

## Corruption and economic growth in Croatia

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**Abstract:** Today, more and more authors are involved in researching the economic phenomenon of corruption and its impact on many macroeconomic indicators. Nevertheless, transitional surroundings have offered a unique opportunity in history to explore the relationship between corruption and economic growth in entirely different environment from the one in developed western economies. Researching of, at first sight, two unrelated social phenomena gave additional light on the causes of economic growth in Croatia. The researching paper also gives Croatian position among ten transition EU member countries. The corruption perception index was used as the best measuring method of corruption in Croatia and other countries while economic growth was measured by GDP per capita instead of growth rates. We explained reasons why we did so. The time period covered by the research was from 1999 to 2009 for Croatia and from 1995 to 2009 for ten transition EU member countries. Total of 137 cases were evaluated. The researching paper demonstrates the negative impact of corruption on economic growth where the strength of its influence is relatively obvious. It is also evident that the impact of corruption on economic growth is substantially a direct one and that it takes place without a significant time delay. Results for the period of research related to Croatia, more closely fit the observed data of other transition countries. Corruption could be an additional explanation (certainly not the only one) for low or high level of GDP per capita in Croatia. Misunderstanding of all the factors that encourage the economic growth may lead to macroeconomic structural imbalances in Croatian economy.

**Key words:** corruption, CPI, economic growth, GDP per capita, payoff

### 1 Introduction

The transition from centrally-planned to a market economy represents a unique period in history which offered also a chance for numerous studies of economic phenomena (not only economic) in completely different conditions in relation to the conditions that exist in developed Western countries and elsewhere. The transition to a market economy in Croatia did not only mean a change of state (social) to private ownership but also involved changing of the whole structure of national economy of the former socialist country. The changes do not merely cover the entire Croatian economy but also the legal framework, existing institutions, technology and everything else. During initial transition period Croatian governments faced with high and variable inflation trends, the decline in economic activity, increased unemployment and strengthening of macroeconomic imbalances. It became obvious

that the transition process is slower than initially expected, it has its costs, it is unfair to some segments of society, it often deepens the existing economic and social crisis, etc.

Such conditions were different in many respects in relation to social and economic conditions that existed in developed countries, and elsewhere. Therefore, they have created a unique opportunity to explore the relationship of corruption and economic growth in an entirely new, specific macroeconomic environment. We also include in our research the transition countries that have become EU members because they passed like Croatia a very similar path during the period of the reforms.

The phenomenon of corruption is largely seen through the criminal-legal framework, but its manifestation may have far wider significance and it is causally associated with some macroeconomic indicators. This paper just aims to expand this view. That is the reason why corruption is treated in this paper to a large extent as economic phenomena that exists in a community just like other economic phenomena, such as for example economic growth.

It was also necessary to make an adequate choice of methods for measuring corruption among the possible options, and explain the reasons for using selected methods for measuring and its characteristics. There was a dilemma for measuring economic growth between growth rate and level of GDP per capita and we explain it in Section IV. Methods of measuring levels of corruption and economic growth are looking for an adequate explanation of the results and at the same time help to explain the form of their interconnectedness. The main hypothesis of this research is that higher level of corruption in Croatia causes lower economic growth. In order to prove the hypothesis, we used linear regression model and cross-country analysis in our investigation.

The paper is structured as follows. Section I is introduction. Section II summarizes selected literature and empiric experience on corruption and economic growth. Section III provides a short overview of the development of legal and institutional frameworks for fighting corruption in Croatia. Section IV describes methodology and model. Section V discusses statistic data, evaluation and results and section VI concludes.

## **2 Brief literature overview and review of empiric experience**

We have stressed out that up to now corruption and its effects on society are generally looked only in the course of the criminal-law framework. On the other hand, corruption has many comprehensive impacts on society and it is connected with numerous other social phenomena. Today, increasing number of authors research how corruption impacts on many macro economy indicators. More and more economists are included in research of the relationship between corruption and GDP per capita, corruption and economic growth rate, corruption and market structure, corruption and investment rate, corruption and international trade, corruption and government revenues, corruption and shadow economy, corruption and the quality of public infrastructure, corruption and public expenditure allocation, corruption and total investment, corruption and foreign direct investment etc. Despite all this, analysis of the cause-effect of relationship between corruption and economic growth is still not sufficient. It is very important to maintain the low level of corruption for the persistence of high economic growth in some countries. Low level of corruption, of course, is not the only reason for explanation of high economic growth.

The undesirable impacts of rent-seeking on economic growth have been researched more or less for three decades. There is, from time to time, a distinction between corruption and rent-seeking among some authors but we explain both in a very similar way. We also stressed out that corrupt businessmen and rent-seekers are competent to keep on their relations with corrupt bureaucrats under different governments and different parties. The persistence of corruption is a characteristic of many transition countries with large economic and political changes.

