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MASTER'S THESIS  
**THE ROLE OF INSTITUTIONS IN SHADOW ECONOMY IN SOUTH-  
EAST EUROPE**

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# INTRODUCTION

Economic experts have recognized the importance of institutions and generally argue that the quality of institutions plays a significant role in supporting economic development. Thanks to the New Institutional Economics (hereinafter: NIE), institutions have been integrated into economic research and their role and influence on different economic indicators has been taken into account. Representatives of this view believe that institutions are crucial to economic growth and development and that they have a major influence on production, capital, prices and employment, i.e. basic macroeconomic indicators.

It is hard to ignore today that institutional efficiency is an important factor for economic growth and development of an economy. This is especially relevant for countries in transition where the quality of institutions, legal framework, and corruption play a significant role in restructuring of these economies. All transition countries, especially the countries of Southeast Europe (hereinafter: SEE), face difficulties in building new institutions. Some of them have been more successful than others. By moving from socialism to a market economy, the reform of existing institutions had been undertaken, as well as building new institutions in order to adapt to a market economy, but the process was slower than expected. North (1990, p. 16) explained this different success of transition economies by claiming that: "Institutions are not necessarily or even usually created to be socially efficient; rather they, or at least the formal rules, are created to serve the interests of those with the bargaining power to devise new rules."

Schneider and Enste (cited in Enste, 2003) share the opinion that efficient institutions have a positive impact in the process of reduction of shadow economy as well and that the existence of shadow economy in a society is an indicator of a serious lack of legitimacy of the existing social order and the applicable rules. Accordingly, the main focus of this thesis is to investigate the impact of the efficiency of institutions on shadow economy with particular reference to SEE countries.

The aim of the research is to test the hypothesis that greater institutional efficiency contributes to the reduction of shadow economy in the formal economy, focusing our primary attention on SEE countries. The higher the quality of institutions, the lower is the presence of shadow economy. In order to obtain scientifically reliable and relevant outcomes in the context of defined research objectives and hypothesis, namely determine the degree of influence of the efficiency of institutions on the degree of shadow economy in SEE, collection of secondary data was conducted in March 2015. Secondary data was collected annually for the period from 2003 to 2008.

Taking into account the subject of research and focus on SEE countries, the European Bank for Reconstruction and Development (hereinafter: EBRD) Index was used as in order to measure institutional efficiency. In the majority of studies such as the ones by Havrylysyn, Izvorski and Van Rooden (1998), Di Tommaso, Raiser and Weeks (2000), Sachs (2001), Di Tommaso, Raiser, and

Weeks (2007), Efendic and Pugh (2015) and Eicher and Schreiber (2010), the EBRD Index was used because it was specially designed for transition countries (hereinafter: TC). Some authors, such as Redek and Susjan (2005), Aidis, Estrin and Mickiewicz (2007), and Paakkonen (2009) have used the Index of Economic Freedom, of the Heritage Foundation as the main indicator to measure the efficiency of institutions while others used the “Worldwide Governance Indicator” provided by the World Bank (Efendic & Pugh, 2015).

In our analysis of the impact of institutional quality on shadow economy all three indicators were used in order to investigate links between the quality of institutions measured by these indicators and relevant proxies for shadow economy. Data on shadow economy for SEE countries were obtained through the Multiple Indicators Multiple Causes (hereinafter: MIMIC) method. The observed sample includes six SEE countries: Bosnia and Herzegovina, Serbia, Croatia, Slovenia, Macedonia and Albania, while the observed period is 2003-2008. The observed period ranges from 2003 to 2008, because the world financial crisis took place in 2009, whose consequences would have impacted the research and its results. In this sample, these countries have a rather common history, aspirations and goals, and similar macroeconomic environments and performances. To examine the relationship between the indicators of interest, we conduct regression analysis, while for the purposes of preliminary analysis we estimate correlations between these indicators by using Pearson correlation method.

The first part of the thesis will provide theoretical section focused on the role of institutional efficiency in economic analysis, which includes definition of institutions, differentiation of institutions, their importance, challenges in measurement and an overview of institutional efficiency in SEE countries. The second chapter focuses on shadow economy, explaining the meaning, forms, causes, advantages and disadvantages of shadow economy, models of measurement of shadow economy and shadow economy in SEE countries. The third section gives an overview of the literature and the most important works in this field, while the fourth part of the paper contains an empirical analysis of the research results. The final section concludes this Master’s thesis.

# INSTITUTIONS IN ECONOMIC ANALYSIS

## 1.1 Definition of Institutions

The research of this topic will begin with an explanation of institutions. In literature we can find different definitions of institutions, as well as different approaches in different disciplines. The word institution is often used as a synonym for organization and institution. However, the meaning of the term is much more complex because it contains social factors that influence human behavior.

There is a difference between a narrower and a broader concept of defining institutions. Efendic (2008) explains that according to the narrower concept institutions create “rules of the game” and “collective action occur within the organization” where organizations can be understood as “interest groups” that exist within the institution. According to the broader concept, organizations can also be seen as institutions, together with the people who work in their own or someone else's interests within the institutional arrangement.

One of the first definitions of institutions were given by Ruttan and Hayami (1984), who explain that institutions are social or organizational policies that facilitate coordination among people, helping them to shape the expectations that each person has while communicating with others. According to Commons (cited in Davis, 2010), institutions are a form of collective behavior that achieves control, liberation and expansion of individual action. Institutions are also collective actions carried out by different types of organizations, such as families, companies, associations that control individual actions. Ruttan and Hayami (1984) describe institutions as the rules of a society or organization, which facilitate coordination between people, assisting them in shaping the expectations that each person possess in dealing with others. According to Coriat and Dosi (cited in Parto, 2005), institutions are formal organizations, patterns of behavior, negative norms and restrictions. Krätke defines institutions as a set of agreements and rules of action that dominate in a given economy, placed in the local social structure, which indicate regional differences (Parto, 2005). Hodgson (2006) defines institutions similarly, as a system of established and prevalent social rules that structure social interactions. According to Greif (cited in Davis, 2010), institutions are a system of social factors that together create a code of conduct, where the social exogenous non-physical factors were created by man and affect the individual. Mitchell claims that the term institution is more suitable for more important, widespread, highly standardized social habits, while for Young they represent rules of the game or rules of conduct that define social practice (Parto, 2005). However, the most known and widely used definition of institutions is the one given by North (1990, p. 3), “Institutions are the humanly devised constraints that structure human interaction. They are made up of formal constraints, informal constraints and their enforcement characteristics. Together they define the incentive structure of societies and specifically economies”. Restrictions may be formal such as laws and rules, and informal such as norms of behavior and customs.

All these definitions contain different forms of institutions, such as the formal social systems or organizations, norms and customs, and systems of social interaction. Parto (2005) identifies three very important features that were given to institutions through definitions by numerous authors: system, levels of interpersonal relationships (individual, within and between different organizations, social) and territorial scale of management as the level of local, national or international institutions.

North's (1990) definition indicates that the institutions differ from the behaviors that they cause because the rules of the game are different from ways of how the game is played. Unlike North, Grief (cited in Davis, 2010) does not consider the institution as exogenously specified rules, but believes that the behavior of actors creates the rules and that the institutions represent the balance of the game, not the rules of the game. Glaeser (cited in Davis, 2010) insist that institutions must be relatively permanent, which means that one should make a distinction between policies and institutions. If the institutions represent the basic structure of government or property rights, and some of the policies are, for example, the exchange rate policy, price policy, wages and public revenues, then the definition of institutions as rules of the game implies that these policies are qualified as institutions.

There is a dilemma whether institutions should be defined so as to include the organization and policy, and whether institutions influence behavior and create patterns of behavior or whether institutions are consequences of behavior, the result of different patterns of behavior that was defined and created by the mentioned institutions. Taking into account all of these definitions of institutions, North's definition is the one most commonly used, and cited even though it was the subject of criticism. Some critics have already been mentioned and explained. However, his idea of institutions as "rules of the game" is very important as well as its contribution to institutional economics.

## 1.2 New Institutional Economics

In order to understand the concept of the NIE one needs to look back at the beginnings of institutional economics. In fact, there is the "old" institutional economics and the "new" institutional economics. Institutional economics was founded in the late 19th and early 20th century until NIE developed in the mid-seventies in response to mainstream neoclassical liberal economic thought. It believes that the neoclassical theory is an inappropriate tool to analyze and to determine policies which would stimulate development, because the neoclassical analysis usually assumes that the transaction does not cost anything, that information is freely available and that countries have good intentions (Budak & Sumpor, 2009).

New Institutional Economics believes that institutions are important for economic development and they influence the production and performance of the economy. This is in accordance with the "old" institutional economics, but the problem arises in measuring and quantifying the quality of

institutions. NIE differs from the “old” institutional economics as it tries to incorporate the theory of institutions into economics and persist in the belief that institutions are measurable and subject to study by instruments of economic theory. NIE considers that appropriate institutional variables need to be involved in the analysis of economic growth; variables that include the quality of institutions. The largest contribution of NIE is in its attempts for institutions to be considered as independent variables as opposed to describing their characteristics and features. Thanks to them, it was no longer questioned whether institutions were important for economic analysis, but it was considered which institutions were important and how to quantify and include them into economic analysis (Budak & Sumpor, 2009).

“Property and contract rights” form economic institutions whereas political institutions shape the a country’s structure and political decision-making systems (Borner, Bodmer, & Kobler, 2004). The quality of property rights is very important because it determines the ability of the company to accumulate and utilize factors of production. Political institutions are crucial in the formation and preservation of property rights. Even Adam Smith (cited in Borner et al., 2004) had recognized the crucial role property rights play for the proper market functioning and exchanges.

According to the authors, even long after Smith’s time, property rights and other characteristics of economic institutions were not an “important part of economic analysis”. With the works of Alchian and Demsetz (1972), Coase (1937), Demsetz (1967), and North (1981), institutions were put back in focus of research. This first generation of institutional economists used informal methods, which were based on empirical observations, but in the last thirty years there has been an increase of theoretical works of economists such as Akerlof (1970), Spence (1973), Stiglitz (1974) and others. Their contribution has altered the focus of economic theory, and has impacted other areas as well, such as “macroeconomics, labour economics and development economics” (Borner et al., 2004).

### 1.3 The Role of Institutions in Economic Analysis

Thanks to the New Institutional Economics, institutions are placed in the focus of research and their role and influence on economic trends have been taken into account. Representatives of this view believe that institutions are crucial to economic growth and development and that they have a major influence on production, capital, prices and employment, and basic macroeconomic indicators. Theoretical and empirical research on NIE influenced the regulative, macroeconomic and other public policies. Institutions in the forms of law, political systems, cultures or educational systems of a country affect the amount of cost sharing, and thus the performance of the economy. “Institutions reduce risk by lowering IT costs, encouraging the mobility of capital, enabling assessment and risk-sharing and facilitate cooperation” (Budak & Sumpor, 2009, p. 174). Economic development is seen as a response to the evolution of institutions that support social and commercial relations, and it is linked to institutional development (Budak & Sumpor, 2009). Acemoglu, Johnson and Robinson (2001) provide an analytical framework for the study of institutional changes, which emphasize the

historic importance that determines the political and economic structure of an institution. Acemoglu and Robinson (2008) have published paper arguing that institutions play a more important role in development than had previously been widely accepted.

Considering the impact of certain determinants on economic development in the world, measured by GDP per capita, Rodrik, Subramanian and Trebbi (2004), find that quality of institutions trump geographical location and trade as determinants in explaining income differences. Rodrik et al. (2004) report in their study that the quality of institutions, measured by the protection of property rights and the rule of law, has several times greater significant effect on increase of GDP per capita in comparison to the impact of other independent variables in the model, such as geographical location and international trade. A flourishing market economy is dependent on a number of institutions which regulate them and which are in charge of regulating the behavior at the markets of goods, services, labor, real estate and finance. The United States of America may be used as an example of a country that has one of the most liberal markets, but at the same time some of the strictest antitrust rules, because the more liberal markets are, the more they are burdened by regulatory institutions.

La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1999) also report that the performance of a government, except for the quality of institutions, is influenced by historical characteristics of individual countries. When doing a research, one needs to be aware of the problem of endogeneity of variables in the model. Problems of simultaneity and endogeneity of institutional variables was also described by Aron in her research (2000), finding that the quality of institutions is positively and significantly associated with an increase in GDP by increasing the volume of investment. Most authors agree that institutions are an endogenous development process and that one needs to be careful in the interpretation of research results and accept the fact that there are no uniform institutional settings that will function successfully in any specific environment. This is because the direction of cause and effect relationships showed to be reciprocal, and that is since institutions measured in that way are not exogenous to the development process.

Edison (2003) empirically tested the strength of the links between institutional quality and economic performance by regions, from the least to the most developed countries of the world. Groups of countries with higher quality institutions have pursued higher rates of increase in GDP per capita, and the impact of economic policies on economic performance proved to be weaker than the impact of the quality of institutions. Again it can be concluded that appropriate policies can be successfully implemented only if there is a functional institutional framework. On the other hand, weak institutions reduce the likelihood of implementation of policies and impair their efficiency. It does not diminish the importance of economic policy, but it can be said that is a prerequisite for the successful implementation of economic policy. Olson (1996) is of the opinion that great differences in the wealth of nations are mostly due to differences in the quality of their institutions and economic policies.

The market of a country must be linked to a set of non-market institutions to function properly. According to Rodrik (1999), institutions perform four key functions which are important for the existence of markets:

- creating a market;
- regulating a market;
- stabilizing a market;
- legitimating a market.

Non-market institutions serve the needs of the market economy, and even if there is a management structure it exists in order to facilitate the functioning of markets and the provision of conditions so that markets can perform their function. In addition, non-market institutions can sometimes produce socially undesirable results, in terms of the use of public institutions for private purposes and restriction of market freedom. However, the primary role of these institutions is to support the market and market management system.

Ahrens (cited in Budak & Sumpor, 2009) believes that the simplest way in displaying the role of institutions in linking the economy and the state system of a country, is on the example of the effects of political and economic reforms in post-socialist countries of Central and Eastern Europe. Economic reforms in those countries were supposed to ensure faster economic growth and development in a relatively short period of time, but that did not happen (Baletic & Budak, 2007). The main reason given for this was inadequate institutional frameworks within which the reforms are taking place, or the lack of political stability and social consensus regulating property rights, the entry and exit of companies to the market and other conditions of market operation (Baletic & Budak, 2007). According to Efendic (2010), the importance of institutions in society is reflected through their impact on:

- the amount of total expenses in the company;
- quality of life (inequality, for example);
- expectations (optimism, pessimism);
- investment in physical and human capital;
- productivity and competitiveness;
- the overall consumption in society;
- entrepreneurial initiatives;
- behaviors of individuals (place of living);
- competition in the public sector;
- social capital.

The Research Centre for Development of OECD tested two main hypotheses. The first was stated that better institutional environment accelerates the accumulation of capital and creates a more productive allocation of physical and human capital. Both factors increase efficiency, because the more developed institutions are the lower is the transaction costs (Borner, Bodmer, & Kobler, 2004).

The second hypothesis stated that better institutional environment increases production, exchange, and economic development (Borner et al., 2004).

Economies of scale allow individuals and companies to specialize in the manufacturing of goods in which they have comparative advantage, which enhances investment and efficiency. Regression analysis was conducted on a sample of 133 countries for the period from 1960 to 1989 (Borner et al., 2004). The results indicate that the quality of economic institutions largely depends on economic growth and the level of investment. The empirical framework reveals “three channels through which political institutions” can impact economic development; the first is the “direct impact on productivity”, the second is through the accumulation of capital, and the third is “the effect of the quality of economic institutions” (Borner et al., 2004).

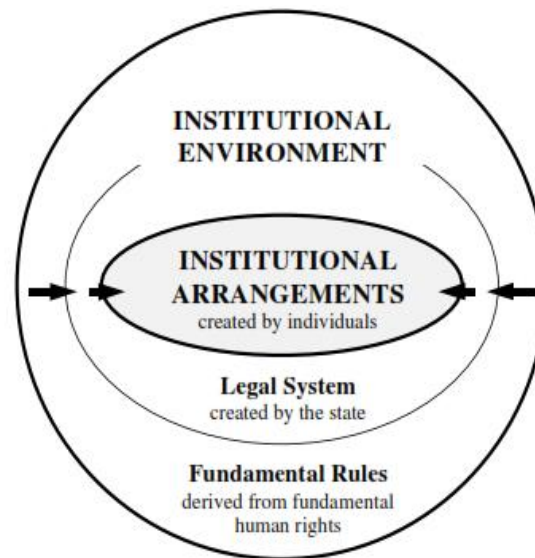
It can be concluded that institutions have a direct and indirect impact on economic growth and development, namely: an increase in investment, trade and integration, social capital, better management of ethnic and other conflicts, implementation of policies and political stability. According to Rodrik et al. (2004) property rights, regulatory structures, the quality and independence of the judiciary, and bureaucratic capacity cannot be taken for granted because they have proved to be crucial for launching and sustaining economic growth.

