – LITERATURE REVIEW

Existence of a substantial discussion of the correlation between corruption and economic growth on the macro level is at the hearing in academy as it has been repeatedly studied since 1990s until nowadays with the occurrence of common indices measuring perceptions of corruption worldwide.

One of the most cited academic works is Mauro's (1995) Corruption and Growth article published in the Quarterly Journal of Economics. The author empirically proves that corruption tends to lower economic growth through undermining its robust determinant, investment rate, and connects corruption activity prevalence to governmental and judicial institutions' malfunctioning. Business International indices available for the period of 1980-1983 for 67 world countries include nine indicators of political stability and bureaucratic efficiency, where corruption is an integral indicator. 1960-1985 average for total investment to GDP ratio and GDP per capita growth rate per country are taken as dependent variables in this study.

Next year, Mauro (1996) further extends the scope of research conducted in Mauro (1995) by adding the International Country Risk Guide indices for 1982-1995 time periods of more than 100 countries and averaging the two indices so that there is one observation per country. The result of the negative effect of corruption on investment rate and annual GDP per capita growth rate, both averaged for 1960-1985, is consistent with the previous work. However, even though averaging all the estimates makes it possible to conduct a simple cross-sectional regression, it can blur the effect as time trends are important to control for in estimating the correlation between variables. Moreover, the extent of the effect can vary much with countries' level of development and historical background. Therefore, the fixed-effects specific to each country are also crucial to consider for in looking for that kind of

macroeconomics relationships. And even though Mauro (1995) lacks these two prerequisites for qualitative analysis to be complied with due to BI indices are only available on the averaged basis, in the research of Mauro (1996) the estimates for ICRG are averaged for the consistency of data.

Three more datasets on government expenditure composition are also added with the aim of examining whether public spending more tends to be allocated to the areas where it is easier to take bribes or launder money. According to Mauro (1996), share spending on education with increased corruption in a country. As such, decreasing corruption rate in a country can flourish its economy through the means of human capital development connected to the increased spending on education (Mauro, 1998).

Correlation between corruption and investment is also of interest in Tanzi and Davoodi's (1997) IMF working paper. In support to Mauro (1996), Tanzi and Davoodi (1997) find that corruption facilitates pulling the government expenditures from growth-aimed projects such as education, health and operations and maintenance, to those where public authorities can easily levy bribes. This leads to lower productivity of public investment. Thus, quality of infrastructure and government services suffers in the first place, which, in turn, have a detrimental effect on growth. Tanzi and Davoodi (1997) also concluded that high public investment does not necessarily foster GDP per capita, especially in highly corrupt countries.

Similar to Mauro (1995, 1996), Tanzi and Davoodi (1997) used the same time interval and indicators' sources in the research: BI for 1980-1983 and ICRG for 1982-1995. However, unlike Mauro (1996), Tanzi and Davoodi (1997) left the ICRG indices on the annual basis, thus increasing the number of observations to around 1,000 depending on other independent variables included in the models. Though, used OLS model indicates that the data is not

panel. Since the regression output does not contain the time dummies, it is difficult to evaluate how the variables are distinguished by countries during the studied 16 years. The authors find the decreasing effect of corruption on public investment when adding the real per capita GDP into the model and the increasing effect in case of adding government revenue-GDP ratio, however, the variance explanatory power of the adjusted R-squared does not exceed 9 percent in the first model and 21 in the second. As such, the lack of other independent variables could distort the results.

One more popular article which discusses the corruption issue is that of Mo (2001). The author uncovers the negative effect of corruption on economic prosperity, expressed as GDP growth rate, through its transmission channels: diminishing private investment rate and level of human capital, and rising political instability, with the last one contributing of more than 50 percent to the overall effect.

Similar to Mauro (1995), Mo (2001) finds that necessity to pay bribes discourages private investment. Inelasticity of demand for goods and services provided by the government such as permits and import quotas makes it attractive for public officials to benefit from this monopoly. TI CPI is collected for 1980-1985, and the data for the rest of the independent variables covers 1970-1985 time period. Nevertheless, conducted ordinary OLS and the restriction to 46 observations, which is the number of investigated countries on which the data was fully available, concludes that the data is averaged for cross-sectional analysis. It is also notable that the correlation coefficient between corruption and growth rate is weak and negative, namely -0.18.

The fifth pillar to discussion of corruption's negative effect on economic growth written before 2010 is the work of Aidt (2009). The author makes an interesting remark regarding the methodology to quantify the actual welfare of the society: GDP per capita does

not represent the real welfare of every citizen. Thus, Aidt (2009) considers genuine wealth as an economic prosperity indicator. Genuine wealth per capita is received either by multiplying genuine investment as percent of GNI by GNI-wealth ratio and subtracting population growth rate or directly from adjusted consumption rate. Aidt (2009) finds that genuine wealth per capita is negatively affected by high corruption rate, while the correlation between GDP per capita growth and the studied variable is not statistically significant. Concerning the choice of the variables, Aidt (2009) differentiates between TI and WBES estimates to observe their effect on the growth rate of GDP per capita separately. However, when testing for the genuine wealth, both indices appear on the same regression model. With the aim of checking for institutional conditionality, the author adds the rule of law estimate as an interaction term to both corruption indices as well as a separate variable, proving that the extent of the effect of corruption on economic growth varies with the development of the countries' internal political strength and democracy. Notably that the sample of countries do not include any former Socialist countries. Conducted simple OLS and 2SLS, when the 1st stage F test is performed, and the number of observations restricted to the number of studied countries ranging from 60 to 73 depending on specifications demonstrate that time specific features of each country are not taken into account.

There are two more most cited papers, whose authors are, however, the contributors to recognizing the perks of corruption prevalence in the public sector.

The first is the work of Acemoglu and Verdier (1998), which contradicts to Mauro (1996) as it states that bureaucratic corruption can help promote investment rather than discourage it. Corruption is discussed from the perspective of property rights provision by the government arguing that its strict and full enforcement can create significant obstacles in investment business process for less developed economies. First, it should be made clear

what the authors imply by the property rights: those are the contracts secured by the government to ensure goods and services quality and provision credibility.

The main statement against the full enforcement of property rights proposed by the paper is that it is too costly, as such, there is an optimal level defined by this paper: as not fully enforced property rights create incentives for the entrepreneurs to breach some contract regulations, rents are to be paid to bureaucrats to prevent the violation of regulations by suppliers and producers. Though, Acemoglu and Verdier (1998) also mention that too corrupt bureaucrats disincentivize the investment activity. The probabilistic nature of the assumptions leaves the conclusions conditional on the autonomous factors across countries.

Aimed at observing the effect on the aggregate efficiency, Méon and Weill (2008) differentiate between the directions of the impact of corruption with respect to the level of institutional efficiency, stating that corruption prevalence 'greases the wheels' in inefficient, but 'sands' them in efficient governments. The research is conducted among 54 countries for 1994-1997 time periods, each specified by a year-dummy variable. Stochastic frontier model, analyzed by the maximum likelihood estimation, consists of the formulas for expressing production frontier, based on Cobb-Douglas production function with each variable expressed in per unit of labor term, and for the specification of countries' inefficiencies. The World Governance Indicators except for Control of Corruption were added in interaction terms with three different corruption indices. Apart from finding a general negative effect of corruption on aggregate efficiency, authors present the evidence for 'greasing the wheels' hypothesis, which states that allowing for corruption is beneficial for inefficient governments.

The next five discussed research papers, which are published from 2011 to 2018, support the statement that corruption is detrimental to economic growth.

The work of Piplica and Čovo (2011) is aimed at analyzing the effect of corruption on GDP per capita for the period of 1995-2009 of Croatia and other ten EU countries transited from centrally planned to market economy. The researchers rely on Corruption Perceptions Index of Transparency International even though they state that the measure is rather qualitative than quantitative as it is based on perceptions of corruption but not on its exact mathematical estimates (Piplica and Čovo, 2011). They support the choice of the corruption level measure by arguing that it is combined from the reports of reputable experts. A strong direct and not lagged negative influence of corruption is mainly attributed to the process of privatization, which is described as "the ability to purchase state enterprises at prices far below market values" (Piplica and Čovo, 2011, p.95). Due to the availability of TI CPI for the period of 1999-2009 for Croatia and of 1995-2009 for the rest 10 countries, the studied period is restricted to this timeframe. Thus, the panel data contains 137 observations, while Croatia is studied separately with its 11 observations. Simple OLS regression with the only independent variable of CPI resulted in the adjusted R-squared estimate of 0.282 and the p-value for CPI's coefficient of 0.054 for Croatia and 0.304 and 0.000, respectively, for 10 transition EU members. The very restricted countries choice allows to make conclusions with respect to the selected countries only. Moreover, the estimate for CPI's coefficient could hide some omitted variables' effect on GDP per capita as it is the only independent variable included in both regressions.