Some authors like Baumol (1990) have given chronological facts on the adverse effect of rent-seeking on economic growth. In addition to, he investigated the adverse effect of rent-seeking to the option of rent-seeking by the gifted individuals when remuneration structure is in disagreement with production and free enterprise. Some other authors like Murphy, Vishny, and Schleifer (1991) brought in their researches different levels of increasing revenue to talent persons in production and rent-seeking. They gave empirical confirmation supported on the ratio of students from faculties of law and engineering in the USA that rent-seeking is to be in compliance with economic growth. Furthermore, Barro (1991) and Brumm (1999) also found in their research papers adverse impact of rent-seeking on economic growth (and government expenditure). Acemoglu (1995), Mauro (1995) and Baumol (2004) came to the conclusion that rent-seeking and corruption encourage one part of national economy to unproductive activities. Cole and Chawdhry (2002) strong-minded rent-seeking using the raw numbers of interest organizations with permit to lobby in a central administration and the interest organization thickness which takes into account the numbers of organizations with regard to the capacity of each economy. They proved that rent-seeking has harmful effects on economic growth, public investment and public services.

Shleifer and Vishny (1993) investigated situation in Russia, Philippines, and Africa. Authors concluded that corruption has adverse effects on economic growth. They also argued that corruption might be costly because a weak central administration tolerates bureaucracies to enforce high levels of bribes on private businesses. Knack and Keefer (1995, 1997), Sachs and Warner (1997), also considered that corruption has negative effect on economic growth. There is very important paper by Mauro (1995) in the context of this research because he investigated the relationship between corruption and GDP per capita growth in a large cross-section of 68 countries. Mauro proved that corruption has negative effects on investment and economic growth. Lui (1996) considered that corruption has a positive short-term effect on allocate efficiency and a negative effect on the long-term growth rate. Rahman, Kisunko, and Kapoor (1999) investigated how corruption effects on economic growth and gross domestic investment in Bangladesh. They concluded that corruption is significantly and negatively related with cross-country differences in economic growth and gross domestic investment. They also concluded that corruption slows down economic growth by reducing foreign direct investment.

Pellegrini and Gerlagh (2004) investigated connection among several indicators like trade policy, human capital, investment, and political stability with corruption and economic growth. They found negative impact of corruption on economic growth, too. Mo, Méon and Sekkat (2005) thought that corruption has adverse impact on economic growth wherever a weak rule of law and the inefficiency of central administration are present. Méndez and Sepúlveda (2006) used a dynamic general equilibrium model to examine how corruption impacts on economic growth. Their conclusion is that only in the "free" countries the adverse impact of corruption on economic growth became visible. Aidt, Dutta and Sena (2008) highlighted the level of institutional quality because corruption has an adverse impact on economic growth in countries with high quality institutions only. At the same time, economic growth reduces corruption. On the other hand, corruption has no impact on growth in countries with low quality institutions.

A number of authors like Mauro (1996), Brunetti (1997), Poirson (1998), Ehrlich and Lui (1999), Kaufmann, Kraay and Zoido-Lobaton (1999), Leite and Weidmann (2002) and Gyimah-Brempong (2002), Neeman, Paserman and Simhon (2004) and Welsch (2004) used the level of GDP per capita growth as dependent variable. They also concluded that there is a significant negative impact of corruption on economic growth. Li, Xu and Zou (2000) investigated corruption and how it affects on income distribution and growth across 47 countries. Their research paper showed that corruption has an adverse impact on economic growth, but its impact is not very significant. Mo (2001) gave quantitative calculation and thereafter he concluded that corruption slows down accumulation of human capital, investment and political stability. As a consequence of this situation, the result is a lower growth rate. Abed and Davoodi (2002) researched cross-sectional data for 25 countries over the

period 1994-98. They argued that higher growth is related to lower corruption in transition economies. This impact is of no consequence in a segment of structural reform index if it includes the degree of government's failure. Aizenman and Glick (2003) showed estimation with the final result that a falling down of corruption by one index point impacts on the rise of GDP by 0.5 percentage points.

Rock and Bonnett (2004) verified the negative relationship between corruption and economic growth and between corruption and investment by four different corruption indices. They came to the conclusion that corruption is much more destructive to investment and economic growth in small against great developing countries. They also found that corruption networks are under control by a centralized state in East Asia. Furthermore, East Asian Paradox is the explanation for the positive correlation of high levels of corruption and high sustained economic growth in the named region. Guetat (2006) investigated situation in the Middle East and North Africa on a sample of 90 countries. He found significant negative effects of corruption on economic growth undergoing from bad institutions. Islam (2004) eliminated the unobserved fixed effects and reduced the correlation between exogenous variables. He concluded that corruption has negative impact on GDP per capita but it is no longer significant. Pellegrini and Gerlagh (2004) thought that there is no direct impact of corruption on economic growth. The real fact is that corruption has direct impact on investment, schooling, trade policies, and political stability and as a final result there is an indirect impact on economic growth. Interestingly, Barreto (2001) considered that there is a positive direct impact of corruption on economic growth.