A study conducted by Efendic and Pugh (2007) confirms the economic importance of institutions, but adds new findings to be taken into account. One of them is that the GDP is determined by entire history of reforms in TC and that GDP per capita is adjusted depending on short-term or medium-term reforms. Another important conclusion is the time horizon, which shows that there is no significant correlation between GDP and institutional changes measured for a period longer than five years.

## 1.4 Types of Institutions

We have already identified two important types of institutions, formal and informal institutions. Formal institutions are institutions established by the state while the rest are informal institutions (Davis, 2010). Formal institutions are easy to identify and observe while informal institutions are much more difficult to investigate. There are three levels of formal institutions, which can be seen in the Figure 1 below.

Figure 1. Three Levels of Institutions



Source: S. Borner, F. Bodmer, & M. Kobler, *Institutional Efficiency and its Determinants: The Role of Political Factors in Economic Growth*, 2004, p. 30.

The first level includes those institutions derived from the basic human rights, usually listed in a country's constitution. On the second level are the institutions which, based on basic rules, make a legal system that includes property rights and contract laws as well as regulations on the structure of a country and the process of political decision-making. These political institutions define the level of democracy or autocracy in a country. Together, the basic regulations and legal system form the institutional environment. Within the institutional environment, individuals and organizations enter into contracts or institutional arrangements to coordinate their activities (Borner et al., 2004). That creates the third level of institutions. Institutions from all three levels are strongly related to each other.

Informal institutions can influence the behavior of formal institutions; the same applies for the opposite case. However, it is more likely that people will respect the norms of a particular country as a formal institution, than the norms of religious leaders or informal institutions. The distinction between formal and informal institutions is used to the extent necessary for the analysis conducted (Borner et al., 2004). Informal institutions are often much more important, especially for economies in transition because they are dependent on hereditary characteristics and are very slow to change, and the unwritten rules of behavior, norms and practices can greatly influence the behavior and choices in a society.

In addition to dividing institutions to formal and informal, there is a classification on external and internal institutions, where external institutions are formal rules that are executed by monopolistic compulsion of countries and internal institutions which are subject to private control and can be

classified according to the different characteristics of the execution or implementation of the rules listed in Table 1.

Table 1. Types of Institutions

| Types of rules  | Method of execution/implementation   | Type of institutions in terms of |   |
|---|--|----------------------------------|---|
|   |  | Normative rules                  | Organization  |
| Convention<br>(agreement, treaty)                               | Self-execution (violation of the rules would endanger the actors)  | Internal – type 1                | <b>Informal institutions</b><br>(horizontal relationship) |
| Ethical rules   | byself-commitment of actors (due to intrinsic motivation, individuals could internalize ethical rules, for example, to respect them even when it is not in accordance with their closely defined personal interests) | Internal – type 2                |   |
| Custom  | informal social control (i.e. explicit sanctions imposed by others, for example, informal enforcement of informing others about disrespect, which jeopardizes the reputation of the offender)                        | Internal – type 3                |   |
| Formal private rules  | organized private enforcement (private arbitration tribunals or private power)   | Internal – type 4                | <b>Formal institutions</b><br>(vertical relationship)     |
| The rules of positive law (the constitution, laws, regulations) | Organized execution by states  | External                         |   |


Source: J. Budak & M. Sumpor, *Nova institucionalna ekonomika i institucionalna konvergencija*, 2009, p. 171.

Monitoring of internal rules relies on the horizontal relations among the actors involved, and external institutions are based on vertical (hierarchical) executive or implementation mechanisms. Parto (2005) classifies institutions as following:

- behavioral - institutions as standardized social practices that are reflected in the actions of individuals and groups as a reflection of social norms (customs, habits, routines, ways of doing things, common beliefs, theories in use, “the way the game is played”);
- cognitive - institutions as mental models and assemblies or definitions, reflected primarily in what society expects of individuals (cultural and social values, superstitions, “wisdom”, “how the game should be played”);
- associative - institutions as mechanisms that facilitate prescribed or preferential interaction between the various private and public interests (business networks, kinship groups, social classes, associations, interest groups);

- regulatory - institutions as permits and prohibitions, written and unwritten rules of “the game”, the state as the creator, judge and enforcer of rules;
- constitutive - institutions that set the limits of social relations, joint actions initiated by government agencies, companies, unions, or groups of citizens - property rights, agreements, family.

Table 2. The Types of Institutions by Level of Formality

| Behavioral institutions   | Cognitive institutions | Associative institutions | Regulatory institutions | Constitutive institutions |
|---|------------------------|--------------------------|-------------------------|---------------------------|
|  |                        |                          |                         |                           |
| Low formality   |                        |                          | High formality          |                           |

Source: S. Parto, “*Good Governance and Policy Analysis: What of Institutions?*”, 2005, p. 9.

Institutions may be associative in the context of socio-political structures marked by socialization or expressing certain values or interests (Parto, 2005). Institutions also have behavioral aspects as they represent the correctness of the behavior of people, which is self-sustaining and is based on external authority (Parto, 2005). Institutions have cognitive elements because they are based on values and embedded in culture, and in addition contain a component of a regulatory nature because formal institutions are based on laws and regulations. The constituent institutions contain a set of fundamental political, economic and legal norms which allocate competence in society, creating a favorable institutional environment (Parto, 2005).

## 1.5 Institutional Change

Institutions have an important role in increasing the functionality of society, especially economic efficiency, as an integral part of social capital and a key factor of economic growth. Because of the role they play in society, it is important to know why and how institutions change. Institutional changes exceed organizational changes and focus on the basic social rules or norms that define the way in which the social functions are structured and how they are managed. According to Bejakovic (2003), requests for institutional change come from those who conclude that their benefits from exercising activities, which require institutional change, goes beyond the costs of overcoming resistance to change, or because existing rules prohibit such activities or the new rules reduce the transaction costs of doing business.

Bejakovic (2003) considers formal and informal rules in the case of employment of women by comparing the policies of the past, when men worked and earned the income, and women took care of the house and children, with present times where the same rules of the labor market apply to both. In the past, single women were marginalized in society, even if they worked; they only worked part-time, usually until they gave birth and after their children were grown up. With the increase in the

number of women who wanted a career, the market treated all women as the costlier source of labor than men. Various feminist organizations and groups influenced legislation in order to equalize women's and men's earnings for the equal amount of work, which added to the transaction costs of monitoring and enforcement of employment contracts, without solving the problem. In order to achieve possible gains from participating in the labor force, women had to fight for institutional changes. The essence of the problem was removing the limitations of formal and informal rules, so that a competitive labor market has no need to create a distinction between men and women. The pressure within the system eventually led to changes in the rules and was adjusting to the new requirements of the game. Today, we live in a society where single mothers or illegitimate children are more easily accepted. The largest transaction cost of such a change of formal and informal rules is changes in moral standards.

Given the fact that formal and informal rules determine the rules of the game, the question is what the relationship between formal and informal rules is, or whether they are in conflict or complement each other. More than half a century ago, while studying the history and development of the relationship between formal and informal rules, Brief (cited in Bejakovic, 2003) came to the conclusion that formal institutions can suppress, but cannot supplant or change informal institutions. As an example, he named the situation in the Caucasus, where in spite of the centuries-old colonial rule all countries maintain their previous informal institutions (regardless of the long Russian and Soviet reign in the Caucasus, Islam could not be suppressed). The mismatch of formal and informal rules is an aggravating circumstance for society which slows down the progress of society and increases transaction costs of preserving the existing institutional framework. On the other hand, there is a possibility that the formal and informal rules are harmonized and complement each other, which enables low-cost monitoring and their implementation will eventually lead to the increase of social wealth.

Efendic, Pugh and Adnett (2011) investigated the citizens' trust in formal institutions and reliance on informal institutions in Bosnia and Herzegovina. The results associate less confidence in formal institutions is linked with reliance on informal institutions. The results showed that minority ethnic groups in each region relied on more informal groups than on formal institutions, in relation to the main ethnic groups. The situation in BiH is specific due to the complex governmental structure, the existence of two entities and Brčko District, ten cantons within the Federation of BiH and three constituent people living in this area. An interesting data from their study is that men rely more on informal institutions than women and that informal institutions are used in urban areas more than in rural, which is opposite to popular belief that informal institutions are more present in rural areas (Efendic et al., 2011).

Informal rules are not political variables, they are rooted in society and their changes come from within society in which they were built. Informal rules are very slow to change. It represents a slow and lengthy process because habits, prejudices, certain ideas, which are part of a society or culture is

something that is very difficult to change. Even when there is new idea born in a society, it takes a lot of time to be accepted by the entire society, and in the beginning will be ridiculed and cast out by the majority. In contrast to informal rules, formal rules are political variables and changes can occur spontaneously or can be imposed from the outside. Although they can be imposed from the outside, they do not have to be in conflict with informal institutions. According to Bejakovic (2003) it is even better to implement them in that way, because it will be easier and faster accepted by society. Otherwise it may happen that society fails to accept them.

With the fall of socialism, the countries of Eastern and Central Europe had to create stable rules for cooperation and relations with the rest of the world. Given the history of these countries and their cultural pattern it can be said that they are prone to egalitarianism and collectivism, and not likely to accept liberalism and individualism. Contact with the capitalist system which emphasizes the pursuit of the realization of self-interest, self-responsibility and self-reliance, which rewards of one's ability and entrepreneurship, and encourages risk-taking, led to the realization that capitalism is an entirely different mechanism and way of life. The adoption of capitalist institutions in these countries prior to adopting the appropriate cultural system, inevitable lead to conflicts and aggravated full acceptance of capitalism and most importantly debilitate economic growth and development in these countries (Bejakovic, 2003).

## 1.6 Measuring Institutional Efficiency

Institutions are such a complex phenomenon that empirical research cannot encompass all that complexity, so that research has to use simplified institutional indicators (Efendic, 2010). In institutional analysis civil liberties and political stability as well as the variables of institutional quality were measured first, then indicators of quality of public administration, corruption, rule of law, regulatory restrictions, and other indicators of the quality of public administration were considered (Budak & Sumpor, 2009). One shortage of economic research is that the quality of institutions is used as an independent variable, but indicators of institutional quality are a series of interrelated indicators. In order to measure the quality of institutions empirical studies have used measures of political stability and democracy, while after 1995 indicators such as the level of protection of property rights and the quality of the business environment for investors were used.

The protection of property rights and contract enforcements are essential for increasing national income. In their work on the connection between institutions and economic performance Knack and Keefer (1995) introduced new measures of institutional quality, and showed that countries with higher institutional development, especially with a higher degree of protection of property rights, converge faster to the level of development of the USA. In their empirical analysis following indicators were used to assess the quality of institutions:

- BERI (Business Environmental Risk Intelligence) – indicators of infrastructure quality;

- implementation of contracts, bureaucratic delays, the risk of nationalization and expropriation, ICRG (International Country Risk Guide) - indicators of the quality of bureaucracy;
- corruption in the government, the rule of law, the risk of expropriation and application of government agreements;
- Gastil Index of Political and Civil Liberties;
- Political Stability Index.

The World Bank publishes quality indicators of public governance for all countries in the world, which are now unavoidable aggregate indicators of institutional quality. Indicators of the quality of public governance of the World Bank (Budak & Sumpor, 2009) are calculated for six areas and include:

- voice and accountability;
- political stability;
- government effectiveness;
- regulatory quality;
- rule of law;
- control of corruption.

The existence of corruption reflects the quality of institutions, quality of public administration, obstacles to investment and efficiency of the judiciary. The most commonly used indicator is the “Corruption Perception Index” of Transparency International, which is the best known index measuring corruption in the world. The Corruption Perceptions Index is a study which produces a list, rank countries according to the assessment of the extent of corruption on a scale from 0 to 100, where 0 represents a country, which is perceived to be highly corrupt, while countries evaluated with 100 are perceived as incorrupt. The Corruption Perception Index indicates that many countries are still faced with the threat of corruption at all levels of government (Corruption Perceptions Index 2014: In Detail).

The index for measuring the efficiency of institutions in transition is published by the European Bank for Reconstruction and Development (EBRD) and it covers eight areas:

- large-scale privatization;
- small-scale privatization;
- restructuring of enterprises;
- liberalization of prices;
- trade and foreign exchange system;
- competition policy;
- reform of the banking system;
- security markets.

Aggregated (usually normalized to make interpretation easier) Institutional EBRD Index ranges from 0 to 1, where 0 indicates national economic institutions in the planned economy, while 1 represents the market-oriented economic institutions in developed (OECD) countries. Although the Institutional EBRD Transition Index gained widespread use, its shortcomings are becoming increasingly obvious. According to Sanfey and Zeh (2012), the biggest problem is that factors such as the “institutional framework for private sector development” and the “creation of markets” are not sufficiently taken into account. The author further states that “a successful transition involves reducing the role of the state and encouraging private ownership and market forces”, but it became more and more obvious that the market “cannot function properly unless there are effective public institutions” (Sanfey & Zeh, 2012).

Therefore, the EBRD has developed a new set of indicators. The new approach examined 16 sectors, corporate, energy, and infrastructure and finance in each country and provides an estimate of the size of the transition gap and challenges for the future. The estimate was made on “what needs to be done, in terms of changing market structures” and “institutions” to support the development of a market economy (Sanfey & Zeh, 2012).

Kasljevic and Redek (cited in Budak & Sumpor, 2009) believe that economic freedom is another aspect of the quality of institutional environment, which inevitably leads to higher economic growth and development, and therefore they use the Index of Economic Freedom in order to analyze the quality of institutions. The Index of Economic Freedom by the Heritage Foundation is the best known indicator and it is calculated as the unweighted average index value of 10 individual freedoms. Each of these freedoms is vitally important for the prosperity of individuals and the nations; it includes the following (Sanfey & Zeh, 2012):

- freedom of business;
- freedom to trade;
- monetary freedom;
- freedom from government influence;
- fiscal freedom;
- property rights;
- investment freedom;
- financial freedom;
- freedom from corruption;
- labour freedom.

According to the Index of Economic Freedom (Miller, Kim, & Holmes, 2014), Hong Kong is the freest economy, followed by Singapore, Australia, Switzerland, New Zealand, while Cuba and North Korea are at the bottom of the list, as countries with the lowest index of economic freedom.

The disadvantage of these indicators is that they are subjective, especially the Corruption Perception Index, because they are a reflection of perceptions and as such are often not the result of objective analysis and reliable data for analysis. Another drawback is that these figures are too simplified. However, this category is very difficult to measure and quantify, but currently they are the best indicators of the quality of institutions and the way they impact economic growth and development.

The International Country Risk Guide (hereinafter: ICRG) is an index used by the Agency for Assessment of Political Risk. The agency investigates and analyses the factors that influence the risk of a country, which are political, economic and financial risks, and in the end estimate a summary risk that combines all three types of risk for foreign investors (Borner et al., 2004). As explained by Ostojic (2010, p. 20), the methodology used to determine the political risk of a country is the official methodology of the Agency for Assessment of Political Risk, and the political risk components to be analyzed include:

- government stability;
- socio-economic conditions;
- profile of investments;
- internal conflicts;
- external conflicts,
- corruption;
- influence of the military in politics;
- religious tensions;
- constitution and laws;
- ethnic tensions;
- democratic stability;
- the quality of bureaucracy and administration.

International financial institutions and agencies have become an important factor of stability in the past 20 years, in terms of providing assistance and guarantees to investors for the performance of markets, whether they express political or other risks. The Multilateral Investment Guarantee Agency (hereinafter: MIGA) is one of them, which was established by the World Bank in 1988 with the aim of promoting foreign direct investment in developing countries, in order to improve living standards and reduce poverty. MIGA offers insurance that protects lenders and investors against political risk and investment carries, and helps developing countries to attract and retain private investment. As stated by Ostojic (2010, p. 21), MIGA has currently 173 member countries, and has a capital of over one billion Euros. MIGA's portfolio includes risk coverage of political character of the member countries, which include the following types of risk:

- Expropriation - The agency covers loss of a company to investors that occur as a result of expropriation, nationalization or confiscation of assets. The agency provides protection against loss resulting from actions by the host government, which results in a reduction or forfeiture of assets, reduction of control or the rights to investment management.