Trabelsi and Trabelsi (2014) go further in their work and find the threshold of the optimal for economic growth level of corruption. For this purpose, the non-linear quadratic relationship between annual GDP per capita growth and ICRG index, scaled from 0 to 6, where lower level indicates higher corruption, is found for 88 countries covering a broad 28 years period, resulting in 2464 observations. The finding is outstanding among similar research papers as the authors state that both low and high levels of corruption can be

detrimental for economic growth unless its optimal level of 2.59 of ICRG is reached. As such, the paper concludes that moderate corruption is preferred over its full eradication. Having an almost absent correlation between ICRG and other independent variables of FDI, inflation and trade allows for more explanatory power, however, the correlation with the dependent variable is not observed in the analysis. Moreover, it is important to note that the dataset is restricted to 88 seemingly randomly selected countries, where the growth rate concentration comes for 1.5-6 percent range.

Fraj and Lachhab (2015) focused on the indirect effect of corruption on human capital accumulation measured by education index calculated by combining the literacy, and primary, secondary and tertiary enrollment rates among 26 developing countries. Fraj and Lachhab (2015) stress the strongly negative impact of both high corruption rate and political instability on human capital accumulation in developing countries and concluded that highly corrupt countries tend to be less democratic, which, in turn, affects the distribution of public expenditures. A broad range of variables are included in the model: panel data is collected for the period of 1996-2013 for physical and human capital, force labor growth rate, quality of institutions aa well as political stability and corruption measures. Though, the variance of the dependent variable is only explained by around 25 percent.

Hassaballa (2017) used an instrumental variable method to alleviate or, if possible, fully eliminate the endogeneity problem arising from the two-way relationship between an independent variable of corruption and a dependent variable of income per-capita. The studied scope covers 1996-2013 time period for 12 developing countries, for which the data is available, and the 2SLS model is used where the number of internet users and a lagged corruption level are the instrumental variables for regressing the corruption level expressed by TI CPI. The results conclude that only the lagged corruption level is an adequate instrumental variable, thus, it was used on the second stage to prove the negative influence of

corruption on GDP per capita. Gross fixed capital, gross secondary school enrollment, population growth, trade openness, and an inflation rate were added as independent variables to demonstrate the extent of influence of various economic growth determinants.

The paper of Aziz and Ahmad (2018) analyzes the effect of institutional efficiency reflected by the levels of corruption, democracy and armed conflicts in fostering economic growth of countries by income groups: high, middle and low. A simple OLS regression for cross-sectional data of 126 countries and pooled OLS and fixed effects methods for panel data of 106 countries for 2000-2009 are the used tools. The results of the FE regression will only be discussed here as averaged cross-sectional data as well as panel data with no fixed effects consideration are much less reliable to be interpreted. The authors concluded the negative effect of corruption on economic growth only for high- and middle- income countries, while positive but not significant for developing economies.

However, no empirical paper can be easily compared to the other as none is based on similar methodology approach, data and country coverage. Nevertheless, there is a method of comparing the partial correlation coefficients: a multivariate meta-regression analysis, which was used by Mehmet Ugur from University of Greenwich in 2014 to overcome the heterogeneity problem and to check for the wide applicability of results reported in 29 primary studies published from 1996 to 2009. The MRA model is based on general-to-specific procedure of excluding the variables constituting insignificant effect.

Even though there is a negative correlation between two variables after controlling for within-study dependence and publication selection bias, Ugur (2014) also states the adversity of the effect of corruption on per-capita GDP growth due to the diversity in investigated time periods and countries by income groups. As such, general conclusion of the negative impact cannot be driven from not robust results.

CHAPTER 3 – EMPIRICAL ANALYSIS

3.1. Data

As corruption is mostly clandestine, the availability of estimations is constrained by its perception indicators. Transparency International's Corruption Perceptions Index, the Worldwide Governance Indicators provided by the World Bank, and the Political Risk Index of Political Risk Services International Country Risk Guide are the most widely used among them. While CPI is based on assessing the corruption perceptions only, other two indicators provide with more comprehensive information on countries' governance system such as: Voice and Accountability; Political Stability and Absence of Violence/Terrorism; Regulatory Quality; Government Effectiveness; Rule of Law; and Control of Corruption.

Nevertheless, CPI 2018 combines data collected from 13 global sources, one of which includes the PRS Political Risk Index. Corruption Perceptions Index and the last three listed Worldwide Governance Indicators are selected for the research in this thesis, while ICRG is not included.

1. The range of CPI scores is (0; 10) for 1995-2011 and (0; 100) for 2012-2017, where 0 stands for the least corruption level. Scores available for 1995-2011 were multiplied by 10 for the consistency of data.
2. All WGIs range from -2.5 to 2.5, where higher values define higher quality of indicators. For evaluating the misinterpretation error due to the negative signs of indicators, the range was rescaled to (0; 5) format.

WGIs are also based on perceptions and the precise definitions of the indicators are as follows: Government Effectiveness "reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's

commitment to such policies", Rule of Law "reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence" while Control of Corruption "reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests" (Kaufmann et al., 2010, p.4). Following the example of Méon and Sekkat (2005) and Méon and Weill (2008), GE and RL indicators are included in the models with the aim of observing whether the extent of the effect of corruption depends on the quality of governmental institutions.

The extent or even existence of the effect of corruption on economic growth is observed depending on countries' income. For 2019 the World Bank divides the world countries by four income groups by their GNI per capita for 2017: more than 12,056 USD – high-income; from 3,896 to 12,055 USD – upper middle-income; from 996 to 3,895 USD – lower middle-income; and less than 995 USD – low-income economies. Due to the data availability constraints, 152 countries are analyzed in this thesis: 49 are high-income, 42 – upper middle-income, 35 – lower middle-income, and 26 are low-income countries. List of countries is presented in Appendix Table 8.

The independent variables concluded in the Table 1 below are used in this thesis to explain the changes in economic growth represented by LNGDP per capita in current USD.

Table 1. Definition of independent variables and data sources

Variables	Explanations of Variables	Data Source
CPI	Corruption Perceptions Index	Transparency International
FDI	Net inflows of Foreign Direct Investment as percent of GDP	World Bank, WDI
TRADE	Trade as percent of GDP	World Bank, WDI
POP	Population	World Bank, WDI

INFL	Inflation rate measured by the annual growth rate of the Consumer Price Index	World Bank, WDI
HDI	Human Development Index	UNDP, Human Development Report Office
GE	Government Effectiveness	Worldwide Governance Indicators
RL	Rule of Law	Worldwide Governance Indicators
CC	Control of Corruption	Worldwide Governance Indicators

All the tables and figures presented in the thesis are generated using the data from the above listed sources.

The data is collected for the period of 2004-2017. The main determinant of the timeframe was the CPI, which is available from 1995. Nevertheless, the prevalent range of countries being studied by Transparency International are covered starting from 2004. As such, with the aim of including more panels in the dataset, 2004 was set as a starting point.

The descriptive statistics of all the variables with indicated mean, standard deviation, maximum and minimum values, and the correlation analysis are presented in Appendix Tables 1 and 2, where the latter one obviously demonstrates the strong positive correlation of LNGDP_PC with CPI, GE, RL and CC. There is also a strong correlation between CPI and the three WGI estimates.

High values for all the independent variables stand for better estimates, as such, positive coefficients' estimates by the models imply that an increase in an independent variable is correlated with an improvement in LNGDP per capita. To avoid misinterpretation, CPI, GE, RL and CC should be interpreted with conscious as higher values of these indicators stand for lower level of corruption and better institutional efficiency. As such, positive signs of CPI and CC coefficients stand for negative effect of corruption prevalence on economic growth.

3.2. Methodology

Based on the chosen dependent and independent variables, the tested models are constructed in the following way:

$$LNGDP\_PC_{it} = \beta_0 + \boldsymbol{\beta_1 CPI_{it}} + \beta_2 FDI_{it} + \beta_3 INFL_{it} + \beta_4 TRADE_{it} + \beta_5 LNPOP_{it} + \beta_6 HDI_{it} + u_{it} \quad (1)$$

$$LNGDP\_PC_{it} = \beta_0 + \boldsymbol{\beta_1 CC_{it}} + \beta_2 FDI_{it} + \beta_3 INFL_{it} + \beta_4 TRADE_{it} + \beta_5 LNPOP_{it} + \beta_6 HDI_{it} + u_{it} \quad (2)$$

$$LNGDP\_PC_{it} = \beta_0 + \boldsymbol{\beta_1 CC_{it}} + \boldsymbol{\beta_2 CC\_GE_{it}} + \beta_3 FDI_{it} + \beta_4 INFL_{it} + \beta_5 TRADE_{it} + \beta_6 LNPOP_{it} + \beta_7 HDI_{it} + u_{it} \quad (3a)$$

$$LNGDP\_PC_{it} = \beta_0 + \boldsymbol{\beta_1 CC_{it}} + \boldsymbol{\beta_2 CC\_RL_{it}} + \beta_3 FDI_{it} + \beta_4 INFL_{it} + \beta_5 TRADE_{it} + \beta_6 LNPOP_{it} + \beta_7 HDI_{it} + u_{it} \quad (4a)$$

The results are presented and discussed in Chapter 4, subsection 4.1. Discussion.