### **3 Development of legal and institutional framework for combating corruption in Croatia**

After proclaimed independence Croatia inherited legal and institutional framework for fighting against corruption from the former state. Economic reforms and transition to market economy have also required changing of the inherited legal and institutional framework that was in large part outdated and inadequate. Undoubtedly the change occurred during twenty years of Croatian independence was significant, but a lot is still to be upgraded.

Although in its essence it is always the same, the phenomenon of corruption passed through different forms and manifestation in transition of economic and social system in Croatia. Privatisation of formerly socially (state) owned firms has given some individuals and groups the possibility of a large enrichment, and on the other hand, a large number of employees of these same companies lost their jobs. As opposed to the former social system where private property was limited, in new system it was possible to get in an illegal way the property or acquire the ability to manage financial flows of a large number of companies.

Inefficient prosecution of perpetrators of corruption acts is largely a result of the slow reform of state administration, in relation to the speed of reforms of the domestic economy. Such a situation has also contributed by the inadequate training of employees in most of the state institutions which are responsible for prosecuting criminal offenders, especially those criminal acts that represent the sophisticated forms of corrupt activities.

Corrupt activities are also supported by the fact that employees in state administration and local government have a low income. On the other side, some people formally or informally concentrated more management functions and decision-making power concerning the transformation of social enterprises, obtaining individual licenses for realization of investments, payment of fiscal debts, public procurement, etc. Public has been very often informed in the media that the head of a state institution has become a member of a political party what encouraged such persons in the future to "give back the debt" to those persons who helped him to get a high official position. On the other hand, professionals

who work in public administration and local self-government but do not belong to certain political parties and interest lobbies have become endangered in a fair performance of their duties.

Motivation of citizens to fight against corruption and provide information about corrupt activities to relevant authorities is discouraged by long court proceedings. The author of these lines could personally testify the previously mentioned fact, because he personally initiated criminal proceedings for many illegal activities in the transformation and privatization of social enterprises, but the court proceedings have lasted for ten or even fifteen years resulting with an absolute suspension for criminal prosecution. Unfavourable environment is also contributed by investigative journalism that was in its work quite compromised by the fact that some of the media are not privatized in a transparent process by capital with dubious origin. Those media came into the ownership of persons who are not interested in "taking out someone's dirty laundry."

Fundamental institutions of criminal prosecution have remained the same as in the former social system like the Ministry of Interior, the State Attorney's Office and the courts whereby a significant support in some segments is given by tax administration, customs administration, etc. Nevertheless, these state institutions passed through multiple organizational transformations, changing their legal powers, and thereby they have created new organizational units, more or less involved in certain forms of criminal prosecution of perpetrators of corrupt activities. In this sense, there were the organizational wanderings, lacks of demarcation of responsibilities of some government units for their actions, unclear criteria for the appointment of heads of some government departments, etc. As an interesting example was the establishment of the Financial Police as a separate organizational unit within the Ministry of Finance which responsibilities sometimes overlap with the work of the Tax Administration or the police Department for Economic Crime within Ministry of Interior. It was also significant that Financial Police was abolished in the period after the change of government in Croatia, but it has been again formed with more or less similar powers.

A few years after proclamation of its independence, Croatia has established its regional structure of counties (županije). Shortly afterwards Croatia has made "a regional structure" of the Ministry of Interior, the State Attorney's Office and the courts. The Ministry of Interior has formed departments or groups to combat economic crime, in which jurisdiction there are also some suppression of corrupt offences. It also formed an additional departments or groups to combat against organized crime with the responsibility of prosecuting criminal offences such as receiving and giving bribes. In this way both organizational units are elevated to a higher organizational level than the former Department of Operational Activities from which they were formed. Furthermore, the State Attorney's Office and the courts selected some prosecutors and judges to work on corrupt criminal cases.

The State Attorney's Office, police and the courts have helped in their work with reorganization of the Customs Administration which structure has been reinforced by the new wards with powers of customs control inside the national borders, not only on the border lines. Furthermore, the Tax Administration has formed special department to combat tax-crimes. The Ministry of Finance has also established the Office for Money Laundering Prevention, the Croatian Agency for Supervision of Financial Services (HANFA), the State Inspectorate, the Financial Inspectorate, etc. In a broader sense some non-governmental organizations for combat corruption, such as Transparency International Croatia, Partnership for Social Development, etc could be added to this institutional framework.