- Non-fulfilment of the contract - This type of insurance covers the loss of a company, which occurs as a result of non-performance, non-recognition or termination of contract by the government which the arrangement was concluded with, as well as insurance of losses incurred for the same reason when a contract was made with another company.
- War and civil unrest –The policy of the agency related to insurance of this type of risk refers to the coverage of the destroyed property damage, which occurs due to war, civil unrest, revolution, sabotage or terrorist action.
- The withdrawal of currency convertibility - MIGA compensates the damage and loss due to limiting cash transfers imposed by a country in which the investment projects are realized. The agency covers losses arising from the inability of the investor to make the conversion of funds of the local currency (capital, interest, principal, profits, and royalties) into foreign exchange for transfer outside the host country.

The disadvantage of these indicators is that they are hardly quantifiable. Most research has used the Institutional EBRD Index. Raiser et al. (cited in Efendic, 2010) consider the institutional parameters of the EBRD as the best available data on institutional changes in transition economies, because they are specifically designed for transition economies and are available for every year since the beginning of the transition period.

The “EBRD transition index” (aggregated and normalized as in Efendic and Pugh, 2015) will be used in this study, as well as the “Index of Economic Freedom” as an annual indicator of freedom in various fields, which is published by the Heritage Foundation and the Wall Street Journal and “The Worldwide Governance Indicator” which is the mean of the sum of the six dimensions which are related to the efficiency of the public sector. Although they have some shortcomings discussed earlier, we believe that this is the best choice for our research.

## 1.7 Institutional Efficiency in SEE Countries

Transition is a widely accepted term for the political and economic changes in the former communist countries of Europe in order to establish market economies (Efendic, Pugh, & Adnett, 2011). The transition reforms, which started in 1989, implied four key elements: liberalization, privatization, macroeconomic stabilization and institutional reforms. All TC, especially SEE countries, faced difficulties in building new institutions. Some of them had more success than other. By moving from socialism to a market economy the reform of existing institutions and building of new institutions started in order to establish market economies, but the process was slower than expected. North (cited in Beck & Laeven, 2006) argues that the different success in transition economies confirmed that institutions were not created to be socially efficient, but to serve the group of people with the bargaining power to create new rules in society.

Socialist elites have fewer incentives to create institutions that encourage competition because it would reduce their economic power. The economies that rely heavily on natural resources provide greater opportunities for the ruling elite to extract rent and are less concerned to ensure protection of property rights. As have already been mentioned, property rights and contract enforcement are key elements of institutional framework, however socialist institutions did not provide effective protection of property rights and contract enforcement, and the transition process challenged them to establish new institutions necessary for the new market opportunities. Elites, which had been less rooted, were able to influence the course of the transition, as well as elites in countries that had been less dependent on natural resources and had less incentive to seize power so that they allowed more development of the rule of law and protection of public property (Beck & Laeven, 2006).

At the beginning of transition process, most countries had out-dated production facilities and equipment, and manufactured goods were significantly below western standards. Therefore, it was necessary to upgrade these plants, which required funding, and few people were willing to invest in a country where there is no guaranteed protection of property rights.

Table 3. Major EBRD Components of Institutional Proxy Variable

| Sources of Institutional Proxy Variable                            | Timeframe, sample  | Index components – first classification | Index components – second classification                 |
|--|--|---|--|
| Indicator of structural and institutional changes, the EBRD (2008) | 1992-2007; 29 transition economies, with the exception Kosovo, which recently declared its independence and for which there is no data available | Market and trade                        | Price liberalization                                     |
|  |  |   | Trade and foreign exchange system                        |
|  |  |   | competition policy                                       |
|  |  | Financial sector                        | Banking reform, interest rates and liberalization        |
|  |  |   | Securities market and non-banking financial institutions |
|  |  | Companies                               | Privatization of large-scale enterprises                 |
|  |  |   | Privatization of small-scale enterprises                 |
|  |  |   | Government and enterprise restructuring                  |

Source: A. Efendic, G. Pugh, & N. Adnett, *Confidence in formal institutions and reliance on informal institutions in Bosnia and Herzegovina*, 2011, p. 524.

The EBRD Transition Index is the most frequently used as measures of institutional change in transition countries. The following Table 4 shows the EBRD Transition Index for the SEE and for

the period 2003-2008. It is ranked on a scale from 1 to 4.33, where 1 represents little or no progress in reforms, and 4.33 represents great progress in transition. According to the indicators from the Table 4, it can be concluded that the weakest pace of reform is in the field of management, enterprise restructuring and competition policy for all countries under observation, while the biggest advances are in the field of trade, currency system and pricing policy.

Table 4. EBRD Transition Index

| Country        | Indicators   | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|----------------|--|------|------|------|------|------|------|
| <b>Albania</b> | Privatization of large enterprises                     | 3,0  | 3,0  | 3,0  | 3,0  | 3,0  | 3,3  |
|                | Privatization of small enterprises                     | 4,0  | 4,0  | 4,0  | 4,0  | 4,0  | 4,0  |
|                | Management and corporate restructuring                 | 2,0  | 2,0  | 2,0  | 2,3  | 2,3  | 2,3  |
|                | Price liberalization                                   | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  |
|                | Trade and foreign exchange system                      | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  |
|                | Competition policy                                     | 1,7  | 2,0  | 2,0  | 2,0  | 2,0  | 2,0  |
|                | Banking reform and interest rate liberalization        | 2,3  | 2,7  | 2,7  | 2,7  | 2,7  | 3,0  |
|                | Securities markets and non-bank financial institutions | 1,7  | 1,7  | 1,7  | 1,7  | 1,7  | 1,7  |
| <b>Croatia</b> | Privatization of large enterprises                     | 3,3  | 3,3  | 3,3  | 3,3  | 3,3  | 3,3  |
|                | Privatization of small enterprises                     | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  |
|                | Management and corporate restructuring                 | 2,7  | 3,0  | 3,0  | 3,0  | 3,0  | 3,0  |
|                | Price liberalization                                   | 4,0  | 4,0  | 4,0  | 4,0  | 4,0  | 4,0  |
|                | Trade and foreign exchange system                      | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  |
|                | Competition policy                                     | 2,3  | 2,3  | 2,3  | 2,3  | 2,7  | 2,7  |
|                | Banking reform and interest rate liberalization        | 3,7  | 4,0  | 4,0  | 4,0  | 4,0  | 4,0  |
|                | Securities markets and non-bank financial institutions | 2,7  | 2,7  | 2,7  | 3,0  | 3,0  | 3,0  |
| <b>B&amp;H</b> | Privatization of large enterprises                     | 2,3  | 2,3  | 2,7  | 2,7  | 3,0  | 3,0  |
|                | Privatization of small enterprises                     | 3,0  | 3,0  | 3,0  | 3,0  | 3,0  | 3,0  |
|                | Management and corporate restructuring                 | 2,0  | 2,0  | 2,0  | 2,0  | 2,0  | 2,0  |
|                | Price liberalization                                   | 4,0  | 4,0  | 4,0  | 4,0  | 4,0  | 4,0  |
|                | Trade and foreign exchange system                      | 3,7  | 3,7  | 3,7  | 3,7  | 3,7  | 4,0  |
|                | Competition policy                                     | 1,0  | 1,0  | 1,0  | 1,7  | 2,0  | 2,0  |
|                | Banking reform and interest rate liberalization        | 2,3  | 2,7  | 2,7  | 2,7  | 2,7  | 3,0  |
|                | Securities markets and non-bank financial institutions | 1,7  | 1,7  | 1,7  | 1,7  | 1,7  | 1,7  |

(table continues)

(continued)

Table 4. EBRD Transition Index

|                  |  |     |     |     |     |     |     |
|------------------|--|-----|-----|-----|-----|-----|-----|
| <b>Serbia</b>    | Privatization of large enterprises                     | 2,3 | 2,3 | 2,7 | 2,7 | 2,7 | 2,7 |
|                  | Privatization of small enterprises                     | 3,0 | 3,3 | 3,3 | 3,7 | 3,7 | 3,7 |
|                  | Management and corporate restructuring                 | 2,0 | 2,0 | 2,3 | 2,3 | 2,3 | 2,3 |
|                  | Price liberalization                                   | 4,0 | 4,0 | 4,0 | 4,0 | 4,0 | 4,0 |
|                  | Trade and foreign exchange system                      | 3,0 | 3,0 | 3,3 | 3,3 | 3,3 | 3,7 |
|                  | Competition policy                                     | 1,0 | 1,0 | 1,0 | 1,7 | 2,0 | 2,0 |
|                  | Banking reform and interest rate liberalization        | 2,3 | 2,3 | 2,7 | 2,7 | 2,7 | 3,0 |
|                  | Securities markets and non-bank financial institutions | 2,0 | 2,0 | 2,0 | 2,0 | 2,0 | 2,0 |
| <b>Slovenia</b>  | Privatization of large enterprises                     | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 |
|                  | Privatization of small enterprises                     | 4,3 | 4,3 | 4,3 | 4,3 | 4,3 | 4,3 |
|                  | Management and corporate restructuring                 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 |
|                  | Price liberalization                                   | 4,0 | 4,0 | 4,0 | 4,0 | 4,0 | 4,0 |
|                  | Trade and foreign exchange system                      | 4,3 | 4,3 | 4,3 | 4,3 | 4,3 | 4,3 |
|                  | Competition policy                                     | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 |
|                  | Banking reform and interest rate liberalization        | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 |
|                  | Securities markets and non-bank financial institutions | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 3,0 |
| <b>Macedonia</b> | Privatization of large enterprises                     | 3,0 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 |
|                  | Privatization of small enterprises                     | 4,0 | 4,0 | 4,0 | 4,0 | 4,0 | 4,0 |
|                  | Management and corporate restructuring                 | 2,3 | 2,3 | 2,3 | 2,7 | 2,7 | 2,7 |
|                  | Price liberalization                                   | 4,0 | 4,3 | 4,3 | 4,3 | 4,3 | 4,3 |
|                  | Trade and foreign exchange system                      | 4,3 | 4,3 | 4,3 | 4,3 | 4,3 | 4,3 |
|                  | Competition policy                                     | 2,0 | 2,0 | 2,0 | 2,0 | 2,3 | 2,3 |
|                  | Banking reform and interest rate liberalization        | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 3,0 |
|                  | Securities markets and non-bank financial institutions | 1,7 | 2,0 | 2,0 | 2,3 | 2,3 | 2,3 |

Source: Structural change indicator. (n.d.) In *European Bank for Reconstruction and Development*, Official Website

Efendic, Pugh and Adnett (2010) investigated the correlation between institutional index and GDP, and came to the conclusion that there is a positive, significant and strong correlation between institutions and economic growth. The correlation coefficient showed some variation between certain groups of countries, indicating that there is a stronger correlation for the EU and SEE

countries, while a slightly lower coefficient was obtained for the countries of the Commonwealth and Independent States (CIS).

Table 5. Institutional EBRD Index for Countries in Transition

| Institutional index | GDP per capita u \$ (1992-2007) |        |         |         |  |
|---------------------|---------------------------------|--------|---------|---------|--|
|                     | All TCs                         | EU TCs | SEE TCs | CIS TCs | No. of observations for, EU, SEE i CIS |
| <b>EBRD</b>         | 0,64                            | 0,59   | 0,65    | 0,32    | 445;159;80;206                         |
| <b>P-value</b>      | (0,0)                           | (0,00) | (0,00)  | (0,00)  |  |

Source: A. Efendic, G. Pugh, & N. Adnett, *Institutions and Economic performance: System GMM modeling of institutional effects in transition*, 2010, p. 5.

The research of Beck and Laeven (2006) aimed to show the importance of institutions in explaining the variation in economic growth and development in the TC in the first decade of transition, using the Worldwide Governance Indicator of the World Bank. The Index of Economic Freedom (Miller, Kim, & Holmes, 2014) for 2014 shows progress at the global level by considering a sample of 186 countries worldwide. The average global Index of Economic Freedom is 60.3 and represents the largest average so far. The Table 6 below presents selected SEE countries as ranked in the Index of Economic Freedom Table in the sample of 186 countries.

Table 6. Index of Economic Freedom for Countries in Transition

| World rank | Country   | Overall score | Change compared to 2013 | Property rights | Freedom from corruption | Fiscal freedom | Freedom of business | Labour freedom | Monetary freedom | Freedom of trade | Investment freedom | Financial freedom | Freedom of state interference |
|------------|-----------|---------------|-------------------------|-----------------|-------------------------|----------------|---------------------|----------------|------------------|------------------|--------------------|-------------------|-------------------------------|
| 43         | Macedonia | 68.8          | 0.4                     | 35.0            | 39.6                    | 91.4           | 81.0                | 78.8           | 83.5             | 85.9             | 60.0               | 60.0              | 70.7                          |
| 54         | Albania   | 66.9          | 1.7                     | 30.0            | 30.4                    | 92.7           | 78.0                | 49.7           | 80.0             | 87.5             | 75.0               | 70.0              | 75.6                          |
| 74         | Slovenia  | 62.7          | 1.0                     | 60.0            | 61.0                    | 58.9           | 85.4                | 51.0           | 80.3             | 87.8             | 70.0               | 50.0              | 22.6                          |
| 87         | Croatia   | 60.4          | -0.9                    | 40.0            | 41.1                    | 69.4           | 61.4                | 39.4           | 79.2             | 87.4             | 80.0               | 60.0              | 45.8                          |
| 95         | Serbia    | 59.4          | 0.8                     | 40.0            | 34.0                    | 83.1           | 59.3                | 70.1           | 66.9             | 77.0             | 75.0               | 50.0              | 38.6                          |
| 101        | BiH       | 58.4          | 1.1                     | 20.0            | 33.9                    | 82.9           | 55.5                | 62.4           | 80.1             | 86.9             | 75.0               | 60.0              | 27.4                          |

Source: A.T. Miller, A.B. Kim, & K. R. Holmes, *2014 Index of Economic Freedom*, 2014, p. 4.

According to the data presented in Table 6, Bosnia and Herzegovina ranks last among the countries of SEE, namely 101<sup>st</sup> out of 186 countries, Serbia is ranked 95<sup>th</sup>, Croatia 87<sup>th</sup>, Slovenia 74<sup>th</sup>, while Albania and Macedonia occupy the best position of the SEE countries 54<sup>th</sup> and 43<sup>rd</sup>. It is interesting

that Slovenia and Croatia, as the two most developed countries, and EU members, take no favorable position in the overall standings, but are better in comparison to countries in transition. Albania and Macedonia are ranked higher in the overall standings. But when it comes to property rights, business freedom and freedom from corruption, Slovenia has the best score. All of these indicators are an important prerequisite for a successful economy and economic development.

According to the obtained econometric results in a simple bivariate model, an increase in institutional quality in TC by 10% can improve the level of GDP per capita for more than \$ 370 on average, while more complex (dynamic panel) empirical model results indicate that increasing the quality of institutions by 1% causes an increase in GDP per capita by 0,4% (Efendic, 2008). The following Table 7 shows the correlation between GDP per capita and the index of economic freedom.

Table 7. Correlation of Institutional Index and GDP of Countries in Transition

| Institutional index | Albania        | BiH            | Croatia        | Macedonia      |
|---------------------|----------------|----------------|----------------|----------------|
|                     | GDP per capita | GDP per capita | GDP per capita | GDP per capita |
| <b>EBRD index</b>   | 0.71           | 0.95           | 0.99           | 0.96           |
| <b>HF index</b>     | 0.90           | 0,90           | 0.55           | 0.77           |
| <b>NIT index</b>    | -0.98          | -0.96          | -0.35          | -0.99          |

Source: A. Efendic, *Institutions, Economic Performance, and EU Integration, The Case Of Transition Economies and BiH*, 2008, p. 7.

According to Efendic (2008), Bosnia and Herzegovina has a very high level of correlation between the measures of economic performance and the quality of institutions of all countries in transition. The correlation is higher than 0.90 for the three indices, which indicates a strong correlation between these variables. Apart from Bosnia and Herzegovina, other countries in the region, such as Croatia, Macedonia and Albania also have, in almost all cases, a very high level of correlation, which means that institutions are potentially an important determinant of economic efficiency (GDP per capita) of these countries (Efendic, 2008). The higher the institutional index, the higher the GDP per capita is in these countries. However, an empirical analysis is needed to get more information on this link.