In addition, Table 3 of the Appendix contains a regression output for all the countries together by the sequential adding of variables into the univariate model of CPI to demonstrate the significance of chosen variables by increasing R-squared estimate from 9.9 to 58.1 percent. The same is done for each income group separately and presented in Tables 4 – 7 of the Appendix.

Fixed effects method has proven itself among econometricians as a reliable and informative way to see the actual effect on a dependent variable as it controls for the variables' features that are constant over time and across entities, such that, the regression coefficients would be restricted in containing time-, culture-, history-, economy-, geography-, and other country determinants-specific effects (Boussalham, 2018). Nevertheless, the choice

of the method is tested using Hausman test to ensure its appropriateness. The test is run for all four regression models. The p-value being less than 0.05 (Table 2, Column 4) rejects the null hypothesis of the applicability of both the random and fixed effects and demonstrates that the fixed effects method is a more adequate choice.

Table 2. Hausman Test

Test summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
1	28.23	6	0.0001
2	13.62	6	0.0341
3	27.46	7	0.0003
4	27.50	7	0.0003

Unit root tests are completed for all the variables to check for stationarity of the time series, i.e., that the shape of distribution, which can be read through its mean and variance values, does not depend on time. As such, the null hypothesis is that the series contains a unit root, also called an unpredictable random walk which deters a systematic pattern, and the alternative is that the series is stationary. The test in conducted to see which variables' fluctuations are time-dependent and should to be interpreted with careful consideration of this feature. The panel data of 152 countries and 14 time periods is identified by STATA as strongly balanced. However, not each variable is of the same quality as there are missing values for some of them, therefore, two different methods, Harris-Tzavalis test for balanced and Im-Pesaran-Shin for unbalanced data, are used because both assume the number of periods T to be fixed and the number of panels N to tend to infinity. The condition for stationarity is for p-value to be less or equal to 0.05.

Table 3. Unit Root Test – Harris-Tzavalis

Variable	No trend			With trend			With trend and demean		
	Stat.	**z**	**p-value**	**Stat.**	**z**	**p-value**	**Stat.**	**z**	**p-value**
CC	0.7309	-4.1566	0.0000	0.4817	-2.1805	0.0146	0.4831	-2.1204	0.0170
RL	0.7631	-2.2233	0.0131	0.4696	-2.7151	0.0033	0.4783	-2.3298	0.0099
LNPOP	0.9652	9.9396	1.0000	0.9325	17.663	1.0000	0.9308	17.589	1.0000

Table 4. Unit Root Test – Im-Pesaran-Shin

Variable	No trend		With trend		With trend and demean	
	z-t-tilde-bar	**p-value**	**z-t-tilde-bar**	**p-value**	**z-t-tilde-bar**	**p-value**
LNGDP_PC	-9.8997	0.0000	-0.6981	0.2426	-3.5509	0.0002
GE	-4.6565	0.0000	-10.9733	0.0000	-10.5717	0.0000
CPI	-0.5470	0.2922	-8.4383	0.0000	-9.0251	0.0000
HDI	-0.7136	0.2377	-1.5474	0.0609	-3.4085	0.0003
FDI	-10.8031	0.0000	-14.3440	0.0000	-17.5605	0.0000
TRADE	-0.9509	0.1708	-8.0451	0.0000	-5.6133	0.0000
INFL	-12.0569	0.0000	-16.2496	0.0000	-15.4173	0.0000

The second columns of both tables provide with statistics and their probabilities when no options of the test are specified, while Column 3 de-trends the data before the unit root test is conducted, i.e., it controls for time fixed effects. Column 4 includes both de-trending and subtracting cross-sectional means from the series with the aim of mitigating the cross-sectional dependence, i.e., it controls for cross-sectional fixed effects if any (Unit Root Manual, n.d.).

According to the above tables, all three specifications of the test recognize all the variables except for CPI, HDI, TRADE, LNPOP and LNGDP_PC as stationary. TRADE and CPI are stationary under the 2nd and 3rd specifications, LNGDP_PC – under the 1st and 3rd, HDI only under the 3rd, while LNPOP is not stationary.

CHAPTER 4 – RESULTS

4.1. Discussion

The first table presented in this part includes all 152 world countries. All the models include FDI, INFL, TRADE, HDI and LNPOP variables, from which only Human Development Index has a positive effect on the economic development of the countries, while increasing population and trade openness, which includes both exports and imports, have a detrimental impact on GDP per capita growth. Switching to the discussion of the main interest of this study, it can be concluded from Table 5 that Corruption Perceptions Index as well as Control of Corruption can significantly influence the economic growth, namely, 10 points increase in CPI (Column 1) is correlated with 2 percent growth of GDP per capita, while 0.1-point improvement in CC indicator (Column 2) with 1.57 percent rise in the dependent variable. Column 3 argues that 0.1-point increase in CC for the country with 0.1-point better government effectiveness is correlated with 0.024 percentage points higher effect on LNGDP_PC. For example, comparing Greece and Seychelles, where GE equals to 2.81 and 2.91, respectively, the effect of 0.1-point increase in CC on GDP per capita growth for Greece is 1.424 percent, while for Seychelles it is 1.448 percent, and the difference between the two is 0.024 percentage points. As such, the unique effect of CC on GDP_PC is dependent on the different values of GE when considering all the countries together. Same can be concluded from the fourth model with the interaction of CC with RL. Here the difference in the effect is almost twice more, namely 0.046 percentage points. Though CC coefficient is not significant.

Below are the reformulated expressions (3) and (4) for the ease of following:

$$LNGDP\_PC_{it} = \beta_0 + (\boldsymbol{\beta_1} + \boldsymbol{\beta_2 GE_{it}})\boldsymbol{CC_{it}} + \beta_3 FDI_{it} + \beta_4 INFL_{it} + \beta_5 TRADE_{it} + \beta_6 LNPOP_{it} + \beta_7 HDI_{it} + u_{it} \quad (3b)$$

$$LNGDP\_PC_{it} = \beta_0 + (\boldsymbol{\beta_1} + \boldsymbol{\beta_2 RL_{it}})\boldsymbol{CC_{it}} + \beta_3 FDI_{it} + \beta_4 INFL_{it} + \beta_5 TRADE_{it} + \beta_6 LNPOP_{it} + \beta_7 HDI_{it} + u_{it} \quad (4b)$$

In addition to the regression results, the graphical correlation between LNGDP per capita and Corruption Perceptions Index for all the countries for the full studied time period is presented in Figure 1 and for 2017 only in Figure 2. According to the Figure 1, low-income countries' CPIs have never exceeded the value of 60, while developed economies' CPIs have not fallen below 30. Moreover, the CPI range of higher and lower middle- and low-income countries is shorter than that of high-income economies. The next graph is only concentrated on CPI values for 2017 to visually demonstrate the spread of corruption level among countries. The abbreviations for each country are located to the left of the spot unless not specified by the connected line. The replacements were made to eliminate overlapping. The list of abbreviations with corresponding country name is presented in Appendix Table 8.

The interpretations of the coefficients presented in Tables 7 – 10 are as follows:

1. Corruption Perceptions Index improvement has an ambiguous effect when countries are divided by their income levels: significant at 1% level positive (0.0059646) for high-income but negative (-0.0054995) for low-income countries, while not significant for middle-income countries.
2. However, CC coefficients in model 2 are not fully consistent with CPI's effect: though there is a strong positive effect for developed countries, the coefficient for low-income countries is significant only at 10 %. In addition, it is significant at 5% level for upper middle-income countries.
3. When the interaction of CC with RL indicator is included in the model, CC coefficient for lower middle-income countries is positive and significant at 1% level, but negative at 5% significance for high-income countries. It is also 10% level

significant and positive with GE interaction term for developed countries. Interaction terms in three models are also significant (3a, 4a, 4c). The coefficient on the interaction term of CC with RL for upper middle-income countries is also significant (4b). Table 5 summarizes the described effects of coefficients for all income groups.

4. The interaction term with GE is only significant for high-income countries indicating that higher government effectiveness increases the positive effect of anti-corruption policies.
5. The interaction term with RL provides with more significant results: positive for high- and upper middle-, but negative for lower middle-income economies. Notable that for the first two groups, CC coefficients are negative, which effect then decreases in the countries with better rule of law. For example, comparing Hong Kong and Iceland with RL 4.2 and 4.1, respectively, 0.1-point increase in CC will result in total CC coefficient of 0.1846 for Hong Kong and 0.1753 for Iceland, differencing in 0.093 percentage points in the effect on GDP per capita growth. For lower middle-income countries the situation is vice versa: for example, for Bolivia and Sudan with RL equaling to 1.29 and 1.39, the effect on the dependent variable will be 2.492 and 2.379 percent, correspondingly, differencing in 0.113 percentage points.
6. Concluding from the interaction terms, it can be stated that only high-income countries are better off with higher quality of public and civil services and of policy formulation and implementation represented by GE, while both high- and upper middle-income are positively affected by the anti-corruption policies with higher Rule of Law reflecting "the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence" (Kaufmann et al., 2010, p.4). The effect of increase in CC for lower middle-income countries gets more detrimental with higher RL.