However, the overall institutional framework had not an adequate content as a response to the spread of corruption in Croatia. Therefore, the public reasonably required more efficient operation of state administration in its suppression. European institutions also required better results in fighting against corruption activities in Croatia as a precondition for Croatian accession to the EU. Therefore, the Croatian government created the National Programme for Combating Corruption and Action Plan for Combating Corruption. Soon afterwards, the State Attorney's Office has formed special professional Offices for the Prevention of Corruption and Organized Crime (USKOK) based in regional centres in Zagreb, Split, Rijeka and Osijek. The newly formed divisions have not been sufficiently staffed and

they didn't have adequate offices, modern techniques and adequate operational support to implement the necessary actions. USKOK mainly depended in its work on existing organizational units of the Ministry of Interior and such symbiosis did not give the expected results. So it was necessary to establish adequate police departments, which is done by establishing the Police National Office for Combating Corruption and Organized Crime (PNUSKOK) with the four regional departments in already mentioned regional centres. At the beginning, forming of a new police office did not enhance the work of USKOK. However, after the PNUSKOK got better office equipment for its work and hired an adequate number of police officers, it began to investigate great corrupt scandals. The result of this successful operation was the prosecution of high state officials where the damage amounted to tens of millions of Euros.

Criminal law has remained the legislative centre which defines individual criminal acts of corruption. In its essence, although in slightly modified form, the understanding of corrupt crimes such as receiving a bribe, offering a bribe, abuse of official position or authority, abuse of authority in business transactions, etc., which has existed in the criminal law of the former state, has been preserved. Nevertheless, the new criminal law changed individual beings of criminal acts and introduced new criminal acts in the criminal legislation such as money laundering, bankruptcy abuse, abuse of office of state government and others. Without a doubt, they were more appropriate forms of illegal behaviour in the market economy. Corrupt criminal determinants described in the Criminal Law could be more or less associated with other forms of illegality and it could lead to criminal determinants of other laws, for example the Companies Act.

Legislative framework has been improved by the Law on Preventing Conflicts of Interest in Public Office and then the Croatian Parliament formed a Commission to Decide on Conflicts of Interest. Furthermore, the legislative framework has been complemented by the adoption of the Criminal Law Convention on Corruption, the Civil Law Convention on Corruption, the United Nations Convention on Corruption and the Law on Financing Political Parties. Croatian Parliament also accepted the Law on Liability of Legal Persons for Criminal Offences, Law on Witness Protection, Law on Prevention of Money Laundering, Mutual Legal Assistance in Criminal Matters Act and the Law on the Access to Information. At the same time in 2008. Croatian Parliament accepted the Anti-Corruption Strategy and the corresponding Action Plan for its suppression.

Significant reform of legislation regulating the prosecution of corruption offences occurred by changing the Law on Criminal Procedure. In this sense, the most important novelty is conducting an investigation by the State Attorney's Office and USKOK what in practice significantly accelerated the entire judicial process. Instead of investigating judge, the law introduced a new concept of a judge of the investigation. He mainly has the task to monitor the validity of some procedural actions, but he no longer carries out any investigation which is known to be very time-consuming and inefficient. The law also required a more direct involvement of prosecutors and USKOK from the start of the major corruption investigation especially where the investigation would improve new special measures of eavesdropping, tracking, simulated bribery and others, which is implemented in practice. Law on Criminal Procedure introduces the possibility of investigating corruption scandal by using the witness penitent what has been repeatedly essential for the successful completion of the trial. USKOK and PNUSKOK have acquired the necessary technical equipment for the implementation of special measures for the detection of corrupt activities and they conducted a series of educational seminars with practical exercises for training of staff to new working conditions. Significant results in shedding light on some corruption scandals have certainly achieved, and the highest state officials have been arrested which would certainly be reflected on the perception of public about the level of corruption in Croatia. Of course, in some processes that could result with huge damage for local economy, no end is at sight still. Moreover, the opening of some corruption scandals is similar to opening of "Pandora's Box."

The level of corrupt activities in Croatia is also trying to be reduced by the increasing transparency of public administration work and by the establishment of the Central State Office for e-Croatia. The ease

of coordination among government agencies should be enabled by introduction of a personal identification number (OIB). Let us also mention that the Ministry of Interior introduced a free-phone's alarm about corruption, and that significant progress has been made in the Land Registry and transparency of the publication of individual property rights because the whole data are now available on the internet website.