The work of Efendic and Pugh (2015), titled “Institutional Effects on Economic Performance in Transition: A Dynamic Panel Analysis” explores the relationship between improving the efficiency of institutions and economic performance in transition countries. Most research suggests that improving the institutions of countries in transition has a significant and positive impact on economic performance. Their study confirms the economic importance of institutions, but adds some new findings to be taken into account. First, GDP per capita is determined by a history of institutional reforms in transition and that the GDP per capita is adjusting to the recent or medium-term institutional changes. In addition, the time horizon of the measured institutional effects is

important. They could not identify a statistically significant effect of institutional change for a period longer than five years. In contrast, a positive and significant effect was found when observing the period of five years in institutional changes. The results show that the increase in the quality of institutions by 10% in the past five years increases GDP per capita in transition countries by 4%, on average.

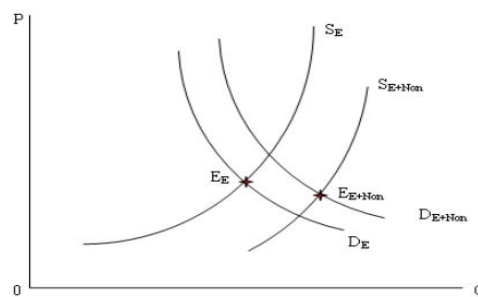
As we could see, empirical sources generally reveal positive effects of institutions on economic performance in transition. Next, we focus our research on shadow economy, explaining the meaning, forms, causes, advantages and disadvantages of shadow economy, models of measurement of shadow economy and shadow economy in SEE countries.

## 2 SHADOW ECONOMY

### 2.1 Definition and History of Shadow Economy

The second part of the thesis deals with shadow economy in transition economies, and prior to providing an analysis of the informal sector in these countries, the basic information on shadow economy will be provided, such as the definition, causes of shadow economy, the forms in which it occurs, its consequences and models of measurement. To define the concept of shadow economy is not easy or exact. The concept of shadow economy is used for unregistered economic activity. Smith (1985) defines shadow economy as the market production of goods and services, regardless of whether it is legal or illegal, and that evade the estimates of GDP. It can be said that it is the kind of activities which aim to avoid the regulation of countries. The following Figure 2 shows the balance on the market of formal and shadow economy.

Figure 2. The Equilibrium of the Formal and Shadow Market



Source: G. Startiene & K. Trimonis, *Causes and consequences of non-observed Economy*, 2010, p. 276.

The shadow economy expands the market from  $E_E$  to  $E_{E+Non}$ . As portrayed in the graph point E shows the equilibrium of the formal economy, but in the immediate vicinity is the equilibrium of the

shadow economy with a supply where prices are lower because there is no tax and demand where untaxed money can be spent.

Based on formal legal criteria, shadow economy can be defined as an allowed form of economic activity, but that does not take place within the framework of the current formal regulations for this form of activity (Tomas, 2010). Therefore, it is an activity that is economically legitimate, but it is illegal. Regular economy, on the contrary, is legitimate and legal. It is necessary to distinguish shadow economy activities from activities that are not prohibited, but are performed outside the formally valid legal regulations such as the daily house chores of household members. That part of economic activity cannot be classified in the shadow economy, but just like the shadow economy it belongs to the informal economy.

Shadow economy includes unreported income from the production of legal goods and services that are paid for or bartered - therefore, all economic activities that would be taxable if they were reported to the state (tax) authorities (Schneider, 2003). This is very difficult, if not impossible, to define precisely because it adapts to changes in taxes, penalties by tax authorities, the general moral attitudes, and other conditions (Schneider, 2003). According to Schneider (2007, p. 5) shadow economy includes all market production of goods and services, which is deliberately concealed from public authorities for the following reasons:

- avoidance of value added tax or other taxes;
- avoidance of contributions for insurance;
- avoidance of applying mandatory standards (minimum wage, maximum working hours, safety at work, etc.);
- avoidance of the implementation of prescribed administrative procedures (sending statistical statements of operations).

The Organization for Economic Cooperation and Development (Startiene & Trimonis, 2010) defines that shadow economy refers to all activities in an economy that are supposed to be part of GDP, but which are not included in statistical surveys or administrative records which were built in the national accounts. The definitions of shadow economy classify it under the activities of shadow economy that created new value, but are not reported.

In addition to these activities, there is a part of the economic activities that are prohibited and cannot be classified as shadow economy, and such activities are often referred to as "black economy" (Tomas, 2010) and they include: prostitution, trafficking of drugs, robbery, shoplifting, smuggling of arms and others. Tax evasion in the registered activities can also be classified into the black economy. With the aim of distinguishing black from shadow economy it is often said that data on black economy cannot be collected through surveys. At the same time, by applying indirect estimation methods it is difficult to separate the effects of shadow from black economy. Therefore, the estimates of shadow economy also cover the black economy. Often shadow and black economies

are intertwined because the performance of legal activities in an illegal manner includes elements of the black economy, so that the distinction between shadow and black economy is not so explicit.

Lippert and Walker (cited in Enste, 2003) aim to provide an explanation of the difference between “pure tax evasion” and “informal economy”. Activities in the shadow economy almost always involve an offer of goods and services, which are manufactured using labor, managerial and activities of manufacturing and capital. A pure tax evasion is usually the result of financial transactions to conceal income, such as income from capital investments. When evaluating these activities there should be a clear distinction between production of legal and illegal activities and the production and distribution of these activities.

The difference between the criminal and illicit sectors comes from the fact that “production - distribution and output of criminal activities are illegal” (cited in Enste, 2003). By contrast, work in illicit sector “becomes part of shadow economy only if distribution and production” are illegal because the “output is legal”. The majority of those irregular activities can be classified under the illicit sector.

Table 8. Categorisation of Shadow Economy

| <b>Sector</b><br><b>Criteria</b> | <b>Household sector</b> | <b>Informal sector</b> | <b>Irregular sector</b> | <b>Criminal sector</b> |
|----------------------------------|-------------------------|------------------------|-------------------------|------------------------|
| <b>Production/distribution</b>   | Legal                   | Legal                  | Illegal                 | Illegal                |
| <b>Market transactions</b>       | Not present             | Present                | Present                 | Present                |
| <b>Output (goods/services)</b>   | Illegal                 | Legal                  | Legal                   | Illegal                |

Source: D.H. Enste, *Gospodarstvo u sjeni i institucionalne promjene u tranzicijskim zemljama [The shadow economy and institutional change in transition countries]*, 2003, p. 87.

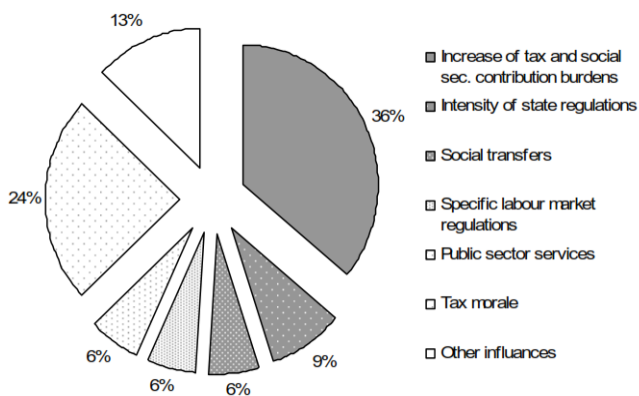
The Table 8 explains the previously discussed definition of the shadow economy, although the boundaries between these sectors are not clearly defined, and are constantly changing throughout the course of economic development.

## 2.2 Causes of shadow Economy

Shadow economy is a lot more flexible than formal economy, because there are no entrance or exit barriers and the competition is more aggressive because if there is a chance for market expansion it will immediately expand. Research conducted by Schneider (cited in Schneider and Enste, 2000) shows the main causes for the increase in shadow economy. Figure 3 points out that taxes and contributions are the biggest causes of shadow economy. Cebula (1997) has calculated that the increase in tax by 1% leads to an increase of the shadow economy by 1.4%. Individuals are always very sensitive when it comes to money and income (Cebula, 1997). They want to see what they are

paying for and a compensation for what they pay. As long as there is a balance between income and well-being of people, the lower will the participation in hidden activities hidden or shadow economy be. But the benefits are calculated on the basis of individual judgment. The higher the labor costs in the formal economy are, the greater the incentive to work in the shadow economy.

Figure 3. Causes of Shadow Economy in %



Source: G. Startiene & K. Trimonis, *Causes and consequences of non-observed Economy*, 2010, p. 277.

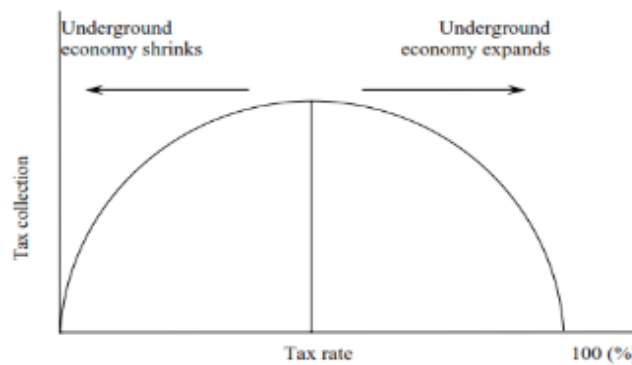
Empirical studies by Schneider, Wagner and Enste (cited in Startiene & Trimonis, 2010) show that the regulations on the labor market produce positive effects in the long term, but in the short term people think that government regulations restrict personal freedom, and this is the beginning of the shadow economy. Schneider believes that the enforcement of the law usually causes additional costs and could have a negative impact on the possibilities of production and competitiveness of individuals and firms, and greater scope of regulation leads in most cases to increase in bureaucratic expenditure for individuals and companies, as well as for public authorities and may be the reason for corruption (cited in Startiene & Trimonis, 2010).

The regulation of the labor market affects the size of the shadow economy. Increasing the maximum working time or age limit for retirement, could on one hand reduce shadow economy because individuals will not have time for such activities, and could, on the other hand, increase shadow economy because people will want to get rid of such laws. A higher level of operation of the shadow economy may lead to a deficit of a country's budget and a decrease in the quality and quantity of public goods and services, all of which will lead to increased taxes. Studies conducted by Johnson, Kaufmann and Lobaton (1998) show that lower level of shadow economy occurs in countries with lower tax rates; in countries with fewer laws and regulations and less corruption.

Studies on the links between corruption and shadow economy are limited, but scientists have noted that more corrupt countries have a higher level of shadow economy. One of the most important aspects of the assessment of shadow economy is confidence in the governance of state institutions.

In countries with a high level of confidence, the size of the shadow economy is lower (Startiene & Trimonis, 2010).

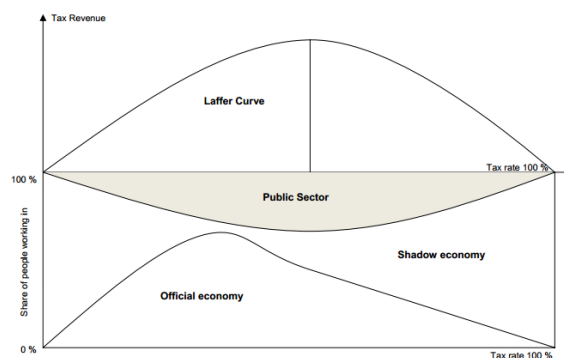
Figure 4. Laffer Curve and Shadow Economy



Source: G. Startiene & K. Trimonis, *Causes and consequences of non-observed Economy*, 2010, p. 278.

Higher taxes mean a higher level of the shadow economy. “The Laffer curve shows that income grows to a certain level of taxes, because people at some point do not notice a significant difference in tax increases and they are willing to pay more than necessary” (Startiene & Trimonis, 2010). After a certain level, the national income begins to decline as people turn to the shadow economy in order to avoid paying taxes. Gutmann (1981) modifies the Laffer curve, which shows the correlation between individual reaction and taxation, by integrating the shadow economy, the public sector and the formal economy.

Figure 5. The Correlation between Tax Revenue, Tax Rates and an Increase in Shadow Economy



Source: G. Startiene & K. Trimonis, *Causes and consequences of non-observed Economy*, 2010, p. 382.

The percentage aggregate rate of tax in relation to income and taxes revenues is on the X-axis. By increasing taxes people want to avoid it and, step by step, they move from formal to shadow economy. The S point is the maximum income tax. But from then on, if taxes are increased, the total revenue will decrease. The second part of the image portrays that at this point the public sector will

be the largest. The size of formal economy will be the largest, and the size of shadow economy will be the smallest before point S.

The relationship between the shadow economy and unemployment is two-fold (Startiene & Trimonis, 2010). The unemployment rate increase will affect seeking for work in the shadow economy. However, it is possible that the ability to find work in the shadow economy is limited when the unemployment rate is very high. Unemployment is an indicator of how well an economy is off, and if unemployment rates increase, there are less job offers in both, the formal and informal economy. Therefore, the expected outcome of this indicator is ambiguous. However, unemployment is one of the main reasons for the existence shadow economy because if people have access to low disposable income, they are expected to prefer to find employment in different jobs, even in the domain of the shadow economy (Startiene & Trimonis, 2010).

Generally speaking, the main causes and conditions for the emergence of the shadow economy can be classified into three groups, as pointed out by Milic (2014):

- economic factors (financial problems, high tax burdens, the probability of being caught, severity of sanctions, expected profit);
- psychological factors (disagreement with the objectives and means of economic policy, attitude to risk, distrust in the country);
- factors of opportunity (experience in fraud, the education required for finding a job and its successful operation beyond legislation).

While there are general causes of shadow economy, which apply to all countries in the world, the forms and causes of shadow economy still vary from country to country. Different constitutional systems, political history, economic development, macroeconomic policy and a number of other conditions which differ from country to country affect the various manifestations of shadow economy. According to Vladusic and Pantic (2008, p. 10) the basic factors that impact spread of shadow economy in countries in transition could be:

- domination of politics over economy;
- undeveloped market system - economic institutions and inefficiency of economic administration;
- anemia and inefficiency of the legal system (especially economic segment);
- slowness and high costs of (official) business registration;
- incomplete tax system and poor tax control;
- lenient fines, i.e. low risk in relation to the expected profits;
- unclear economic policy towards private sector and poor control in the government sector and public sector enterprises;
- apparent employment of population (“work” in inefficient state enterprises that have already been facing bankruptcy for a longer period of time and / or expectations of inflow of fresh capital from new owner through the process of privatization);

- lack of political ambient and political relations;
- unemployment and significant (non) economic migrations (external and internal);
- low income and decline in living standards;
- underdevelopment of tax and business ethics and morals.

## 2.3 Types of Shadow Economy

Shadow economy appears in various forms. According to Vladusic and Pantic (2008) the most widespread forms of shadow economy can be grouped into six areas:

- **Areas of goods and services:** illegal import and export, marketing of domestic and foreign goods, goods without evidence of origin, goods without proof of payment of customs duties, excise, or taxes, unauthorized trade in goods and services, working without regulations on minimum requirements for carrying registered activities, incomplete bookkeeping, keeping goods out of traffic for speculative reasons, natural forms of exchange without registering sales transactions, etc.
- **The area of payment transactions:** creating an illegal money market apart from business accounts of participants of payment transactions, the existence of a dual salary system whereby a lower salary is shown in the books because of payments obligations, and additionally part of the salary paid in cash where liabilities do not have to be paid, conditioning the sales of goods by cash payments, the withdrawal of cash from the payment system and cash payments in the shadow market.
- **The area of credit-monetary system and banking:** non-registered import and export of foreign money, the formation of shadow market of foreign currency, lending outside the banking sector, directing money for speculative purposes.
- **The labor market and labor relations:** the employment of illegal workers, illegal work, fictitious management of a large number of employees due to the withdrawal of larger supplies of funds and budgets.
- **The construction sector, housing and communal activities and real estate:** illegal construction, appropriation of common areas in apartment buildings and upgrading them for own purposes outside of legislation, speculation in real estate such as showing unrealistically low sales prices, the issue of business and residential space without file income etc.
- **Other:** Various forms of sponsorship of sports organizations, political parties, religious communities by taxpayers not covered by regulations, a fictitious higher costs in order to avoid paying income taxes, registration of fictitious companies, incomplete and unrealistic coverage of income from agriculture, the use of working time in enterprises and institutions for one's own profit, uncontrolled felling of state forests and others.