7. While HDI still has a significant positive and trade openness a significant negative effect on development, other growth determinants' impact differs depending on the income level: inflation rise positively affects high-income countries' prosperity, while being detrimental for low-income countries; upper middle-income countries are negatively affected by FDI increase; and lower middle- and low-income regions' growth can suffer from population increase.

To conclude, the conducted empirical analysis revealed that the effect of anti-corruption policies on GDP per capita growth does vary with the income level of a country. Nevertheless, this thesis does not differentiate between the types of corruption as available sources combine all the types, bureaucratic, political of grand, in a single estimator. The results also should be interpreted with caution as any econometric analysis can be subject to biases such as omitted variables and endogeneity. Moreover, as judgement on the effect of corruption is based on the perceptions of the experts, their intrinsic human assessment and reference to previous years' experience can deter the index to some extent (Campos et al., 2010).

As such, only general conclusions can be made from the regression results, which are discussed in the next subsection of Chapter 4.

Table 5. Panel data regression partial results summary for all income groups

	HIGH		UPPER MIDDLE		LOWER MIDDLE		LOW	
	(3a)	(4a)	(3b)	(4b)	(3c)	(4c)	(3d)	(4d)
VARIABLES	lngdp_pc	lngdp_pc	lngdp_pc	lngdp_pc	lngdp_pc	lngdp_pc	lngdp_pc	lngdp_pc
cc	**0.116***	**-0.206****	0.168	-0.173	0.106	**0.395*****	0.025	-0.145
	(0.067)	(0.081)	(0.119)	(0.134)	(0.112)	(0.120)	(0.099)	(0.100)
c.cc#c.ge	**0.021***		-0.001		-0.006		-0.041	
	(0.012)		(0.031)		(0.034)		(0.032)	
c.cc#c.rl		**0.093*****		**0.123*****		**-0.113*****		0.020
		(0.016)		(0.041)		(0.036)		(0.031)
Constant	1.726	2.522**	5.290*	5.164*	17.342***	17.832***	12.183***	11.014***
	(1.056)	(1.039)	(2.729)	(2.703)	(4.743)	(4.467)	(2.909)	(2.890)
Observations	677	677	555	555	472	472	335	335
R-squared	0.465	0.490	0.571	0.579	0.684	0.691	0.753	0.752
Number of cn	49	49	42	42	35	35	26	26

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Panel data regression results for all countries

VARIABLES	(1) lngdp_pc	(2) lngdp_pc	(3) lngdp_pc	(4) lngdp_pc
cpi	**0.002****			
	(0.001)			
fdi	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
infl_cpi	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
trade	**-0.002*****	**-0.002*****	**-0.002*****	**-0.002*****
	(0.000)	(0.000)	(0.000)	(0.000)
hdi	**9.308*****	**9.420*****	**9.385*****	**9.350*****
	(0.265)	(0.244)	(0.244)	(0.244)
lnpop	**-0.166****	**-0.163****	**-0.156****	**-0.161****
	(0.069)	(0.068)	(0.068)	(0.068)
cc		**0.157*****	0.075	0.001
		(0.029)	(0.047)	(0.054)
c.cc#c.ge			**0.024****	
			(0.011)	
c.cc#c.rl				**0.046*****
				(0.013)
Constant	4.838***	4.409***	4.358***	4.494***
	(1.016)	(1.007)	(1.007)	(1.005)
Observations	2,007	2,039	2,039	2,039
R-squared	0.581	0.595	0.596	0.598
Number of cn	152	152	152	152

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7. Panel data regression results for high-income countries

VARIABLES	(1) lngdp_pc	(2) lngdp_pc	(3) lngdp_pc	(4) lngdp_pc
cpi	**0.006*** **			
	(0.001)			
fdi	-0.000	-0.000	-0.000	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
infl_cpi	**0.013*** **	**0.013*** **	**0.013*** **	**0.012*** **
	(0.002)	(0.002)	(0.002)	(0.002)
trade	**-0.001** **	**-0.001** **	**-0.001** **	**-0.001** **
	(0.000)	(0.000)	(0.000)	(0.000)
hdi	**7.771*** **	**8.073*** **	**8.112*** **	**7.792*** **
	(0.412)	(0.404)	(0.404)	(0.397)
lnpop	0.088	0.068	0.058	0.036
	(0.073)	(0.072)	(0.072)	(0.070)
cc		**0.216*** **	**0.116***	**-0.206** **
		(0.038)	(0.067)	(0.081)
c.cc#c.ge			**0.021***	
			(0.012)	
c.cc#c.rl				**0.093*** **
				(0.016)
Constant	1.852*	1.520	1.726	2.522**
	(1.061)	(1.051)	(1.056)	(1.039)
Observations	674	677	677	677
R-squared	0.451	0.462	0.465	0.490
Number of cn	49	49	49	49

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8. Panel data regression results for upper middle-income countries

VARIABLES	(1) lngdp_pc	(2) lngdp_pc	(3) lngdp_pc	(4) lngdp_pc
cpi	-0.002			
	(0.003)			
fdi	**-0.009*** **	**-0.008*** **	**-0.008*** **	**-0.008*** **
	(0.003)	(0.003)	(0.003)	(0.003)
infl_cpi	-0.002	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)
trade	**-0.004*** **	**-0.005*** **	**-0.005*** **	**-0.005*** **
	(0.001)	(0.001)	(0.001)	(0.001)
hdi	**8.774*** **	**8.865*** **	**8.870*** **	**8.532*** **
	(0.510)	(0.447)	(0.467)	(0.457)
lnpop	-0.063	-0.183	-0.183	-0.153
	(0.177)	(0.174)	(0.175)	(0.173)
cc		**0.165** **	0.168	-0.173
		(0.074)	(0.119)	(0.134)
c.cc#c.ge			-0.001	
			(0.031)	
c.cc#c.rl				**0.123*** **
				(0.041)
Constant	3.828	5.285*	5.290*	5.164*
	(2.749)	(2.724)	(2.729)	(2.703)
Observations	546	555	555	555
R-squared	0.575	0.571	0.571	0.579
Number of cn	42	42	42	42

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9. Panel data regression results for lower middle-income countries

VARIABLES	(1) lngdp_pc	(2) lngdp_pc	(3) lngdp_pc	(4) lngdp_pc
cpi	0.002			
	(0.003)			
fdi	0.002	0.000	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.002)
infl_cpi	-0.001	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)
trade	**-0.002****	**-0.002***	**-0.002***	**-0.002****
	(0.001)	(0.001)	(0.001)	(0.001)
hdi	**13.745*****	**12.914*****	**12.970*****	**13.248*****
	(0.845)	(0.797)	(0.852)	(0.796)
lnpop	**-1.392*****	**-1.041*****	**-1.060*****	**-1.107*****
	(0.291)	(0.291)	(0.308)	(0.289)
cc		0.090	0.106	**0.395*****
		(0.073)	(0.112)	(0.120)
c.cc#c.ge			-0.006	
			(0.034)	
c.cc#c.rl				**-0.113*****
				(0.036)
Constant	22.561***	17.067***	17.342***	17.832***
	(4.477)	(4.508)	(4.743)	(4.467)
Observations	466	472	472	472
R-squared	0.683	0.684	0.684	0.691
Number of cn	35	35	35	35

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10. Panel data regression results for low-income countries

VARIABLES	(1) lngdp_pc	(2) lngdp_pc	(3) lngdp_pc	(4) lngdp_pc
cpi	**-0.005*** **			
	(0.002)			
fdi	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
infl_cpi	**-0.003** **	**-0.004*** **	**-0.004*** **	**-0.004*** **
	(0.001)	(0.001)	(0.001)	(0.001)
trade	**-0.002*** **	**-0.002*** **	**-0.002*** **	**-0.002*** **
	(0.000)	(0.000)	(0.000)	(0.000)
hdi	**9.290*** **	**9.763*** **	**9.978*** **	**9.643*** **
	(0.781)	(0.771)	(0.788)	(0.793)
lnpop	**-0.386** **	**-0.555*** **	**-0.616*** **	**-0.528*** **
	(0.190)	(0.192)	(0.197)	(0.196)
cc		**-0.087***	0.025	-0.145
		(0.048)	(0.099)	(0.100)
c.cc#c.ge			-0.041	
			(0.032)	
c.cc#c.rl				0.020
				(0.031)
Constant	8.809***	11.355***	12.183***	11.014***
	(2.803)	(2.841)	(2.909)	(2.890)
Observations	321	335	335	335
R-squared	0.724	0.751	0.753	0.752
Number of cn	26	26	26	26