Despite significant reform of the institutional and legislative framework for combating corruption in Croatia, there is still insufficient legal protection of the brave individuals who indicate corrupt activities (whistleblower), lack of motivation of public administration employees to fight against corruption, negative selection of human resources who work on combating corruption activities etc. It is necessary to reorganize and additionally educate judicial employees who work on combating corruption crimes, especially those employees who work on combating the sophisticated white-collar crime. There is still insufficient transparency in the work of individuals who occupy important positions in government offices where potential danger of corruption of such position could be very high.

#### 4 Research methodology and assumptions

Corruption could include various forms like bribery, extortion, nepotism, embezzlement, fraud, insider trading and conflict of interest etc. Of course, this thoughtful of corruption may not be the same as the explanation of corruption evidencing in the some articles of Criminal Law in Croatia and other transition countries. Nevertheless, this idea of corruption notes the heart of problem and therefore a valid investigation using the advantage of adequate model for measuring corruption and its impact on economic growth could be carried out.

The first question is how do we measure corruption because it is by its nature hidden? Another problem to measure corruption is that its outside may give the impression of being wholly legal. Whether the established model of measurement will be credible? Each known model has some advantages and disadvantages. We could measure corruption only by indirect methods. It is impossible to identify all corrupt activities in society because of corruption's illegality. Therefore, the measurement of corruption cannot be mathematically exact.

Almost all known models for the measurement of corruption are based on perception of some categories of the population. We could certainly include in such models bribe payers' index (BPI), global corruption barometer (GCB) and corruption perceptions index (CPI). They are the best known models for the measurement of corruption today. In our research paper we used the corruption perception index (CPI)<sup>1</sup> of Transparency International<sup>2</sup>. This measure in essence calculates the level of perception of corruption in the public sector and it is therefore defined as the abuse of public power for personal gain. It was calculated from data obtained from the reports of entrepreneurs and professionals.

Transparency International publishes an annual data by CPI measures since 1995. Now it is possible to have data from 180 countries and territories around the world. All results are founded on 13 sources from 10 independent institutions. Each source measures frequency and/or size of bribes and provides a status of countries in rank from 0 to 10 points. The highest level of 10 points means that there is the lowest level of corruption in country and on the other side 0 points means that country is the most corrupted.

Corruption perception index is measured by the answers obtained from country reputable experts and business leaders based on the corresponding average for each country. The result and average are

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1 Johann Lambsdorff from University of Passau developed CPI methodology for Transparency International.

2 International civil organization dedicated to fight corruption supported by government agencies, development organizations, public institutions, foundations and individuals

calculated for each participant. Resulting problem is different classification because each of the sources uses its own scaling system. Of course, there is a solution and different scaling systems are standardised in two actions. First of all, the results are denominated in mutually comparable units. This technique is called "matching percentiles". It is probable that in process of "matching percentiles" small amount of information could be lost. Therefore second action is consisted of applying a beta-transformation for the results obtained. The beta-transformation increases the standard deviation among all countries included in the CPI. Subsequently, every one of the standardised indicators is averaged in order to find out a country's level of corruption. Number of evidences, high-low scope, standard deviation and confidence range for every country are going together with CPI range. Confidence range is established on a 90 per cent range with a five per cent probability that the score is under and a five per cent probability that the score is higher than this confidence range.

The average method applied to create the CPI may decrease the measurement mistakes if they are independent and identically distribute in different analysis. But in the case when different analyses cover diverse parts of the set of countries, the averaging method may initiate another measurement mistakes when cross-country rankings are created. If the CPI in different years is drawn out from possibly different set of analyses, they should not be used to measure changing in corruption rank for some countries. However, credibility is kept by the fact that the indices are quite constant over time. In addition to, CPI is highly correlated with other corruption measures.

There was dilemma in economic research of whether economic growth measured by growth rate or by GDP per capita. Researchers have mostly decided to use an average rate of real GDP growth if it was a long period of time. However, we decided to measure economic growth by GDP per capita rather than by growth rate because of the shortness of the research period and speed of structural changes through which it passed Croatia and compared countries in transition. In recent years, more and more authors advocate to use level of GDP per capita in regression rather than growth rate. After all, as noted by Hall and Jones (1999), the growth rate anyway affects the level of GDP per capita.

Our linear regression model would look as follows:

$$\log y_{it} = \alpha_{it} + \beta_i x_{it} + \varepsilon_{it}$$

where are:

y – GDP per capita

x – corruption perception index

$\alpha$  - constant

$\beta$  – regression coefficient

$\varepsilon$  – stochastic variable

If we observe Croatia in the environment of ten transition countries EU members, then the unit of observation is  $i=1,2,\dots,N$ , where  $N=11$ , and the time period is  $t=1,2,\dots,T$ . Logarithmic value of the dependent variable will be used because in this way it balances the pattern and takes into account the declining importance of initial conditions. We used the values in international dollars from Pen World Tables for the level of GDP per capita. Furthermore, we also use cross-country analysis in our paper.