Shadow economy is present in developing and transition economies as well as developed countries. The forms of shadow economy are somewhat different. According to Beslic and Beslic (2009, p. 36) the forms, which usually occur in the transition economies, are as follows:

- illegal import and export and reporting a lower value of imported goods;
- extraction and retention of cash (especially cash in anchor currency) outside of payment transactions channels;
- unauthorized sale (“smuggling”) of various types of goods in the internal market;
- avoidance of taxes and other duties in various ways;
- the use of working time, material and equipment of state and public companies for private purposes;
- unregistered performing of handicraft, construction, trade, transport and other services;
- little or no coverage of farm income as well as incomplete inclusion of income from private agriculture;
- illegal (“wild”) construction of residential and commercial buildings;
- illegal appropriation of common areas in residential buildings and their extension for personal use;
- speculation and machinations in the purchase of social housing, in the process of privatization of state enterprises and real estate;
- illegal exploitation of natural resources (cutting of state forests, etc.) and usurpation of public goods;
- abuse of official, business and public position.

As we could see from the previous discussion, forms of shadow economy are somewhat different in developed countries and TC. Due to the different levels of development and national planning, forms of shadow economy are not completely identical. In developed countries shadow economy is more often present in the field of payment transactions, banking operations, while in TC smuggling, tax evasion and performing of unregistered business activities, is more often present. In addition, illegal imports and exports, extraction and retention of cash are widespread in transition economies.

## 2.4 The Consequences of Shadow Economy

The consequences of shadow economy are of twofold. Like most things in life that have two sides, i.e. the yin and yang, the consequences of shadow economy can also be expressed in two ways. Activities of shadow economy produce opposite effects of the ones which will be discussed in the following sections. First the negative effects of shadow economy will be discussed, and then the positive side of this phenomenon will be elaborated. The following sections also explain which side has the greater effect, whether one is superior to another, or whether the effects of both parties are alike so they cancel each other out.

#### 2.4.1 Negative Consequences of Shadow Economy

Shadow economy not only affects the country and its economy, but society as well. Registered employees pay taxes for those who work in the shadow economy. The same applies for companies. Those who abide the law pay higher taxes, which are unfair, but in this way they compensate for the budget deficit. According to Startiene and Trimonis (2010, p. 278) negative consequences and effects of shadow economy on formal economy are as follows:

- budget deficit;
- economic crisis;
- political instability;
- ineffective policies of the country;
- corruption in the country;
- cumulative structural economic disparities;
- moral degradation of society.

According to Startiene and Trimonis (2010), it is difficult to foresee the size of shadow economy or the transfer of companies and people from formal to shadow economy. This occurrence leads to an even more negative impact on budget deficit, leading to an economic crisis. In general the level of corruption and politics are closely linked. The higher the corruption rate is the more favorable the conditions are for the development of shadow economy. On the other hand, the larger the shadow economy is, the greater is the impact of subjects of the shadow economy on policy. The authors state that in such countries, policy is created by people who have money and nobody cares whether the money is from the shadow economy or from the formal economy, which is an indicator of instable political circumstances. Moral deterioration in a society can lead to citizens finding it justifiable not to pay taxes. Shadow economy divides the economy into two broad groups: people that pay taxes and people who do not pay taxes. Thus, some people have more income because they are not honest about it. People who have money are more likely to create more of it, so that the gap between people who have money and people who do not have money is getting bigger and bigger.

Since it is very difficult to measure the size of shadow economy, it is difficult to analyze the effects of an increase of shadow economy in society. Research is mainly based on measuring the effects of shadow economy in the allocation of resources and the loss of public revenue, but its effects on official institutions, norms and rules are even more important. The existence of shadow economy in a society is an indicator of a serious lack of legitimacy of the existing social order and the applicable rules (Enste, 2003).

Adam and Ginsburgh (cited in Enste, 2003) studied the example of Belgium and the impact of shadow economy on the growth of the formal economy. They found a positive correlation of informal economy growth and shadow economy because of low entry costs to the market of the shadow economy, due to expansionary fiscal policy which encourages positive growth of the formal

and the shadow economy. In contrast, Loayza (1996) claims that the reduction of shadow economy enables an increase in tax revenues, and this leads to a greater amount of public goods and services, which can ultimately stimulate economic growth.

Shadow economy disrupts the structure of monetary income and spending of the population and increases distortion in global financial balance of the population, causing large disparities in the distribution of income of certain categories of households at the micro level, resulting in the increasing criminalization of society and growing social tensions, bringing into question the principle of tax burden according to economic strength of tax payers. The keeping of an adequate tax policy and welfare state programs is disabled. The phenomenon of the shadow economy is a type of test of the functioning of the economic system. According to Vladusic and Pantic (2008), a high rate of shadow economy, is always a sign of a major disruption in the development of an economy and a society.

Countries are struggling in different ways against the negative consequences of shadow economy. Some of the measures to reduce shadow economy are listed below. According to Milic (2014, p. 78) they can be divided into:

- Long-term - to develop a strategy to combat shadow economy. Through the general development of society this negative phenomenon will be reduced to a measure that exists in developed economies. So, in the long term those are general measures to promote economic development that directly lead to the weakening of the phenomenon. Upon completion of the transition from the existing economy and society, closer to the European Union, it is assumed that this phenomenon will be in line with its standards.
- Mid-term - legislative changes, alignment with the EU legislation and its implementation, reform of the pension and social security system, strengthen the independence and effectiveness of the courts and adjust public spending to realistic possibilities.
- Operational - in the short term it is important to identify the level of shadow economy in overall economic activity, but also in certain sectors, to develop a strategy to combat shadow economy, continue to reduce taxes and contributions and improve the environment for business start-ups. All social actors should immediately bring the operational programs to combat shadow economy.

#### 2.4.2 Positive Consequences of Shadow Economy

Despite the fact that shadow economy is socially immoral and has an adverse impact on society, shadow economy has some positive effects on the economy as a whole. According to Startiene and Trimonis (2010), shadow economy produces a range of positive effects including in particular:

- shadow economy stimulates the economy – added value is created;
- shadow economy helps to reduce unemployment;
- shadow economy increases the efficiency of the economic system in the long term.

Shadow economy stimulates the economy by creating added value and by encouraging consumption. It reduces unemployment because as soon as people cannot find employment in the formal sector, they will find ways to make money in the shadow economy, reducing the official unemployment rate in the country. With the growth of economic activity in shadow economy, increasing public revenues, reduction of unemployment, the efficiency of the economic system increases in the long run.

Kadokura (cited in Startiene & Trimonis, 2010) states that the income from shadow economy flows into the formal economy and stimulates it through consumption. The expansion of shadow economy provides employment opportunities for people who are unemployed and thus reduces unemployment rates. Competition in the shadow economy is much more combative than in the formal economy, which is why the shadow economy is more efficient.

Schneider (cited in Enste, 2003) states that more than 66% of income earned in the shadow economy is relatively quickly spent in the formal sector. This additional expenditure has a positive effect on economic growth and on revenues from indirect taxes. According to Vladusic and Pantic (2008), shadow economy may, to some extent, have a positive dynamic in economic activity, lowering the unemployment rate and maintaining living standards (partially amortizing tightening of economic policy, the “rigidity of state administration” or “softening market shortages in some cases”).

Schneider and Enste (2000) demonstrated in their empirical research that 66% of earnings from the shadow economy are spent in the formal sector. The positive effects of this spending on economic growth and public revenues have to be taken into account. According to the Federal Institute for Development Programming (2008, p. 6) the positive side of shadow economy includes:

- increasing the level of employment;
- reducing social contradictions;
- increasing the level of resources used;
- increase in overall economic activity;
- supply structure improvement;
- increase the income of the population;
- increased spending;
- developing entrepreneurial initiative;
- indirect acceleration of transition.

Although shadow economy produces positive effects, too much presence of shadow economy in a society is detrimental to its economic system. To some extent, however, it is encouraging, but a high level of shadow economy leads to major disruptions in the economy, hindering economic development and resulting in greater criminalization of society. Shadow economy is a challenge for economic and social policy. In order to reduce shadow economy it is necessary to react to the causes of its existence, primarily high tax burden. Reducing taxes and contributions would reduce the

incentive to work in the shadow economy and make it less attractive and thus make working in the formal economy more attractive. Another important reason to reduce shadow economy is its impact on public institutions. Improving the efficiency of public institutions will directly affect the reduction of shadow economy.

## 2.5 Models of Measuring Shadow Economy

Although the phenomenon of shadow economy has been explored for a number of years, a unified methodology of its measurement has not yet been identified. Basically, there are three groups of methods for estimating shadow economy, as Schneider and Williams (2013, p. 27) put forward:

- direct methods conducted through a survey on the microeconomic level (individual, household, enterprise) in a given time;
- indirect methods to be implemented on the basis of the available macroeconomic indicators;
- statistical methods that, with the help of statistical tools, estimate shadow economy as a “hidden” variable.

Direct methods for estimating shadow economy have a number of advantages over other methods because through surveys of participants it is possible to get different answers that allow analysis of the various aspects of shadow economy. However, the quality of shadow economy assessment is largely dependent on the representativeness of the interviewed sample and the level of systematic errors that occur because of insincere responses and concealing the intensity of involvement in shadow economy. This type of evaluation of shadow economy is very expensive and requires extensive work by research teams, field work, and contact with a large number of people which is why it is not often used.

Indirect methods are cheaper and easier, which results in much faster estimation of shadow economy. However, the problem is the selection of indirect methods that authentically describe the current state of an economy. The evaluation is mainly done on the basis of data already available and all the “weaknesses” of that data is transmitted on the results of the assessment. Based on the available data it is usually possible to make a global estimate of the total size of the shadow economy, and on the basis of the results to evaluate its impact on the size of GDP, budget revenues and the tax burden. When available resources make it possible, it is best to apply a combination of direct and indirect methods because in this way one uses the advantages of both methods. According to Milic (2014, p. 18) some of the indirect methods are:

- Discrepancy between revenues and costs (at the macro and micro level) - acquired incomes can be reported to some extent or not, but still most is presented as an expense. Although the difference between revenues and expenditures is the “analytical base for quantification of the shadow economy”, monitoring on an annual basis at the level of the entire economy, enables one to collect information about the rate of shadow economy.

- Labor market - “low participation level in the labor market” when compared to the previous (normal) period or when compared to the rates of similar countries where “the phenomenon of shadow economy is not significant”, indicates the size of the shadow economy. The difference between the official and “normal” participation rate is determined by the extent of the labor force who take part in the shadow job market. Measures of shadow economy, in this case, is in relative or absolute terms labor force that works in the hidden job market.
- Tax audit - tax audit method is based on the active involvement of tax authorities in the identification of hidden income. Tax audit provides more detailed information about which income groups and occupations are not registered, or are only partially registered.
- Monetary methods - basic assumption in monetary methods is that individuals who are present in the market of shadow economy are changing their money spending habits. In this sense, the existence of the hidden economy leaves traces in the monetary sphere. Operating assumptions underlying concrete methods are numerous. The choice of appropriate models to estimate the level of shadow economy depends on the conditions of the economy itself and the level of its development. Also, one of the limiting factors is the level of development of data collection.

Eurostat's method for estimating shadow economy consists of two phases. As portrayed by Tomas, (2010, p. 19) the first phase from 1998 to 2000 had the following structure:

- T1: Unrecorded for statistical reasons (non-response);
- T2: Unrecorded for statistical reasons (obsolete registers);
- T3: Unrecorded for statistical reasons (the subjects are not registered);
- T4: Unrecorded for economic reasons (underreporting);
- T5: Unrecorded for economic reasons (the subjects are not registered);
- T6: Informal sector (unregistered entities, underreporting);
- T7: Illegal activities;
- T8: Other forms of GDP non-inclusion.

This classification of non-observed economies is not mandatory because countries are given the possibility to adapt them according to their economic and legal conditions. The second phase of the project Tabular approach (2002-2003) includes seven types of non-inclusion:

- N1 - Manufacturers deliberately avoid registration (entrepreneurs who belong to the household sector, avoid registration because of payment obligations and the retention of social benefits);
- N2 - Illegal activities (activities of not registering because of the prohibition of drug trafficking, selling stolen goods, human trafficking, prostitution, etc.);
- N3 - Unregistered household activities (unregistered activity due to natural production or obligation, the registration of such activities within the household);
- N4 - Exclusion (legal entities are registered, but their reports which are included in the calculation of domestic product are deficient);
- N5 - Registered entrepreneurs are not covered (entrepreneurs are registered, but their reports are unavailable or deficient);

- N6 - Deliberate underreporting (intentionally showing less revenue and higher expenditure in order to avoid paying income tax, insurance contributions, VAT, covering up of cash payments, the concealment of secondary activities, tax fraud, etc.);
- N7 - Other statistical errors (everything that should be included in the calculation of GDP, and is not covered by N1 to N6).

Eurostat model of shadow economy inclusion includes only the bottom (lowest) limit of shadow economy, so that most of it can be left uncovered, especially in undeveloped countries and countries with widespread corruption. Modeling is an approach of relations research, in other words, the cause and effect relationships between potential causes and indicators of the existence of shadow economy through latent variables (unmeasured) of shadow economy, whose values are subsequently assessed (Vladusic & Pantic, 2008).

MIMIC is an example of the application of an econometric model to estimate shadow economy, which treats different dimensions of the informal sector as latent variables and applies Structural Equation Model (hereinafter: SEM). SEM model is mostly used in social studies with the aim to measure immeasurable variables such as attitudes, beliefs, satisfaction and others. The MIMIC model belongs to the, so-called, family of Linear Independent Structural Relationship (hereinafter: LISREL) model and was firstly constructed by Zellner in 1970, and thereafter it was adapted by Joereski, Goldberger and other experts in the field of econometrics.

There are various modifications of the model, such as the DYMIMIC model and others. The variables that represent the main causes of shadow economy in the MIMIC model include: the ratio of tax revenue to GDP, the size of unemployment benefits (through unemployment insurance), modified unemployment rate (including the “hidden” employees on the labor market such as: part of employees who declare themselves as unemployed, housewives, pensioners, individuals working in the formal and in the shadow economy, etc.) and other variables, in accordance with data availability (Vladusic & Pantic, 2008). If the sample is large, the statistical test will almost certainly be significant in relation to the degree of freedom. On the other hand, if the sample is small it is very likely that it will be accepted, which is especially important in the analysis of the shadow economy because of the poor availability of data and the complexity of the model is high.

Estimates of shadow economy in high-income OECD countries are mainly based on a combination of MIMIC methods and methods of currency demand. The first assumes that shadow economy remains an unobserved phenomenon (latent variable) that can be evaluated using quantitative measurable causes of illegal employment, for example, the tax burden and the intensity of regulation (Torgler & Schneider, 2007). A disadvantage of MIMIC method is that it provides a relative assessment of the size and development of shadow economy. The method of currency demand is used to calibrate the relative estimation in absolute estimation using two or three of the absolute values of the absolute size of the shadow economy (Schneider, 2010).

Data on shadow economy of SEE countries obtained by MIMIC method will be used in the empirical part of this work to test the stated hypothesis. The obtained results from this method will be used in later regression analysis to assess the impact of the efficiency of institutions on shadow economy in the SEE countries.

## 2.6 Shadow Economy of SEE Countries

According to Vladusic and Pantic (2008), the development of shadow economy in SEE countries was intensified by different specific factors such as wars and its consequences, the collapse of former Yugoslavia and the formation of new countries, instability of the rule of law in those countries, inherited and deepened distrust of the country and its institutions, breaking off economic ties with other countries, slow implementation of market oriented reforms and other conditions.

The following table shows comparative data on the size of shadow economy in the countries of former Yugoslavia. It was measured using the approach of latent variables and methods of cash demand, while tax burden, bureaucracy and similar measures were taken as the causes of shadow economy. The latent variables of shadow economy were put in relation with indicators of the existence of shadow economy, such as labor force participation in the informal sector and others (Vladusic & Pantic, 2008).

Table 9 shows that the size of shadow economy in BiH is slightly above the unweighted average for the five countries of former Yugoslavia, but if Slovenia is excluded from the analysis, the shadow economy in BiH is even slightly below the average for the countries of former Yugoslavia.