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

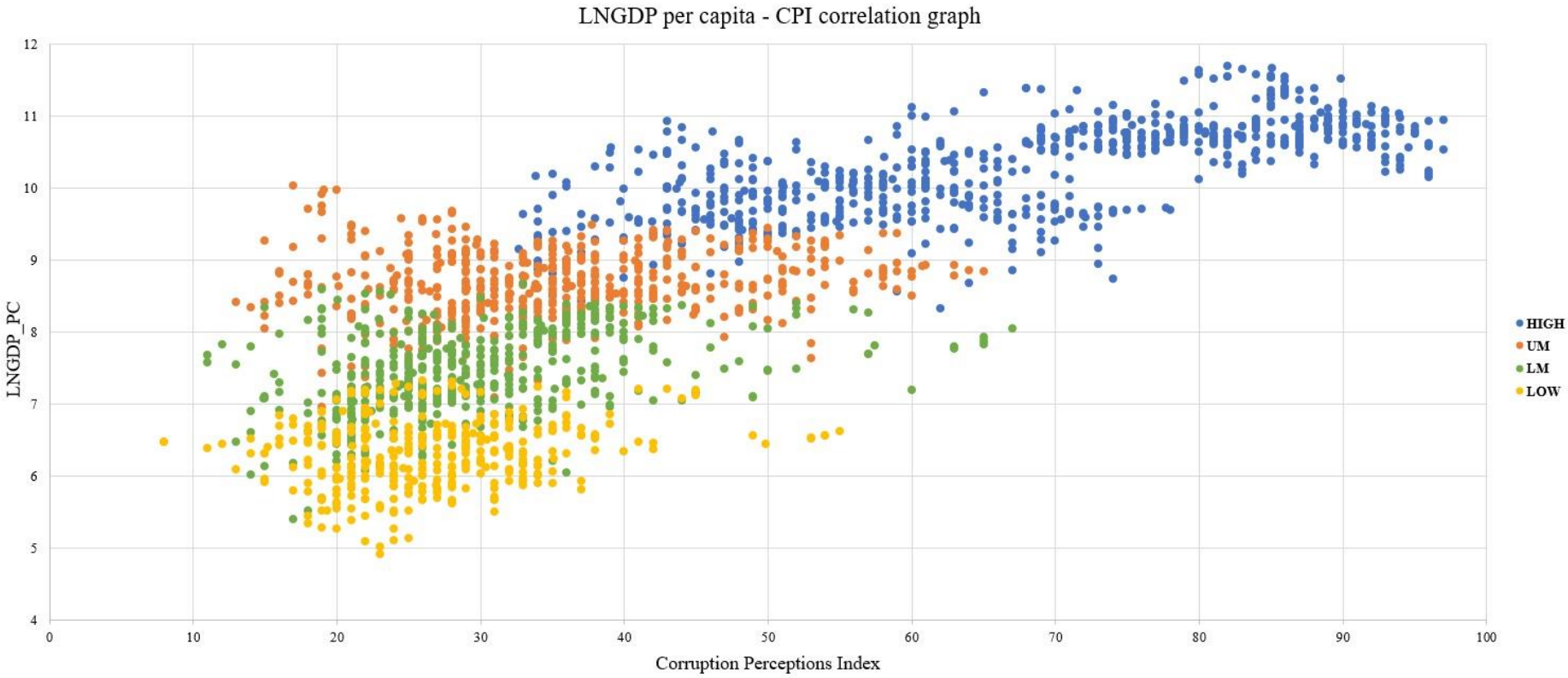

Figure 1. *The correlation between natural logarithm of GDP per capita and Corruption Perceptions Index*

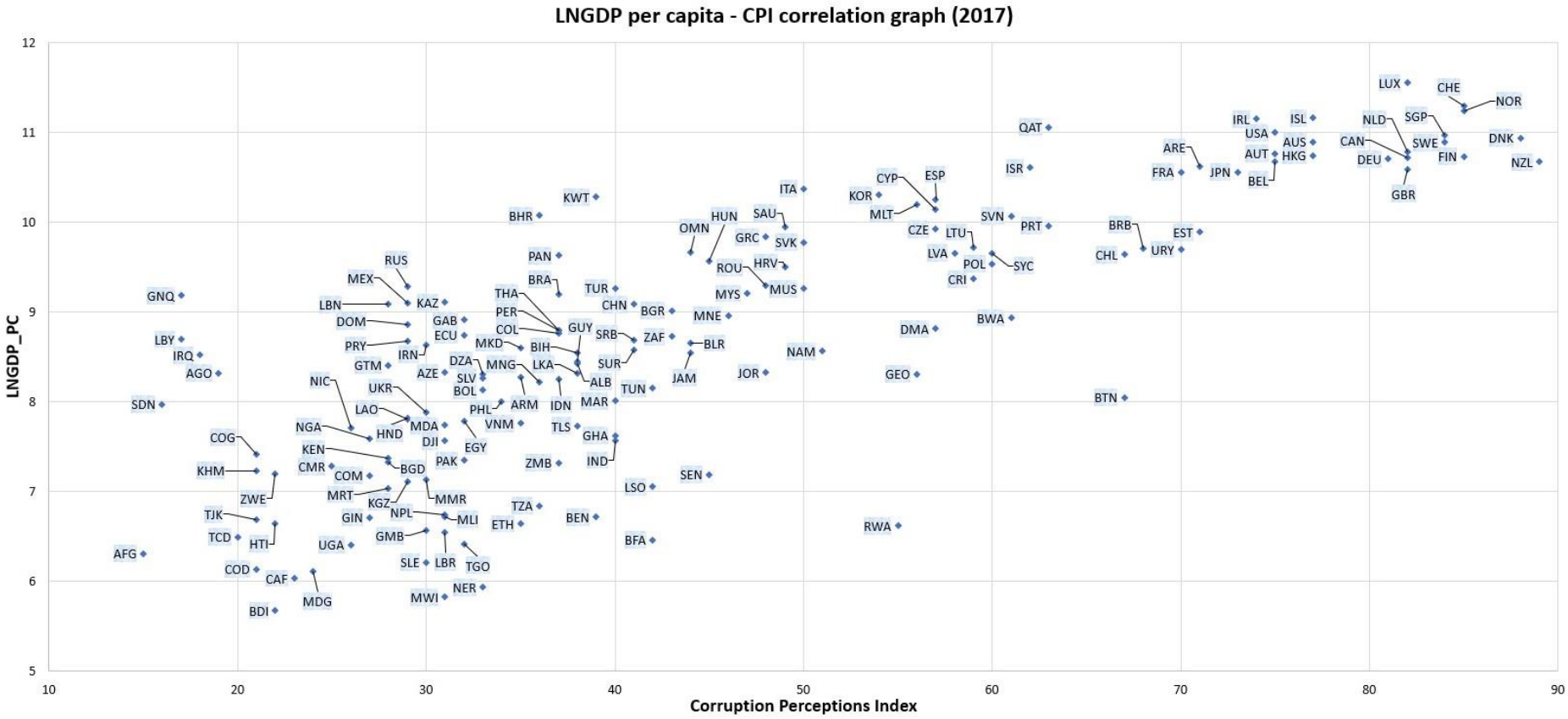

Figure 2. *The correlation between natural logarithm of GDP per capita and Corruption Perceptions Index for 2017*

The panel data regression results demonstrate the positive effect of the government effectiveness and the rule of law in fighting corruption only for high-income countries where both CC and interaction terms are statistically significant. With the aim of observing the correlation between the WGI variables, the fixed-effects model regression of GE and RL on CC was also conducted using the simple model:

$$CC_{it} = \beta_0 + \beta_1 GE_{it} + \beta_2 RL_{it} + u_{it} \quad (5)$$

According to Table 11, 1-point improvement in the quality of public services and policy implementation is correlated with 0.352 points rise in control of corruption indicator, while same increase in RL indicator – with 0.443 points. Figures 2 and 3 further support the argument of positive correlation between the variables by demonstrating it on scatter plots. As it can be clearly seen that high-income countries more tend to have higher values for GE, RL and CC, while lower middle- and low-income economies' governments' performance indicators mostly take lower values of less than 2.5. As such, not simply a relationship but a positive effect of improving the government effectiveness on corruption prevalence diminishing can be concluded from this analysis.