The assumption of success conducting research was minimum level of liberalization domestic prices and abolition of state monopolies in trade, the domestic currency convertibility and liberalization of foreign trade, privatization of enterprises, banking reform, etc. Therefore we used cumulative liberalization index (CLI)<sup>3</sup> as the best measure of the market liberalization. CLI should indicate that

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<sup>3</sup> Calculation procedure is explained in de Melo et al. (1997). CLI is weighted average of the assessed level of liberalization in the internal market, foreign trade and privatized economy, and shows the depth of structural and institutional reforms in transition countries. The index is the sum of the liberalization of previous years because it is expected that previous reforms have an effect on economic performance in the current period



the degree of liberalization is greater than two, which means that the market is sufficiently liberalized. Most transition countries have implemented reforms after the stabilization programs whereas exceptions are Bulgaria and Romania. They have delayed adoption of the stabilization program. Exceptionally, the level of the CLI in those countries was above 2 points before their adoption.

Croatia's Cumulative Liberalization Index was above two during 1992. and amounted to 2.37. CLI over two in 1992. had also Hungary (2.43), Poland (2.46) and Slovenia (2.52). Some transition countries EU members had CLI above two in 1993. such as Estonia (2.04), Czech Republic (2.74), Bulgaria (2.26) and Slovakia (2.64). The rest of observed countries the CLI over two had just during 1994. such as Latvia (2.45), Lithuania (2.72) and Romania (2.29).<sup>4</sup>

## 5 The statistic data, the evaluation and the results

Research of the impact of corruption on economic growth in Croatia is based on data for eleven years, i.e. for the period since 1999. until 2009. Data for the level of corruption in the previous period, measured by CPI index, were not available because Transparency International did not publish data for that period. Total of 11 cases are evaluated. Of course, this is a small number of data for quality evaluation and that is the reason why the impact of corruption on economic growth in Croatia is examined in environment of ten transition countries EU members: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. Research of the impact of corruption on economic growth in ten transition countries, EU member, covered period from 1995<sup>th</sup> to 2009<sup>th</sup>. Data for the level of corruption for the initial exploration period is not complete because Transparency International did not publish data for all countries. Total of 137 cases are evaluated. Data for the 1995<sup>th</sup> year were related only to Hungary, and for 1996<sup>th</sup> year only for Hungary, Poland and the Czech Republic. We have added Romania to data for 1997<sup>th</sup> year, etc. All ten transition countries (plus Croatia) have been fully covered by the survey since 1999<sup>th</sup>. The results of multiple regressions are as follows:

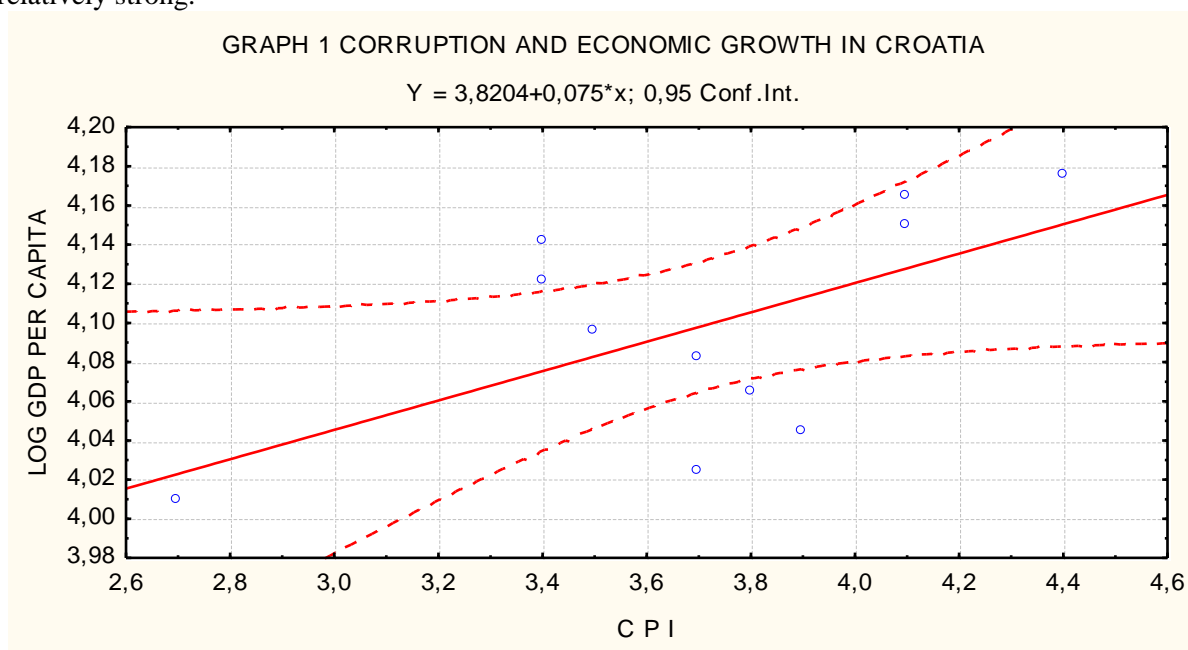
Table 1 Multiple Regression Results for Croatia			
Dependent: Var2	Multiple R = 0,59481003	F = 4,927554	
	R2= 0,35379897	df = 1,9	
No. of cases: 11	adjusted R2= 0,28199885	p = 0,053581	
	Standard error of estimate: 0,048725660		
Intercept: 3,820411725	Std.Error: 0,1258655	t( 9) = 30,353	p = 0,0000
Var1 beta=0,595			