Table 9. Size of Shadow Economy in the Countries of Former Yugoslavia

| Former Countries of Yugoslavia                      | The Shadow Economy in Formal Economy (in % GDP) |                    |                    |   |
|---|---|--------------------|--------------------|---|
|   | Average 1999/2000.                              | Average 2000/2001. | Average 2001/2002. | Increase (+) or decrease (-) in participation |
|   | 1   | 2                  | 3                  | 4=3-1   |
| BiH   | 34.1  | 35.4               | 36.7               | +2.6  |
| Croatia   | 33.4  | 34.2               | 35.4               | +2.0  |
| Macedonia   | 34.1  | 35.1               | 36.3               | +2.2  |
| Serbia and Montenegro                               | 36.4  | 37.3               | 39.1               | +2.7  |
| Slovenia  | 27.1  | 28.3               | 29.4               | +2.3  |
| Unweighted group average                            | 33.0  | 34.1               | 35.4               | +2.4  |
| Unweighted group average with exclusion of Slovenia | 34.5  | 35.5               | 36.9               | +2.4  |

Source: Lj. Vladusic & V. Pantic, *Neosmatrana i siva ekonomija u BiH [Non-observed and Shadow Economy in Bosnia and Herzegovina]*, 2008, p. 24.

The evaluation of shadow economy is based on MIMIC method for 151 countries in the world, and ranks SEE countries as shown in the Table 10 below. The country with the lowest shadow economy is Switzerland, with an average of 8.5% of GDP for the observed period, and the country with the highest shadow economy was Bolivia with the average of shadow economy of 66.1% of GDP for the same period. Regarding the SEE countries, Slovenia has the highest ranking - 48<sup>th</sup>, followed by Croatia - 73<sup>rd</sup>, Bosnia and Herzegovina as 83<sup>rd</sup>, Albania 87<sup>th</sup> and the lowest ranked is Macedonia - 99<sup>th</sup>.

Table 10. Size of Shadow Economy in SEE Compared to 151 Countries Worldwide

| No. | Country   | Year (in %GDP) |      |      |      |      |      |      |      |      | Average by country |
|-----|-----------|----------------|------|------|------|------|------|------|------|------|--------------------|
|     |           | 1999           | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |                    |
| 48  | Slovenia  | 27.3           | 27.1 | 26.7 | 26.6 | 26.4 | 26.2 | 25.8 | 25.3 | 24.7 | 26.2               |
| 73  | Croatia   | 33.8           | 33.4 | 33.2 | 32.6 | 32.1 | 31.7 | 31.3 | 30.8 | 30.4 | 32.1               |
| 83  | BiH       | 34.3           | 34.1 | 34.0 | 33.9 | 33.5 | 33.6 | 33.2 | 32.9 | 32.8 | 33.6               |
| 87  | Albania   | 35.7           | 35.3 | 34.9 | 34.7 | 34.4 | 33.9 | 33.7 | 33.3 | 32.9 | 34.3               |
| 99  | Macedonia | 39.0           | 38.2 | 39.1 | 38.9 | 38.4 | 37.4 | 36.9 | 36.0 | 34.9 | 37.6               |

Source: F. Schneider, A. Buehn, & E.C. Montenegro, *Shadow economies all over the World: New Estimates for 162 Countries from 1999 to 2007*, 2010, p. 30.

The shadow economy has a significant part of the overall economy in BiH. Transition, corruption, high unemployment, underdevelopment, lack of investment, affect the growing involvement in activities of the shadow economy. The first comprehensive study of shadow economy in BiH was carried out in 2004 for the period 2001-2003. Researchers Roberto Dell'Ano and Marje Piirisild found that the overall non-observed economy in 2001 amounted to 57.74%, 55.92% in 2002 and 52.60% in 2003 of the GDP of BiH (Tomas, 2010). The total shadow economy in BiH amounted 26.52% of the statistically verified GDP or 6.56 billion BAM in 2008 (Tomas, 2010, p. 28). The implemented reforms such as the direct tax reforms, reforms of entity tax administration, the establishment of public sector audit, implementation of the Law on Public Procurement and the Law on Free Access to Information, and the introduction of VAT have contributed to a reduction in shadow economy.

The rate of shadow economy in Albania is shown in the following Table 11, it includes data from 2003 to 2009. According to the simple currency ratio method, the highest rates of shadow economy were recorded in the years 2003 and 2004 while smallest rates of shadow economy in 2007, 2009 and 2008. The first year of transition to market economy was accompanied by a high level of shadow economy, which is characteristic for all TC. The informal sector amounted on average 32.0% of GDP in the period from 1993-1996. A significant decrease of the informal sector was reported in 1996, and the estimates for the following years were lower than what had been expected. “The coefficient of variation (measured as the ratio of the standard deviation to the simple average)

resulted in 0.68, suggesting high volatility in estimations of the shadow economy” (Boka & Torluccio, 2013, p. 216).

Table 11. Evaluation of Shadow Economy in Albania

|      | <b>Currency outside Banks</b> | <b>Total Deposits</b> | <b>k=C/D</b> | <b>GDP</b>  | <b>Shadow Economy</b> | <b>Share of Shadow Economy in % GDP</b> |
|------|-------------------------------|-----------------------|--------------|-------------|-----------------------|---|
| 2003 | 125.187,5                     | 318,340.0             | 0.39         | 712,987.0   | 109,983.9             | 15.8                                    |
| 2004 | 138.093,5                     | 365,138.1             | 0.38         | 772,518.0   | 109,531.4             | 14.5                                    |
| 2005 | 149.671,1                     | 423,312.3             | 0.35         | 836,518.0   | 101,540.7             | 12.4                                    |
| 2006 | 163.264,3                     | 503,203.2             | 0.32         | 907,909.0   | 88,302.2              | 10.0                                    |
| 2007 | 154.956,2                     | 602,653.4             | 0.26         | 994,533.0   | 41,254.3              | 4.3                                     |
| 2008 | 195.817,3                     | 619,887.4             | 0.32         | 1,094,696.0 | 98,707.2              | 9.1                                     |
| 2009 | 209.043,8                     | 662,425.7             | 0.32         | 1,133,876.0 | 101,940.8             | 8.9                                     |

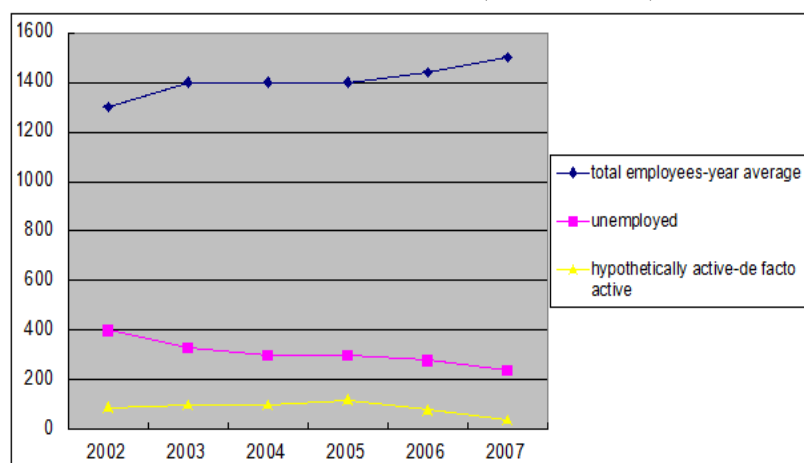
*Note:* \*Currency outside Banks, Total Deposits and GDP expressed in Million ALL

Source: M. Boka & G. Torluccio, *Informal Economy in Albania*, 2013, p. 216.

The aim of the Paper of Williams, Franic and Dzhekova (2014) is explaining shadow economy, participation in shadow economy “as a violation of the social contract between the state and its citizens”. The findings upon evidence of 1018 face to face interviews in Bulgaria 2013, is that “the greater is the asymmetry between formal and informal institutions, the greater is the likelihood of participation in the shadow economy”. “A multi-stage random sampling methodology was used to ensure that on the issues of gender, age, region and locality size...To measure the level of institutional symmetry, participants were asked to rate acceptability of five types of undeclared work using a 10-point Likert scale (1 equals absolutely unacceptable and 10 equals absolutely acceptable)” (Williams et al., 2014, p. 36). The acceptability of participating in the shadow economy across all five forms of shadow economy in Bulgaria is 2,46 which indicates that “the formal and informal institutions are not wholly aligned” (Williams et al., 2014).

Assessment of shadow economy for Croatia for the period 2001 - 2007 was measured by the method of workforce. Two types of administrative and survey data was used. The main difference in the data is their application and comparability, since estimates based on administrative data cannot be compared with other countries because they are specific to each country as opposed to survey data. The Figure 6 shows the trend of employment, unemployment and shadow economy in the period from 2002 to 2007.

Figure 6. Trends in Employment, Unemployment and Shadow Economy According to Administrative Records (in thousands)

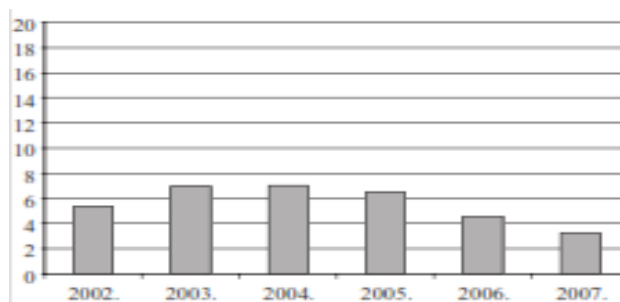


Source: M. Svec, *Siva ekonomija u Hrvatskoj*, [Shadow economy in Croatia], 2009, p. 423.

According to the Figure 6 data, there is an inverse relationship between the activity rate and estimate of employees in the shadow economy. A decrease in the activity rate increased employment in the shadow economy. The population in the formal economy shifts to shadow economy.

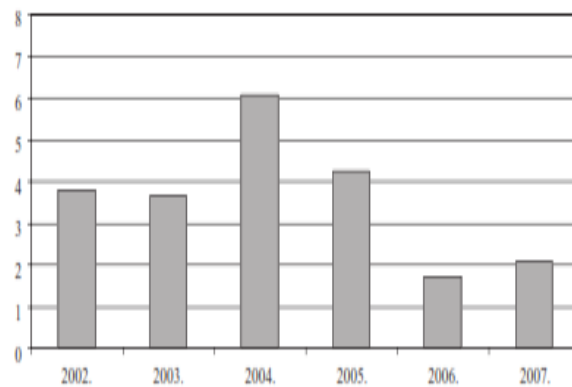
The following Figure 7 and Figure 8 show the assessment of employment in the shadow economy according to administrative records and survey data. The ratio of formal and shadow unemployment in both periods is negative because people who work in the formal economy are satisfied with their jobs and income, and do not think about moving into shadow economy. For administrative data, the rate was decreasing at the beginning, but increasing afterwards. In the survey data from 2004, there was an increase, and then a decline. According to the survey data a growth in activity rate is followed by increase in employment in the shadow economy, which does not apply to administrative data. The reason for this is the fact that a certain proportion of the population works at the same time in the formal and shadow economy, but the applied method cannot be used to distinguish these values.

Figure 7. Assessment of Employment in the Shadow Economy According to Administrative Records (in %)



Source: M. Svec, *Siva ekonomija u Hrvatskoj* [Shadow economy in Croatia], 2009, p. 432.

Figure 8. The Assessment of Employment in the Shadow Economy According to the Survey Data (in %)



Source: M. Svec, *Siva ekonomija u Hrvatskoj [Shadow economy in Croatia]*, 2009, p. 432.

Williams and Franic (2015) evaluated contrasting policy approaches towards shadow economy in Croatia interviewing face to face 1000 interviews during 2013. They found no association between participation in shadow economy and risk of detection and penalties, but strong association between working in shadow economy and level of tax morality. Tax morale is very important in observation of shadow economy. “A unit decrease in tax morale increases the odds of working undeclared by 58.5% and the odds of buying undeclared goods and services by 16.9%, holding other variable constant” (Williams & Franic, 2015, p. 16). Persons with higher tax morale are significantly less likely to work in shadow economy and less likely to buy goods and services in shadow economy (Williams & Franic, 2015).

The estimated shadow economy in Macedonia is presented in Table 12. Macedonia is a country with very high unemployment. The unemployment rate was 32% in 2000 and 2010. In the meantime, the unemployment rate increased and decreased. The formal unemployment rate was highest in 2004, namely 38%, and in 2004 and 2005 when it was 37%, while it decreased in the years to come. A decrease in the unemployment rate in 2006 could be explained by tax breaks and the introduction of proportional taxation which resulted in incentivizing self-employment and companies to register their employees. Estimated shadow economy has declined in the reporting period from 34.1% in 2000 to 24% in 2010.

Estimation of employment in the shadow economy was based on a simple approximation using the already calculated SE rate as percentage of the GDP using the ECM. Garvanlieva, Andonov, and Nikolov (2012) assumed that the unofficial economic output and the unofficial employment have the same percentage share in the economy we can estimate the unemployment rate i.e. the number of individuals who are employed, but are officially registered as unemployed. According to the authors, the estimates showed lower unemployment rate by 7% to 13% than the official rate, depending on the year. For instance in 2010 the recalculated unemployment rate is 24% compared to the official 31%, which reduces the total number of official unemployed by almost 71.000 officially

unemployed. However, the authors suggest that this is a simplified estimate and should be considered with caution (Garvanlieva et al., 2012).

Table 12. Estimated Shadow Economy in Macedonia

| Year | % of Shadow Economy in GDP | Number of Unemployment | Informal Employment | Estimated Unemployment Rate | Formal Unemployment Rate |
|------|----------------------------|------------------------|---------------------|-----------------------------|--------------------------|
| 2003 | 34.2%                      | 315,868                | 108,101             | 24%                         | 37%                      |
| 2004 | 32.8%                      | 305,899                | 100,193             | 26%                         | 38%                      |
| 2005 | 32.7%                      | 320,136                | 104,594             | 25%                         | 37%                      |
| 2006 | 31.0%                      | 324,766                | 100,735             | 25%                         | 36%                      |
| 2007 | 28.1%                      | 316,247                | 89,001              | 25%                         | 35%                      |
| 2008 | 25.2%                      | 306,006                | 77,004              | 25%                         | 33%                      |
| 2009 | 23.4%                      | 298,814                | 69,877              | 25%                         | 32%                      |

Source: V. Garvanlieva, V. Andonov, & M. Nikolov, *Shadow Economy in Macedonia*, 2012, p. 23.

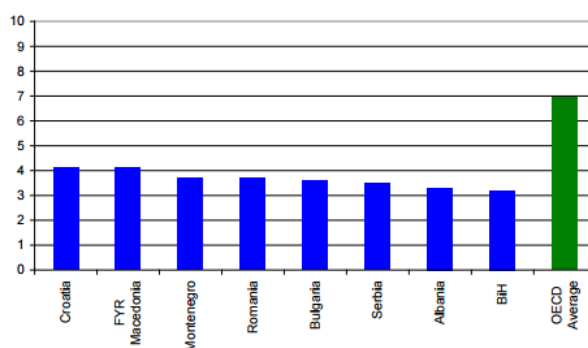
Slovenia is the country with the lowest presence of shadow economy in the SEE region. In 1993, it was estimated that about 26% of the workforce took part in the shadow economy. The estimated size of shadow economy, in the sectors of industry, construction, tourism and agriculture, ranges between 16.8% and 21.3% of GDP (Nastav & Bojnec, 2005).

“Based on the MIMIC method, it is estimated that the extent of shadow economy in Serbia declined from 33.2% percent of GDP in 2001 to 30.1% percent of GDP in 2010” (Krstic, Schneider, Arandarenko, Arsić, Radulovic, Randelovic, & Jankovic, 2013, p. 48). MIMIC method widely covers shadow economy, as it covers all institutional sectors and all forms of shadow economy (Krstic et al., 2013). The findings show that the shadow economy in Serbia has declined during the period of economic growth, and that it remained almost unchanged since the beginning of the economic crisis. The extent and development of the shadow economy in Serbia between 2001 and 2010 shows that there is a strong (highly statistically significant) negative correlation between the size and movement of the shadow economy and the level and movement of registered GDP.

The evaluation of shadow economy based on HTC method in 2010, estimated that the total percentage of shadow economy in Serbia is 23.6% of GDP. The estimated size of the shadow economy is lower than in MIMIC, because it is based on data on income and consumption of households; one cannot cover some forms of economies that are realized in enterprises. Based on the different methods of measuring shadow economy in the SEE countries, by comparative analysis it was found that the most reliable and the most appropriate method of measuring shadow economy is the MIMIC method.