Table 11. Panel data regression results for all countries of GE and RL on CC

VARIABLES	cc
ge	0.352***
	(0.050)
rl	0.443***
	(0.048)
Constant	0.423***
	(0.079)
Observations	364
Number of cn	26
R-squared	0.428

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

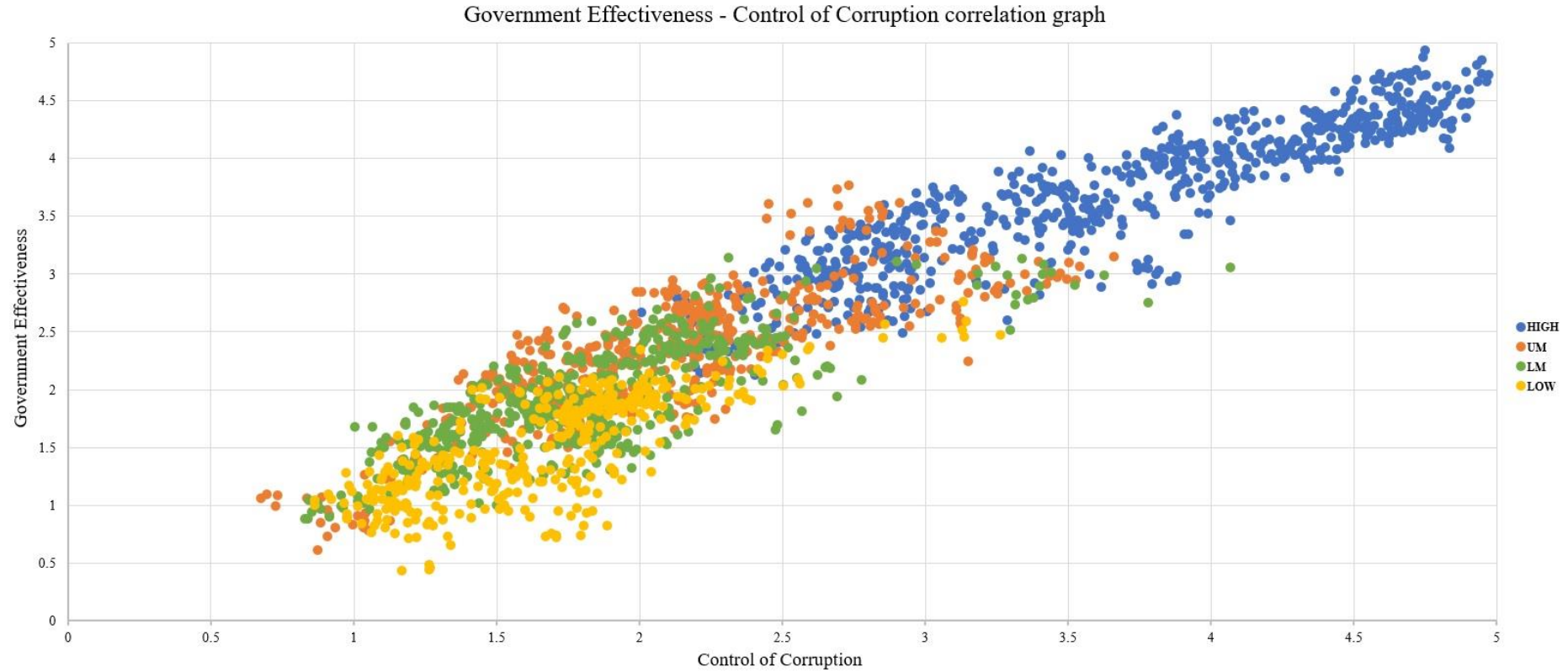

Figure 3. *The correlation between government effectiveness and control of corruption*

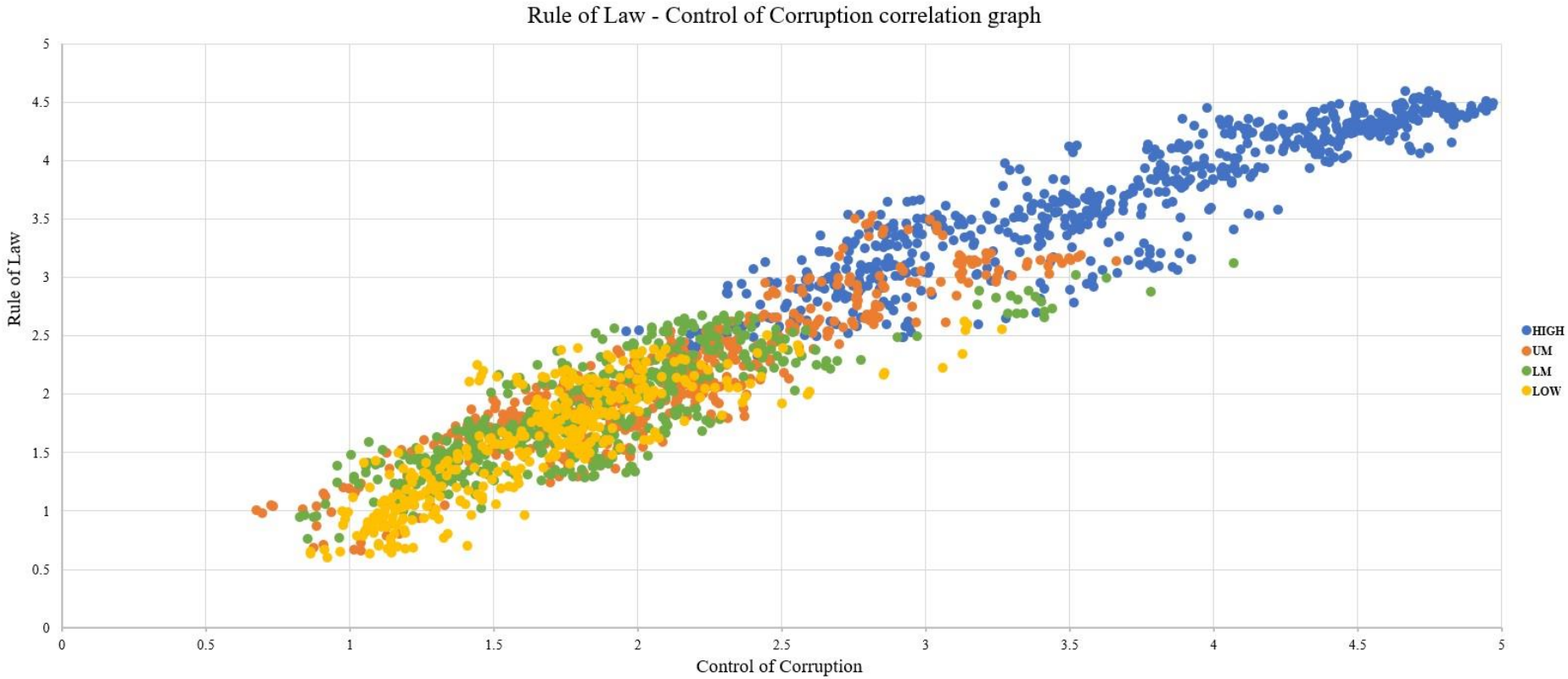

***Figure 4**. The correlation between rule of law and control of corruption*

4.2. Policy options

Even though the econometrical analysis states that there is a negative effect of corruption on the economic growth of developed, but positive for developing economies, any country officials and society should be guided by the country's own history, culture and lifestyle in order to identify the extent of the issue and a necessity to fight it (Quah, 2015). All these features cannot be fully controlled for by the model as the numbers are relied on the rough estimates and perceptions. Moreover, the costs of eliminating corruption are also an important aspect to refer to (Aidt, 2003). Nevertheless, listed anti-corruption policies, carefully built from the precedents, are suggested to be applied in case if corruption is believed to be detrimental for the development, either economic and political or social.

According to Gray and Kaufmann (1998, p.9), "Corruption is widespread in developing and transition economies not because their people are different from people elsewhere but because conditions are ripe for it", while Mauro (2002) highlights the lack of incentives of the public to fight its spread. Therefore, the opportunities and incentives for corruption should be reduced by the appropriate, feasible and aligned fiscal policies and advanced legal rules to ensure political, social and economic stability of the country (Council of Europe, 2013).

With the aim of eliminating or reducing the high rate of corruption, the following means should be taken care of:

1. Transparency International (2018), basing on its comprehensive research in circa one hundred countries, stresses the paramount importance of *mass media freedom provision* in fighting corruption. It urges governments and business leaders to enable society to speak out openly and to express their views without any fear of being punished for their given-by-birth freedom of speech and actions. Even though this kind of behavior should be controlled

and censured in case of irrelevant and inappropriate for publicity statements, the main point and the message should be allowed to be preserved.

2. *Transparency of accounting and government budget allocation* is a key factor, limiting the possibility to get engaged in illegal corrupt practices. Even though the provision with limpidity of actions and public expenditures flows is a high privilege, it is the right way to significantly influence the corruption rate (Fraj and Lachhab, 2015). Thus, public related information should be provided with an open access, i.e. accountability and transparency should be accepted as granted because it is the natural right of every citizen. Information which concerns public procurement and government budgets should be disclosed with the aim of decreasing the likelihood of corruption (Council of Europe, 2013) as most bribery cases are present in the procurement sector (OECD, n.d.-b).

3. *Accountability on judicial system and its trustworthiness and objective justice* are warrantors of political stability, which is one of the economic growth determinants. Therefore, any breaches of administrative orders and criminal codes have to be suppressed by strict measures application. This will exemplify the seriousness of intentions to ameliorate the current situation as going through the judiciary system's harsh penalties is the most influential and frightening way of reaching the target.

4. One of the easiest ways for carrying out corruption activities and receiving some benefits from it is to get involved in the winding path of the red tape since it creates a great amount of difficulties in the process of legal documents registration and obtainment. Burdensome and complicated bureaucracy regulations created by the authorities have proven themselves as time and energy consuming obstacles in many working processes (Lambsdorff, 2003). Moreover, they deprive consumers from the freedom of choice: misinformation and/or too strict regulations' creation with the aim of either complicating the process and receiving the bribe for speeding it up or discouraging people from even stepping into it is one of the

strategies used by bureaucracy paperwork responsible employees (Gray and Kaufmann, 1998). Since such type of corruptive behavior is not punishable by law as it is not illegal, it cannot be stated as violation and excess of authority. As long as "rules can used to extract bribes, more rules will be created" (Tanzi, 1998, p.582).