Source: own calculation

The average value of corruption in Croatia in the reference period from 1999<sup>th</sup> to 2009<sup>th</sup> calculated by the CPI method is 3.7. It is below half the maximum level of the CPI score, which means that Croatia still has higher level of corruption. Croatia has not a satisfactory level of CPI in the period observed compared to developed countries. The average level of corruption in Croatia is above the average level of corruption in ten transition countries for the observed period. The average value of GDP per capita in the reference period from 1999<sup>th</sup> to 2009<sup>th</sup> is 12 627.975 international U.S. dollars and it is also not

<sup>4</sup> Source: national legislations and MMF, Till (1995); de Melo et al. (1996)

on the level of GDP per capita for developed countries and transition countries EU members. The average deviation from the average (standard deviation) for the corruption perception index is 0.45607 and 1 653.4987 for the GDP per capita. The coefficient of variation for the corruption perception index of the observed countries is 12.326%, which means that the standard deviation is less than one third of the mean and the indicators reported can be considered homogeneous. The coefficient of variation for the GDP per capita is 13.094% which means that the standard deviation is also less than one third of the mean and the indicators reported can be considered homogeneous too. The correlation coefficient of corruption measured by the corruption perceptions index and economic growth measured by the log GDP per capita was positive and amounted to 0.595 which means that they are much related phenomena. Accordingly, we could argue that reducing the level of corruption in Croatia in the given time period has a positive impact on the level of economic growth. Indicatively, this impact is relatively strong.



Source: own calculation, Transparency International Annual Report and World Bank

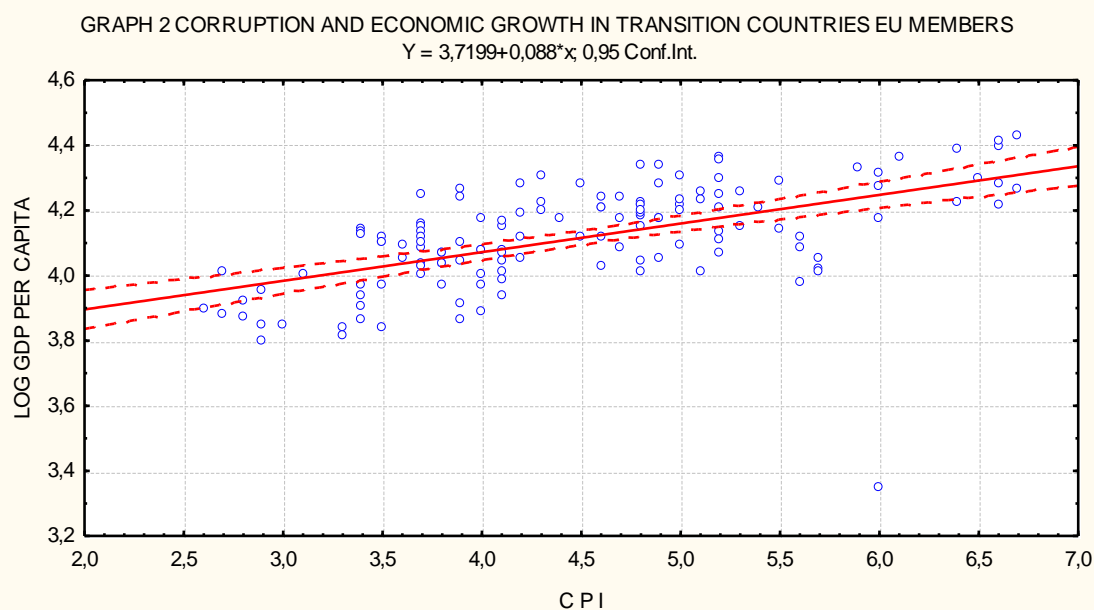
The impact of corruption on economic growth in Croatia has been additionally researched in environment of the ten transition countries, EU members, where Croatia should join in the near future. The results of multiple regressions are as follows:

Table 2 Multiple Regression Results for Transition Countries EU Members			
Dependent: Var2	Multiple R = 0,55638962	F = 60,53016	
	R2= 0,30956941	df = 1,135	
No. of cases: 137	adjusted R2= 0,30445511	p = 0,00000	
	Standard error of estimate: 0,130281372		
Intercept: 3,719907467	Std.Error: 0,0519067	t( 135) = 71,665	p = 0,0000
Var1 beta=0,556			

Source: own calculation

The average value of corruption in transition countries EU members in the reference period from 1995 to 2009 calculated by the CPI method is 4.482482. It is below half the maximum level of the CPI

score, which means that transition countries still have higher level of corruption. Transition countries have not a satisfactory level of CPI in the investigated period compared to developed countries. The average value of GDP per capita in the reference period from 1995 to 2009 is 13 948.17 international U.S. dollars and it is also not on the level of GDP per capita for developed countries. The average deviation from the average (standard deviation) for the corruption perception index is 0.987711 and 4 514.464 for the GDP per capita. The coefficient of variation for the corruption perception index of the observed countries is 22.035%, which means that the standard deviation is less than one third of the average and the indicators reported can be considered homogeneous. The coefficient of variation for the GDP per capita is 32.366% which means that the standard deviation is also less than one third of the average and the indicators reported can be considered homogeneous too. The correlation coefficient of corruption measured by the corruption perceptions index and economic growth measured by the log GDP per capita was positive and amounted to 0.556 which means that they are much related phenomena. The correlation coefficient is little bit lower than in Croatia but we could also argue that reducing the level of corruption in transition countries EU members in the given time period has a positive impact on the level of economic growth. This impact is relatively strong. Graph indicates very obvious that richer countries are less corrupt. In addition to, graph provides information about the expected level of corruption for a given level of GDP per capita.



Source: own calculation, Transparency International Annual Report and World Bank

A characteristic of corruption in the initial period of transition in Croatia is that it has often been associated with the privatization process where political insiders were able to purchase state enterprises at prices far below market values. There are numerous cases of privatization of state enterprises by capital that originated from off-shore companies, shell companies, countries with tax havens etc., which have carried a high cost of financial transactions. However, a number of corrupt activities relating to public procurement, the granting of concessions, building permits, investment, etc., often have direct impact on economic growth. Another characteristic of such impact is that it happens without significant time delay.

With respect to the fact that encouraging economic growth is one of the basic tasks of each government, it in practice often leads to unilateral view that these task may obtain by almost exclusively "classical" economic measures. Today, modern economies and some social phenomena are much more connected than yesterday. It also means that the problems cannot be solved by using well-known existing instruments only. Namely, the "classical" economic instruments needed to be complement by the new instruments relating to the interconnected social phenomena. That is why

measures to encourage economic growth should be complemented by measures to combat corruption in order to be effective.

Nevertheless, an important part of the structure stabilization program in Croatia was provided by "classical" economic measures in order to encourage economic growth only. But it doesn't mean that such measures are sufficiently adequate to encourage economic growth and maintain on an acceptable level. Unfortunately, it also means that stabilization program has not adequately "identified" the economic consequences of corruption or its effects on particular macroeconomic indicators, which resulted with the fact that the stabilization programmes are not properly installed measures to encourage economic growth. Such a view on encouraging economic growth could lead to the accumulation of disparities in Croatian economies. This situation may flare up at some opportune time in the future with the painful macroeconomic consequences.

This indicates the growing need for research into all the circumstances of the macroeconomic environment to obtain the results of better quality, closer to the real truth, but also practically useful in the effort to complete the economic policies in Croatia.

## 6 Conclusion

Corruption is so far mainly looked at the criminal-law framework with intent to punish immoral individuals. But, the major question is: Does corruption impact on other social phenomena? In the centre of our interest we just put a research of prospective impact of corruption on economic growth as an important macroeconomic indicator of any economy. We considered that the transition of former socialist economy provided an exceptional opportunity for understanding the relationship between these two social phenomena. Undoubtedly, conducted research has shown that there is a negative impact of corruption on economic growth in Croatia, and the strength of its influence is strong. The relation between corruption and economic growth is mostly direct and occurs without significant time delay.

Croatia has not incorporated measures to combat corruption in the stabilization programs. Economic growth was stimulated primarily by "classical" economic measures. Misunderstanding of all the factors that influence the economic growth may lead to structural imbalances in Croatian economy and one-sided view that only by economic measures is possible to stimulate economic growth as one of the conditions of macroeconomic stability. Moreover, the causes of slow economic growth may remain suppressed only with their accumulation in a given time period and cause major economic losses in the future.

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