A study of the European Bank for Reconstruction and Development (EBRD), “Making Sense of Competitiveness Indicators in South-eastern Europe” presents the results of the Global Competitiveness Index, Corruption Perception Index, and the annual transition indicator for the countries of SEE. As for the measurement of corruption in the SEE countries, the authors use corruption perception index (CPI - Transparency International Perception Index), which has already been discussed. Results showed significantly higher levels of corruption in the SEE countries compared to OECD countries. The level of corruption is high even in the economically developed countries of SEE. The Figure 9 below indicates that Croatia and Macedonia were rated as the least corrupt countries, while Albania and Bosnia and Herzegovina were perceived as most corrupt.

Figure 9. Corruption Perceptions Index for SEE Countries



Note: \*Scores rank from 1 to 10, with 10 representing the best score possible.

Source: P. Sanfey & S. Zeh, *Making sense of competitiveness indicators in south-eastern Europe*, 2012, p. 10.

The Corruption Perception Index for 2014 for the SEE countries is presented in the Table 13 below. The global average for 2014 was 43/100, where 100 represents the highest level of corruption and 0 the lowest. Top ranked countries include New Zealand (91/100) and Denmark (92/100), and the worst ranked include North Korea (8/100) and Somalia (8/100).

Table 13. The Corruption Perception Index for 2014 for SEE countries

| Country   | The Corruption Perception Index for 2014. | Rank in the total number of observed countries (175) |
|-----------|---|--|
| Albania   | 33/100                                    | 110/175  |
| BiH       | 39/100                                    | 80/175   |
| Serbia    | 41/100                                    | 78/175   |
| Macedonia | 45/100                                    | 64/175   |
| Croatia   | 48/100                                    | 61/175   |
| Slovenia  | 58/100                                    | 39/175   |

Source: Corruption Perceptions Index 2014: Results: Table and Rankings. In *Transparency International, The global coalition against corruption*

When it comes to SEE countries, the lowest ranked are Albania and Bosnia and Herzegovina, and the highest ranked are Croatia and Slovenia. EU Member States and most developed countries in the research sample have the best results and are rated as the least corrupt countries, while Albania and Bosnia and Herzegovina were rated as the most corrupt among the countries studied.

In SEE countries the rule of law is weak, just like legal and regulatory framework, unfavorable economic environment for entrepreneurship development, inefficient state apparatus and public institutions and corruption, cause slower economic progress in the implementation of transition reforms. This environment is favorable to the development of shadow economy. The incentives to work in the shadow economy are greater than incentives to work in the formal economy.

### **3 THE INFLUENCE OF INSTITUTIONAL EFFICIENCY ON SHADOW ECONOMY**

#### **3.1 The Influence of Institutional Efficiency on Shadow Economy**

On one hand, shadow economy causes a deficit, public debt, increased unemployment in the formal economy; on the other hand, it is an opportunity for individuals to avoid unfair tax burdens and inefficient regulations in the formal economy. The most famous work in this field is linked to the name of the influential economist Schneider. Apart from him, there are also works of other economists such as: “The Nature of the Underground Economy. Some evidence from OECD Countries”, by Maurizio Bovi (2003), “Institutions and Economic Performance: An Introduction to the Literature. Forthcoming in Institutions and Economic Performance” by Kevin E. Davis (2010).

The works of Schneider and Williams (2013) analyze of the size of the underground economy in Germany and the OECD, as well as the size of the shadow economy worldwide, using the MIMIC method. The survey covers findings for 21 OECD countries until 2007. The size of the shadow economy in most OECD countries decreased since the late 1990s. Maybe, it happened because there has been some reduction in the tax and regulatory burden in some countries from 2007. The level of shadow economy in Germany equals the average level of shadow economy in the OECD countries, while Austria and Switzerland have the lowest level of shadow economy in relation to GDP. SEE countries have the largest level of shadow economy, between 20% and 30% of GDP. The level of shadow economy in Scandinavian countries is above the average of OECD countries. This is an interesting fact because these countries are characterized by a high level of trust and good social norms. However, because of the high tax burden, a high rate of shadow economy was recorded.

A large number of empirical studies, which were produced over the past decades, confirm the thesis that developing countries with underdeveloped market institutions (norms and rules of market behavior) have higher transaction costs, which increases the costs of formal business and resulting in

a high share of shadow economy. The method of the physical inputs (electricity consumption methods), methods of money demand and DYMIMIC methods were often used in assessing the level of shadow economy in developing countries. The study was conducted by a group of authors (Schneider, Buehn, & Montenegro, 2010). It contains data on the level of shadow economy in 162 countries for the period from 1999 to 2007. Results are grouped for Africa, Asia, Central and South America. The results for 23 African countries show that on average, the share of shadow economy in Africa is 43.7% of official GDP for 2007. Tanzania and Zimbabwe have the highest level of shadow economy with 63% and 56.1% of GDP respectively. The lowest share of shadow economy was recorded in South Africa, 31.7% and 34.2% in Cameroon. The results for 26 Asian countries show that Thailand has the largest rate of shadow economy, with 57.2% of its GDP, followed by the Philippines (48.4%) and Sri Lanka (47%). The lowest rate of shadow economy was measured in Japan (12.1%) and Singapore (14%). The average level of shadow economy in countries in Asia is at the level of 28.1% of real GDP for 2007, while in South America it equals 43.4% of real GDP.

The work of Schneider (2010) titled “The Impact of Public Institutions in the Informal Economy: An Empirical Study of OECD Countries”, presents the econometric estimation of shadow economy using the MIMIC approach for the 21 OECD countries. Using theoretical predictions, Schneider (2010, p. 451) tested the eight hypotheses:

1. an increase in direct and indirect taxes increases the shadow economy;
2. increase in social security contributions increases the shadow economy;
3. the more regulation in the country, the greater the incentive to work in the shadow economy;
4. the lower the quality of state institutions, the greater the incentive to work in the shadow economy;
5. the size of shadow economy is smaller in federal systems in relation to non-federal systems of regulation;
6. the lower the tax morale, the greater the incentive to work in the shadow economy;
7. the higher the unemployment, the more people are involved in the activities of shadow economy;
8. the lower the GDP per capita in the country, the greater the incentive to work in the shadow economy.

Econometric estimation was carried out for 21 OECD countries. In addition to the usual causes of variables, such as direct and indirect taxation, social security contributions and regulation, four additional explanatory variables have been taken into consideration: the burden of payment of contributions (in % of official GDP), tax morale (the index), the quality of state institutions and other public institutions and the federal structure of the country. Quotas for employment and the annual rate of GDP were used as an indicator variable. Eight of the nine coefficients were estimated to be statistically significant, whereas the variable for the index of federalism was not statistically significant. Variables such as tax and social security burden are quantitatively the most important, followed by tax morale, which has the largest single impact and the variable quality of state institutions is also significant and it is very important to determine the level of activity in shadow

economy (Schneider, 2010). Summing up the econometric results for OECD countries, the most important variables affecting shadow economy are social security contributions, the share of direct tax, tax morale and the quality of state institutions.

To calculate the total size of the shadow economy, Schneider (2010) used the already available estimates of currency demand approach for Austria, Germany, Italy and the USA from the research of Dell'Anno and Schneider in 2004, Bajada and Schneider in 2005, and in 2009, and Schneider and Enste in 2002. The research involves the assessment of shadow economy using methods of currency demand and MIMIC as a percentage of GDP for the 21 countries of the OECD. The high increase of shadow economy from 12.7% to 16.2% in the period of 1994/95 and 1997/98, compared to the period 1989/90, is the result of an increase in taxes and contributions, as well as regulatory measures, and a number of other factors that vary from country to country such as growth, rising unemployment, reform of taxation and the provision of goods and services. The results show that by the end of the 90s, the size of the shadow economy in most OECD countries began to decline. Unweighted average for all countries in 1999/2000 was 16.8%, and decreased to 13.9% in 2007. The only countries where the growing trend lasted for a longer period of time are Germany, Austria and Switzerland and it reversed only a couple of years ago. Reducing the share of shadow economy in GDP between 1997/98 and 2007 was most visible in Italy (-5.0%) and Sweden (-4.0%).

In the work of Friedrich Schneider “The Shadow Economy in Germany: A Blessing or a Curse for the Official Economy?” from 2008, an assessment of shadow economy in Germany and other 20 OECD countries was conducted. The assessment was based on a combination of the method of currency demand and the DYNAMIC method. In addition to the usual causal variables such as direct and indirect taxation, social security contributions and regulation, the following variables have also been listed: tax morale (index), the quality of state institutions and the burden of paying social security (% of official GDP). Besides the unemployment quota, annual rate of GDP and change of currency per capita, an additional indicator variable the average working time (per week) was used (Schneider, 2008). The results showed that all eight variables were statistically significant. Taxes and contributions are statistically the most significant causes of the growth of the shadow economy. How people perceive shadow economy plays an important role when they decide whether to work in the shadow economy or not. The results of the questionnaire for Germany (Schneider, 2008) indicate that people do not feel bad for working in the shadow economy. When asked if they are working regularly in the shadow economy 20.7% of respondents answered that they were, while 30.8% claimed to be looking for employment in the shadow economy on a regular basis. The most important reasons for working in the shadow economy are saving money, because working in the shadow economy is less expensive, followed by taxes and contributions and much higher labor costs in the formal economy.

The rigidity of the European, and especially German labor market, high tax rates and contributions are two important causes of high levels of shadow economy in most European OECD countries.

Therefore, in order to reduce the scope and size of shadow economy, they must address these issues with the appropriate counter measures. If those measures are not taken, incentives to get out of the shadow economy into the formal economy will continue to decrease (Schneider, 2008). More laws will not be the appropriate solution, because citizens of Germany and Austria do not think of illegal employment as a violation of the law and, as a result, two thirds of citizens would not report illegal economic activities.

What can be concluded from previous research is that for developed countries the most important causes of the growth of the shadow economy are tax burden. Institutional effectiveness has an impact on shadow economy, but not so much for developed countries as much as for developing countries and TC whose institutions are ineffective because of the reforms being implemented.

Transition economies are characterized by institutional changes based on the transition from a system of state planning and resource allocation to a decentralized system of market allocation. This transition involves changes in laws and regulations, standards and expectations. The outcome of joint efforts in the region to rearrange a set of laws and regulations governing economic exchange widely vary from country to country. Institutional indicators show significant variation after the first decade of the transition process. The question is which factors influenced the differences in the institutional achievements of why some countries are less, some more successful in the transition process because all transition countries have started this process nearly at the same time.

There are numerous empirical studies that analyze the relationship between quality of institutions and economic performance in TC. Most authors report strong evidence that “better institutions” in transition encourage better economic performance of these countries (Efendic & Pugh, 2015). According to Efendic (2010) some of these studies include Enste (2003), Sachs (2001), Beck and Laeven (2006), Chousa, Khan, Melikyan, and Tamazian (2005), Redek and Susjan (2005), Falcetti, Lysenko, and Sanfey (2006), Eicher and Schreiber (2007), and Paakkonen (2009).

The work of Enste (2003) investigates the impact of shadow economy on the economic growth. The authors argue that a lack of economic policy is the driving force for the strong growth of the shadow economy. Not only the high tax burden and regulation are important factors for the shift to shadow economy, but also defensive labor market policies aimed at re-distribution of working hours. In addition, the lack of clear and stable institutions in TC supports shadow economic activities. However, increasing costs of illicit work, intensified controls and setting larger penalties would produce positive effects.

Paying taxes and contributions are the main arguments which the state uses to support their fight against shadow economy. However, when the consequences of shadow economy are considered more detailed, the losses of public revenues are not as high as it first seems. The paper explained

that not only the shadow economy benefits, but also the state through increased supply and demand because the state receives additional revenues through VAT.

Options of behavior of people can be divided into “Exit” and “Voice” options that are two aspects of the author’s “Two Pillar Strategy” (Enste, 2003). In a democracy there is a choice in which each individual votes for the party whose policies best suite his/her own views. The alternative to the “Voice” option, the “Exit” option, which is considered a failure, is the reaction of the market. In the free market companies have the ability to change locations to avoid unwanted economic effects of tax or social security system and households may decide to shift to shadow economy as well. Participation in shadow economy is also one of the possibilities. Options include either tax evasion, for example, through financial transactions, or fictitious change of location (Enste, 2003). Individuals may alternatively decide to work illegally in the informal sector, household sector and the criminal sector.

By adopting the recommended “Two Pillar Strategy” one can do much against the negative effects of the shadow economy. In the long term, reforms are inevitable, not only because of globalization (which would lead to greater flexibility for companies and capital), but also because of the growing importance of shadow economy (which offers an alternative for employees). People are increasingly opting for the “Exit” option if the “Voice” option is not strengthened by more direct democratic elements which means they will either choose to work illegally (in their country), or look for another formal system (in other countries or states), which suits their needs better (Enste, 2003). In the long term, companies cannot accept non-compliance of laws and rules that form the basis of a country. However, it would not make sense to fight illegal work with intensified controls and higher penalties. The tendency to engage in the shadow economy should be seen as a warning sign from politicians. There is an increased resistance against the existing norms and laws in the economy that can best be mitigated by adopting the “Two Pillar Strategy” (Enste, 2003).

The main objective of the research by Falcetti et al. (2006) is “to provide theoretical and empirical framework” for the analysis of “the relationship between economic growth and institutions in post-Soviet countries assuming hierarchical and multidimensional structure of institutional settings”. The key idea is that the institutions are numerous and can be classified according to their role in the political and economic sphere, and should recognize the existence of a number of multiple connections between the constituent elements of these institutional settings. Hypotheses that economies in countries in transition depends on the institutions related to the economy because they condition the dynamics of each of the well-established growth factors and claim that satisfactory institutions ruling the economic order cannot appear in poor democratic settings and cannot function effectively if they are not supplemented by efficient enforcement mechanisms, are tested on the basis of cross-sectional time series with a pattern consisting of 26 former socialist economies.

Time period is 10 years and ranges from 1999 to 2008, while the main sources of data are the Freedom House, the Global Competitiveness Report (The World Economic Forum) and the World Bank Statistics. The results support that institutions matter for economic development as they can directly or indirectly affect the pace of economic growth. Institutions related to the economy have a direct impact; however, the quality of democracy-related institutions is very important for economic growth. In addition, countries can record economic growth even if there are inefficient institutions, but they should not be ignored because it does not allow countries to achieve their full potential in development. These results can thus raise the awareness of policy makers on the sequence of reforms needed to achieve sustainable and rapid economic growth. Undoubtedly, any country in transition must first ensure that there is 'sound' democratic settings, which will lead to the creation of well-defined economy-related institutions. If this is achieved, the country will prosper and have a great chance to reach the level of prosperity that exists in the developed world.

Sachs (2001) states that the experience of the 1990s reform confirms the ability of the former socialist economies in Eastern Europe and the former Soviet Union of rapid transition to a market economy. Several economies of Eastern Europe led rapid reforms and are now experiencing rapid growth. Most of the former Soviet Union, however still are in a stabilization crisis due to reforms that were less coherent and far-reaching. The lack of international financial support contributed to delays in stabilizing. Simple regression analysis confirms that economic growth is positively correlated with the reform progress. The liberalization of the economy has proved to be the fastest and most efficient area of change. The fastest reforms in economy are related to currency convertibility, price liberalization, elimination of international trade barriers. Almost every country was in crisis during the reform period.

Most of the named works researches the impact of the efficiency of institutions on economic growth, but not the impact of the efficiency of institutions on shadow economy. Although it can be assumed from previous research that higher efficiency of institutions is associated with less shadow economy, this statement will be tested in this study.

### 3.2 The Influence of Institutional Efficiency on Shadow Economy in SEE

Many scientists claim that the quality of institutions plays a key role in economic development (Di Tommaso, Raiser & Weeks, 2000). This is especially true in transition countries where the quality of institutions, legal framework, and corruption play a significant role in the economy of these countries. Some of the works that deal with this topic include authors such as: Efendic and Pugh (2007), Efendic and Pugh (2015), Efendic, Pugh and Adnett (2011), Assane and Grammy (2003), Lane and Rohner (2004).