As the core reason for the occurrence of situations which incentivize people to get involved in dishonest behavior is the complexity of bureaucratic regulations, which people strive to avoid or overcome, the problem should be solved not by avoiding the laws and regulations with the use of bribes, but by modifying them in a suitable manner, i.e., *simplifying the bureaucratic regulations*. Reconsidering the mechanisms and making them more straightforward for people can substantially help solve the problem as it eliminates the incentive to pay bribes. Government and its institutions' unity, cooperation with its citizens, equal and independent treatment to individuals and firms are crucial for the productive work and prosperous economy.

5. The most significant change in Georgian TI CPI happened in 2011 when it increased its index by 11 points. Moreover, starting from 2004 it embarked on the index boosting rate starting from 20 in 2004 and reaching 58 by 2018, which is a substantial 2.9 times rise. It happened because Georgia has taken a course for improvement after the Rose Revolution in 2004 (Emerson, 2017). One of the most effective anti-corruption policies taken place in Georgia was 15-fold *increase in salaries of public employees*. This has not just much prevented the bribes but increased the attractiveness of many previously low-paid but important positions. The government also disposed of posting all available vacancies on the official recruitment portal, which was deliberately created for advertising available civil positions and promoting fair competition. The selection process is now based on predetermined set of requirements with accordance to merits and previous experience (Emerson et al, 2017). This policy is a demonstrative example of successfully confronting

and solving the problem. Nevertheless, historical and cultural factors may play a critical role in this policy implementation, as such, complete reliance on this solution does not guarantee its success as in the cases of Ghana (Foltz and Opoku-Agyemang, 2015) and China (Gong and Wu, 2012). While Ghanaian government did not force an obvious anti-corruption plan, which is assumed by the authors to be a possible explanation for the increased bribery followed by the salaries increase, Gong and Wu (2012) stress the importance of implementing several anti-corruption policies together as increased salaries policy alone does not ensure decreasing other incentives for corruptive activities. Nevertheless, both papers mentioned the importance of government pervasive involvement in any policy implementation.

Generally, any anti-corruption plan should follow several simple, but important rules to be successfully implemented: it should be well-defined, prioritized by the importance and urgency of actions; set by a strict timeline for the necessary actions; budgets should be fully and properly allocated; and monitoring to be carried out (OECD, n.d.-a). It is also vital for the anti-corruption strategy to be evidence-based, unified and transparent (Emerson et al, 2017), and, most importantly, to be willingly supported by the government (Quah, 2015).

CONCLUSION

Corruption is a democracy and economic growth impediment which should be eradicated as a utopian criterion for political and economic stability. It is believed to prevent countries from prosperity by negatively affecting the extent of foreign investment and business development, educational and health care systems, judiciary and government institutions' decision-making.

This thesis found the negative effect of high corruption rate on economic growth of high-income, but positive on that of low-income countries. It also discussed the main types and drivers of corruption, its social and economic consequences and the ways for decreasing the corruption rate by reducing or eliminating the effect of its influencing components.

As such, it is proposed for the countries to come up with a well-structured and aligned plan for curbing corruption: providing with mass media freedom; ensuring transparency of governmental actions in budget allocation and procurement; restructuring the institutional bureaucracy mechanisms to decrease the opportunities to create a bribery source; restricting the punishments for the illegal actions. Increase in the salaries of low-paid public employees is suggested basing on the example of Georgia, however, China proved the method to be inefficient, while Ghanaian experience even proved to have a negative impact by increased bribery amounts.

Even though the full eradication of the issue is almost an unreachable target and the results are not to follow immediately, decreasing its degree of prevalence is essential for upgrading the overall standard of living and the market functioning and the solid basis for it is a core for making the changes (Emerson et al, 2017). Importantly, the authority itself should be interested in fighting the problem and facilitate the strategic plan: only supported and desired political will leads to the necessary outcomes (Persson et al., 2010).

APPENDIX

Table 1. Descriptive statistics

	LNGDP_PC	CPI	FDI	INFL	TRADE	LNPOP	HDI	GE	RL	CC
Mean	8.486247	42.79449	6.199267	5.655951	91.93069	16.12201	0.6896949	2.525055	2.465167	2.464632
Maximum	11.68877	97	451.7155	254.9485	442.62	21.04997	0.953	4.936975	4.600273	4.969991
Minimum	4.847565	8	-58.3229	-18.1086	0.167418	11.16165	0.274	.437007	.2448246	.6742605
Std. Dev.	1.560919	20.94786	18.95339	8.896466	57.41372	1.675963	0.1631947	0.9995021	1.005123	1.032466
Observations	2125	2085	2121	2081	2088	2128	2127	2127	2128	2128

Table 2. Correlation analysis

	LNGDP_PC	CPI	FDI	INFL	TRADE	LNPOP	HDI	GE	RL	CC
LNGDP_PC	1.0000									
CPI	0.7975	1.0000								
FDI	0.0951	0.1219	1.0000							
INFL	-0.3331	-0.3598	-0.0370	1.0000						
TRADE	0.3194	0.3156	0.3463	-0.1201	1.0000					
LNPOP	-0.1704	-0.2004	-0.1972	0.1240	-0.4437	1.0000				
HDI	0.9323	0.7454	0.0878	-0.2988	0.3118	-0.1114	1.0000			
GE	0.8359	0.9324	0.1155	-0.3649	0.3408	-0.1246	0.8315	1.0000		
RL	0.8080	0.9489	0.1431	-0.3677	0.3273	-0.1825	0.7830	0.9614	1.0000	
CC	0.7890	0.9787	0.1245	-0.3420	0.3203	-0.2152	0.7433	0.9438	0.9619	1.0000

Table 3. Panel data regression results for all countries

VARIABLES	(1) lngdp_pc	(2) lngdp_pc	(3) lngdp_pc	(4) lngdp_pc	(5) lngdp_pc	(6) lngdp_pc	(7) lngdp_pc	(8) lngdp_pc	(9) lngdp_pc	(10) lngdp_pc
cpi	0.022***	0.022***	0.002*	0.022***	0.002*	0.002**	0.021***	0.002*	0.003**	0.002**
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
fdi		-0.001***		-0.001***	-0.000	-0.000	-0.001***	-0.000	-0.000	-0.000
		(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
infl_cpi							-0.007***	-0.002**	-0.001	-0.001
							(0.001)	(0.001)	(0.001)	(0.001)
trade				-0.002***		-0.002***	-0.002***		-0.002***	-0.002***
				(0.000)		(0.000)	(0.000)		(0.000)	(0.000)
hdi			9.159***		9.148***	9.047***		8.965***	8.891***	9.308***
			(0.194)		(0.194)	(0.194)		(0.200)	(0.200)	(0.265)
lnpop										-0.166**
										(0.069)
Constant	7.567***	7.567***	2.083***	7.787***	2.091***	2.322***	7.834***	2.213***	2.412***	4.838***
	(0.065)	(0.065)	(0.124)	(0.076)	(0.125)	(0.128)	(0.076)	(0.129)	(0.133)	(1.016)
Observations	2,082	2,080	2,082	2,048	2,080	2,048	2,007	2,039	2,007	2,007
R-squared	0.099	0.102	0.583	0.116	0.583	0.588	0.132	0.576	0.580	0.581
Number of cn	152	152	152	152	152	152	152	152	152	152

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4. Panel data regression results for high-income countries

VARIABLES	(1) lngdp_pc	(2) lngdp_pc	(3) lngdp_pc	(4) lngdp_pc	(5) lngdp_pc	(6) lngdp_pc	(7) lngdp_pc	(8) lngdp_pc	(9) lngdp_pc	(10) lngdp_pc
cpi	0.006***	0.006***	0.005***	0.007***	0.005***	0.005***	0.007***	0.006***	0.006***	0.006***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
fdi		-0.001**		-0.001**	-0.000	-0.000	-0.001**	-0.000	-0.000	-0.000
		(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
infl_cpi							0.001	0.012***	0.013***	0.013***
							(0.003)	(0.002)	(0.002)	(0.002)
trade				0.001**		-0.001**	0.001**		-0.001**	-0.001**
				(0.000)		(0.000)	(0.000)		(0.000)	(0.000)
hdi			7.283***		7.262***	7.463***		7.748***	7.987***	7.771***
			(0.353)		(0.355)	(0.369)		(0.357)	(0.371)	(0.412)
lnpop										0.088
										(0.073)
Constant	9.858***	9.844***	3.653***	9.701***	3.669***	3.597***	9.676***	3.161***	3.069***	1.852*
	(0.117)	(0.117)	(0.314)	(0.129)	(0.315)	(0.318)	(0.132)	(0.320)	(0.323)	(1.061)
Observations	683	683	683	678	683	678	674	679	674	674
R-squared	0.019	0.027	0.414	0.037	0.415	0.418	0.038	0.445	0.450	0.451
Number of cn	49	49	49	49	49	49	49	49	49	49

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5. Panel data regression results for upper middle-income countries

VARIABLES	(1) lngdp_pc	(2) lngdp_pc	(3) lngdp_pc	(4) lngdp_pc	(5) lngdp_pc	(6) lngdp_pc	(7) lngdp_pc	(8) lngdp_pc	(9) lngdp_pc	(10) lngdp_pc
cpi	0.025***	0.023***	-0.005*	0.024***	-0.006**	-0.003	0.024***	-0.005*	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
fdi		-0.022***		-0.016***	-0.012***	-0.010***	-0.015***	-0.011***	-0.009***	-0.009***
		(0.004)		(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
infl_cpi							-0.003	-0.004***	-0.002	-0.002
							(0.002)	(0.002)	(0.002)	(0.002)
trade				-0.008***		-0.004***	-0.007***		-0.004***	-0.004***
				(0.001)		(0.001)	(0.001)		(0.001)	(0.001)
hdi			10.021***		9.655***	9.021***		9.284***	8.686***	8.774***
			(0.432)		(0.429)	(0.434)		(0.442)	(0.446)	(0.510)
lnpop										-0.063
										(0.177)
Constant	7.769***	7.958***	1.615***	8.510***	1.948***	2.604***	8.509***	2.227***	2.854***	3.828
	(0.121)	(0.121)	(0.278)	(0.143)	(0.281)	(0.303)	(0.143)	(0.290)	(0.310)	(2.749)
Observations	573	571	573	562	571	562	546	555	546	546
R-squared	0.092	0.154	0.550	0.242	0.569	0.588	0.251	0.557	0.575	0.575
Number of cn	42	42	42	42	42	42	42	42	42	42

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Panel data regression results for lower middle-income countries

VARIABLES	(1) lngdp_pc	(2) lngdp_pc	(3) lngdp_pc	(4) lngdp_pc	(5) lngdp_pc	(6) lngdp_pc	(7) lngdp_pc	(8) lngdp_pc	(9) lngdp_pc	(10) lngdp_pc
cpi	0.041***	0.041***	0.004	0.042***	0.004	0.006*	0.040***	0.004	0.006*	0.002
	(0.004)	(0.004)	(0.003)	(0.004)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)
fdi		0.003		0.005	0.001	0.001	0.006	0.001	0.001	0.002
		(0.003)		(0.004)	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)
infl_cpi							-0.005*	-0.001	-0.001	-0.001
							(0.003)	(0.002)	(0.002)	(0.002)
trade				-0.003*		-0.001	-0.002*		-0.001	-0.002**
				(0.001)		(0.001)	(0.001)		(0.001)	(0.001)
hdi			10.434***		10.427***	10.381***		10.308***	10.265***	13.745***
			(0.435)		(0.436)	(0.440)		(0.439)	(0.443)	(0.845)
lnpop										-1.392***
										(0.291)
Constant	6.236***	6.219***	1.066***	6.402***	1.065***	1.085***	6.449***	1.136***	1.148***	22.561***
	(0.109)	(0.110)	(0.227)	(0.156)	(0.228)	(0.248)	(0.160)	(0.233)	(0.252)	(4.477)
Observations	478	478	478	468	478	468	466	476	466	466
R-squared	0.220	0.221	0.661	0.235	0.661	0.667	0.245	0.660	0.666	0.683
Number of cn	35	35	35	35	35	35	35	35	35	35

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7. Panel data regression results for low-income countries

VARIABLES	(1) lngdp_pc	(2) lngdp_pc	(3) lngdp_pc	(4) lngdp_pc	(5) lngdp_pc	(6) lngdp_pc	(7) lngdp_pc	(8) lngdp_pc	(9) lngdp_pc	(10) lngdp_pc
cpi	0.025***	0.025***	-0.006**	0.020***	-0.006**	-0.006***	0.019***	-0.005**	-0.006***	-0.005***
	(0.004)	(0.004)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
fdi		-0.000		-0.000	0.001	0.000	-0.001	0.001	0.000	-0.000
		(0.002)		(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
infl_cpi							-0.008***	-0.002*	-0.003**	-0.003**
							(0.002)	(0.001)	(0.001)	(0.001)
trade				-0.003***		-0.002***	-0.002***		-0.002***	-0.002***
				(0.001)		(0.000)	(0.001)		(0.000)	(0.000)
hdi			8.638***		8.644***	8.213***		8.393***	7.855***	9.290***
			(0.337)		(0.338)	(0.328)		(0.346)	(0.335)	(0.781)
lnpop										-0.386**
										(0.190)
Constant	5.648***	5.648***	2.620***	5.962***	2.620***	2.975***	6.017***	2.734***	3.126***	8.809***
	(0.095)	(0.096)	(0.130)	(0.105)	(0.130)	(0.134)	(0.099)	(0.134)	(0.136)	(2.803)
Observations	348	348	348	340	348	340	321	329	321	321
R-squared	0.132	0.132	0.715	0.138	0.716	0.714	0.189	0.722	0.720	0.724
Number of cn	26	26	26	26	26	26	26	26	26	26

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8. List of Countries by income groups

	HIGH-INCOME (49):
AUS	Australia
AUT	Austria
BHR	Bahrain
BRB	Barbados
BEL	Belgium
CAN	Canada
CHL	Chile
HRV	Croatia
CYP	Cyprus
CZE	Czech Republic
DNK	Denmark
EST	Estonia
FIN	Finland
FRA	France
DEU	Germany
GRC	Greece
HKG	Hong Kong
HUN	Hungary
ISL	Iceland
IRL	Ireland
ISR	Israel
ITA	Italy
JPN	Japan
KOR	Korea, South
KWT	Kuwait
LVA	Latvia
LTU	Lithuania
LUX	Luxembourg
MLT	Malta
NLD	Netherlands
NZL	New Zealand
NOR	Norway
OMN	Oman
PAN	Panama
POL	Poland
PRT	Portugal
QAT	Qatar
SAU	Saudi Arabia
SYC	Seychelles
SGP	Singapore
SVK	Slovakia
SVN	Slovenia
ESP	Spain
SWE	Sweden

	UPPER MIDDLE-INCOME (42):
ALB	Albania
DZA	Algeria
ARM	Armenia
AZE	Azerbaijan
BLR	Belarus
BIH	Bosnia and Herzegovina
BWA	Botswana
BRA	Brazil
BGR	Bulgaria
CHN	China
COL	Colombia
CRI	Costa Rica
DMA	Dominica
DOM	Dominican Republic
ECU	Ecuador
GNQ	Equatorial Guinea
GAB	Gabon
GTM	Guatemala
GUY	Guyana
IRN	Iran, Islamic Rep.
IRQ	Iraq
JAM	Jamaica
JOR	Jordan
KAZ	Kazakhstan
LBN	Lebanon
LBY	Libya
MKD	Macedonia, FYR
MYS	Malaysia
MUS	Mauritius
MEX	Mexico
MNE	Montenegro
NAM	Namibia
PRY	Paraguay
PER	Peru
ROU	Romania
RUS	Russian Federation
SRB	Serbia
ZAF	South Africa
SUR	Suriname
THA	Thailand
TUR	Turkey
VEN	Venezuela

CHE	Switzerland
ARE	United Arab Emirates
GBR	United Kingdom
USA	United States
URY	Uruguay

	LOWER MIDDLE-INCOME (35):
AGO	Angola
BGD	Bangladesh
BTN	Bhutan
BOL	Bolivia
KHM	Cambodia
CMR	Cameroon
COG	Congo
DJI	Djibouti
EGY	Egypt
SLV	El Salvador
GEO	Georgia
GHA	Ghana
HND	Honduras
IND	India
IDN	Indonesia
KEN	Kenya
KGZ	Kyrgyzstan
LAO	Laos
LSO	Lesotho
MRT	Mauritania
MDA	Moldova
MNG	Mongolia
MAR	Morocco
MMR	Myanmar
NIC	Nicaragua
NGA	Nigeria
PAK	Pakistan
PHL	Philippines
LKA	Sri Lanka
SDN	Sudan
TLS	Timor-Leste
TUN	Tunisia
UKR	Ukraine
VNM	Vietnam
ZMB	Zambia

	LOW-INCOME (26):
AFG	Afghanistan
BEN	Benin
BFA	Burkina Faso
BDI	Burundi
CAF	Central African Republic
TCD	Chad
COM	Comoros
COD	Democratic Republic of the Congo
ETH	Ethiopia
GMB	Gambia
GIN	Guinea
HTI	Haiti
LBR	Liberia
MDG	Madagascar
MWI	Malawi
MLI	Mali
NPL	Nepal
NER	Niger
RWA	Rwanda
SEN	Senegal
SLE	Sierra Leone
TJK	Tajikistan
TZA	Tanzania
TGO	Togo
UGA	Uganda
ZWE	Zimbabwe

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