The work of Rei and Bhattacharya (2008), titled “The Impact of Institutions and Policy on Informal Economy in Developing Countries: An Econometric Exploration” analyzed the impact of

institutions, regulations and government policies in the shadow economy. The paper used cross-country regression for the size of shadow economy (measured in revenues) and the size of employment in the shadow economy. The variables are, in both cases, a number of institutional and policy variables that have a potential impact on informality. The sample includes 111 countries. Institutional variables included in the regression model are: labor market regulation index, index of regulatory constraints on business, index of workers' rights, women's social rights index, an indicator of democracy level in the political process, worldwide governance indicators such as the measurement of voting rights and accountability, effectiveness of government, the rule of law, and control of corruption (Rei & Bhattacharya, 2008).

The work of Assane and Grammy (2003) focuses on the importance of institutions in the TC. Institutions are very important for economic prosperity. Although there has been an increase in the awareness of the importance of the role which institutions play in the economy, there are still many unanswered questions, particularly for TC such as “endogeneity between institutions and economic growth”; “structure and size of the institutional framework and the impact on economic performance”; and “the connection between success in integration with the EU”, EU financial support and the “quality of institutions” (Assane & Grammy, 2003).

The work of Lane and Rohner (2004), explores the importance of building institutions for economic growth in TC in Eastern Europe and the CIS States. Results of correlation and regression analysis show that the protection of property rights, administrative efficiency is crucial for economic growth compared to the standard economic factors such as macroeconomic policy.

In their research, Johnson, Kaufmann, and Zoido-Lobaton (cited in Schneider, 2010) arrive at the result that shadow economy is less present in countries with higher tax revenues, if they are achieved with lower tax rates, fewer laws and regulations and less corruption. Countries with a better rule of law, which are financed from tax revenues, also have less shadow economy. Transition countries have higher levels of regulation leading to a significantly higher frequency of bribery, higher taxes and a large discretionary framework of regulations and therefore more shadow economy (Schneider, 2010). Their overall conclusion is that the richer OECD countries, as well as some in Eastern Europe, find an optimal balance of relatively low tax and regulatory burden, collecting significant revenue; that there is effective rule of law and control of corruption, resulting in a low level of shadow economy.

Ahrens (cited in Budak & Sumpor, 2009) believes that the role of institutions in linking the economy and the state system of a country can be displayed the best on the example of the effects of political and economic reforms in post-socialist countries of Central and Eastern Europe. Economic reforms in those countries should have ensured faster economic growth and development in a relatively short period of time, but that did not happen, and the main reason given for this were inadequate institutional framework within which the reforms are taking place, or the lack of political

stability and social consensus regulating property rights, the entry and exit of companies to markets and other conditions of market operation.

Williams and Franic (2015) evaluated contrasting policy approaches towards shadow economy in Croatia interviewing face to face 1000 interviews during 2013. The conventional policy approach for fight against shadow economy is to use direct controls but this paper evaluating the use of direct and indirect controls for tackling shadow economy founds out that indirect approach is more efficient. They found no association between participation in shadow economy and risk of detection and penalties, but strong association between working in shadow economy and level of tax morality. Results of logistic regression shows that a unit decrease in tax morale the odds of working undeclared by 58,5% and the odds of buying undeclared goods and services by 16,9%, holding other variable constant (Williams & Franic, 2015). Persons with higher tax morale are significantly less likely to work in shadow economy and less likely to buy goods and services in shadow economy (Williams & Franic, 2015).

As already mentioned in the previous subchapter, the majority of studies are related to testing the impact of efficiency of institutions on economic growth, and not specifically on the shadow economy in the countries of SEE. It can only be assumed from the given research that if greater efficiency of institution positively affects economic growth, thus increasing public revenues, reducing the official unemployment, increasing production and consumption in the formal sector, it would affect the reduction of the shadow economy. Whether the relationship between the efficiency of institutions and shadow economy is inversely proportional will be shown in the next chapter.

The following chapter estimates the impact the efficiency of institutions on the level of shadow economy using the method of regression analysis, and Pearson's correlation method for the preliminary analysis of testing the relationship between these indicators. The procedure and the results of the study are detailed in chapter four.

## **4 EMPIRICAL ANALYSIS OF THE INFLUENCE OF INSTITUTIONAL EFFICIENCY ON SHADOW ECONOMY IN SEE COUNTRIES**

### **4.1 Introduction**

In order to investigate the effect of institutional efficiency on shadow economy in SEE countries, secondary data was collected, including annual indicators for the period from 2003 to 2008. Six SEE countries were included in the sample: Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia, and Slovenia. Data collection was conducted in three phases.

In the first phase indicators of efficiency of institutions were collected for the six countries in the sample (for the specified period), namely:

- The “EBRD Transition Index”, as an annual indicator of structural and institutional reforms relating to the following areas: governance and enterprise restructuring, price liberalization, trade and foreign exchange system, competition policy, banking reform and interest rate liberalization, securities Markets and non-bank financial institutions, large-scale privatization, and small-scale privatization. In case of this research, in accordance with the methodology used by many authors in this field (e.g. Havrylysyn, Izvorski, & Van Rooden, 1998; Raiser et al., 2000; Sachs, 2001; Di Tommaso et al., 2007; Efendic, 2010; Eicher & Schreiber, 2010), the EBRD score was divided with 4.33 to obtain a value in the range from 0 to 1, where 1 is the maximum value of the index (Eicher & Schreiber, 2007).
- “Index of Economic Freedom” as an annual indicator of freedom in various areas, which is published by the Heritage Foundation and Wall Street Journal. It is based on a simple average of 10 economic freedoms: business freedom, freedom from government, property rights, freedom from corruption, trade freedom, monetary freedom, fiscal freedom, investment freedom, financial freedom, and labor freedom (Miller, Kim, & Holmes, 2014). The value of the index ranges from 0 to 100, for the purposes of our research it has been normalized in the range from 0 to 1.
- The “Worldwide Governance Indicator” represents the average of the sum of the six dimensions (regulation strategy, government effectiveness, rule of law, control of corruption, political stability and lack of violence, and voice and accountability) regarding the efficiency of the public sector. The value of the named index moves in the range of -2.5 (poor) to 2.5 (very good) for performance of the public sector (Kaufmann, Kraay, & Mastruzzi, 2010). In this case also the range of the index has been normalized in the range from 0 to 1.

In our empirical research we have used the EBRD transition index because this index is specially designed for TC and our sample includes six TC (Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Slovenia). The other two indicators (Index of Economic Freedom and the Worldwide Governance Indicator) refer to the efficiency of institutions in general. The EBRD

transition index is most widely used index of institutional efficiency especially when it comes to TC and we think for our research is the best choice.

In the second phase indicators of the rate of shadow economy for six countries in the sample (for the specified period) were collected from two relevant studies by the authors Schneider (2007) and Schneider, Buehn and Montenegro (2010), because there is no complete overview of indicators in some of the relevant and reliable global database. When calculating the value of the shadow economy the authors used the MIMIC method, explained in more detail in the theoretical part.

In the third phase economic indicators were collected for six countries from the sample (for the specified period) from the current database of the World Bank, (Cebula, 1997; Krakowski, 2005; Dreher & Schneider, 2006; Jie, Tat, & Rasli, 2011), namely:

- "GDP per capita" - assuming that this indicator reflects the standard of living of the country (taking into account the cost of living and inflation rate), measured by the method of purchasing power parity per capita, expressed in US dollars.
- "Unemployment" - mentioned indicator is expressed as the unemployment rate, expressed as a percentage, which refers to the number of unemployed workers divided by the total number of working-age population (working age population are people between the age of 16 and 65).
- "Tax rate" - in this case is expressed through the valid rate of value added tax in the specified period. VAT is the only tax standardized for all countries in the sample. Other types of taxes for the countries from our sample are not possible to unify.

## 4.2 Descriptive Statistics

Below, we present results of the descriptive analysis including the efficiency of institutions, rate of shadow economy and three economic indicators ("GDPPC", "unemployment", "tax rate") in six SEE countries (Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia, and Slovenia) for the period from 2003 to 2008. The reason for selecting only the period up to 2008 is that the data estimating the rate of shadow economy calculated by the MIMIC method were not available for all countries after the year 2008.

### 4.2.1 Efficiency of Institutions in SEE Countries

When it comes to the efficiency of institutions in SEE countries from the sample, it was observed by using the following indicators: "The EBRD Transition Index", "Index of Economic Freedom" and "The Worldwide Governance Indicator".

The average value of the EBRD Transition Index for SEE countries in the period from 2003 to 2008 was 0.71 (based on which it can be concluded that the efficiency of institutions these countries was moderate). If one looks at individual countries, it can be concluded that Croatia has the highest level of efficiency of institutions (average value of the index is 0.82) and Slovenia (average value of the index is 0.79). They are followed by Macedonia (the average value of the index is 0.73) and Albania

(the average value of the index is 0.70), while Serbia (average value of the index is 0.63) and BiH (average value of the index is 0.62) have the lowest level of institutional efficiency from all the countries of the sample. It is interesting that the average quality of institutions in six countries in the sample is constantly increasing, with the value of 0.68 in 2003 to the value of 0.77 in 2008. Detailed results are presented in Table 14.

Table 14. “EBRD Transition Index” in SEE Countries

| <b>Year</b> | <b>Albania</b> | <b>BiH</b>  | <b>Croatia</b> | <b>Macedonia</b> | <b>Serbia</b> | <b>Slovenia</b> | <b>SEE Countries</b> |
|-------------|----------------|-------------|----------------|------------------|---------------|-----------------|----------------------|
| 2003        | 0.67           | 0.58        | 0.79           | 0.69             | 0.57          | 0.79            | <b>0.68</b>          |
| 2004        | 0.69           | 0.59        | 0.81           | 0.72             | 0.58          | 0.79            | <b>0.70</b>          |
| 2005        | 0.69           | 0.60        | 0.81           | 0.72             | 0.62          | 0.79            | <b>0.71</b>          |
| 2006        | 0.70           | 0.62        | 0.82           | 0.74             | 0.65          | 0.79            | <b>0.72</b>          |
| 2007        | 0.70           | 0.64        | 0.83           | 0.75             | 0.66          | 0.79            | <b>0.73</b>          |
| 2008        | 0.72           | 0.66        | 0.83           | 0.76             | 0.67          | 0.80            | <b>0.74</b>          |
| <b>Mean</b> | <b>0.70</b>    | <b>0.62</b> | <b>0.82</b>    | <b>0.73</b>      | <b>0.63</b>   | <b>0.79</b>     | <b>0.71</b>          |
| <b>N</b>    | <b>6</b>       | <b>6</b>    | <b>6</b>       | <b>6</b>         | <b>6</b>      | <b>6</b>        | <b>36</b>            |
| <b>Min</b>  | <b>0.67</b>    | <b>0.58</b> | <b>0.79</b>    | <b>0.69</b>      | <b>0.57</b>   | <b>0.79</b>     | <b>0.68</b>          |
| <b>Max</b>  | <b>0.72</b>    | <b>0.66</b> | <b>0.83</b>    | <b>0.76</b>      | <b>0.67</b>   | <b>0.80</b>     | <b>0.74</b>          |

Source: Structural change indicator. In *European Bank for Reconstruction and Development*, Official Website.

According to the available data for the “Index of Economic Freedom” in SEE countries, it can be concluded that its average value in the period from 2003 to 2008 arrives at 0.55, which implies that the efficiency of institutions as a reflection of the degree of economic freedom in these countries is low. When observing individual countries, Slovenia has the highest level of efficiency of institutions (average value of the index is 0.60) and Albania (average value of the index is 0.60). They are followed by Macedonia (the average value of the index is 0.59) and Croatia (the average value of the index is 0.53), while Serbia (the average value of index is 0.51) and BiH (the average value of index is 0.50) have the lowest level of efficiency of institutions in the context of degree of economic freedom of all the countries in the sample. It is interesting that the average quality of institutions in six countries in the sample is constantly increasing, with the value of 0.52 in 2003 it reached a value of 0.58 in 2008. Detailed results are presented in Table 15.

Table 15. “Index of Economic Freedom” in SEE Countries

| <b>Year</b> | <b>Albania</b> | <b>BiH</b>  | <b>Croatia</b> | <b>Macedonia</b> | <b>Serbia</b> | <b>Slovenia</b> | <b>SEE Countries</b> |
|-------------|----------------|-------------|----------------|------------------|---------------|-----------------|----------------------|
| 2003        | 0.57           | 0.41        | 0.53           | 0.60             | 0.44          | 0.58            | <b>0.52</b>          |
| 2004        | 0.59           | 0.45        | 0.53           | 0.57             | 0.47          | 0.59            | <b>0.53</b>          |
| 2005        | 0.58           | 0.49        | 0.52           | 0.56             | 0.49          | 0.60            | <b>0.54</b>          |
| 2006        | 0.60           | 0.56        | 0.54           | 0.59             | 0.56          | 0.62            | <b>0.58</b>          |
| 2007        | 0.61           | 0.54        | 0.53           | 0.61             | 0.55          | 0.60            | <b>0.57</b>          |
| 2008        | 0.62           | 0.54        | 0.54           | 0.61             | 0.55          | 0.60            | <b>0.58</b>          |
| <b>Mean</b> | <b>0.60</b>    | <b>0.50</b> | <b>0.53</b>    | <b>0.59</b>      | <b>0.51</b>   | <b>0.60</b>     | <b>0.55</b>          |
| <b>N</b>    | <b>6</b>       | <b>6</b>    | <b>6</b>       | <b>6</b>         | <b>6</b>      | <b>6</b>        | <b>36</b>            |
| <b>Min</b>  | <b>0.57</b>    | <b>0.41</b> | <b>0.52</b>    | <b>0.56</b>      | <b>0.44</b>   | <b>0.58</b>     | <b>0.52</b>          |
| <b>Max</b>  | <b>0.62</b>    | <b>0.56</b> | <b>0.54</b>    | <b>0.61</b>      | <b>0.56</b>   | <b>0.62</b>     | <b>0.58</b>          |

Source: A.T. Miller, A.B. Kim, & K.R. Holmes, *2014 Index of Economic Freedom*, 2014, p. 464-470.

According to the available data for The “Worldwide Governance Indicator“ in SEE countries, the average value in the period 2003 to 2008 was 0.50, implying that the efficiency of institutions as a reflection of individual indicators in these countries is low. When observing individual countries, the Slovenia has the highest level of efficiency of institutions (average value of index is 0.69) and Croatia (average value of the index is 0.57). They are followed by Macedonia (average value of the index is 0.44) and BiH (average value of the index is 0.43), while Serbia and Albania (average value of the index is 0.42) have the minimum efficiency of institutions in the context of the observed indices. It is interesting that the average efficiency of institutions in the sample increased in the last 6 years, with a value of 0.48 in 2003 and reached a value of 0.52 in 2008. Detailed results are presented in Table 16.

Table 16. “The Worldwide Governance Indicator” in SEE Countries

| <b>Year</b> | <b>Albania</b> | <b>BiH</b>  | <b>Croatia</b> | <b>Macedonia</b> | <b>Serbia</b> | <b>Slovenia</b> | <b>SEE Countries</b> |
|-------------|----------------|-------------|----------------|------------------|---------------|-----------------|----------------------|
| 2003        | 0.40           | 0.42        | 0.57           | 0.41             | 0.39          | 0.70            | <b>0.48</b>          |
| 2004        | 0.42           | 0.45        | 0.59           | 0.43             | 0.42          | 0.70            | <b>0.50</b>          |
| 2005        | 0.40           | 0.42        | 0.57           | 0.42             | 0.40          | 0.69            | <b>0.48</b>          |
| 2006        | 0.42           | 0.43        | 0.57           | 0.44             | 0.44          | 0.64            | <b>0.49</b>          |
| 2007        | 0.44           | 0.42        | 0.57           | 0.46             | 0.44          | 0.69            | <b>0.50</b>          |
| 2008        | 0.46           | 0.43        | 0.57           | 0.48             | 0.45          | 0.70            | <b>0.52</b>          |
| <b>Mean</b> | <b>0.42</b>    | <b>0.43</b> | <b>0.57</b>    | <b>0.44</b>      | <b>0.42</b>   | <b>0.69</b>     | <b>0.50</b>          |
| <b>N</b>    | <b>6</b>       | <b>6</b>    | <b>6</b>       | <b>6</b>         | <b>6</b>      | <b>6</b>        | <b>36</b>            |
| <b>Min</b>  | <b>0.40</b>    | <b>0.42</b> | <b>0.57</b>    | <b>0.41</b>      | <b>0.39</b>   | <b>0.64</b>     | <b>0.48</b>          |
| <b>Max</b>  | <b>0.46</b>    | <b>0.45</b> | <b>0.59</b>    | <b>0.48</b>      | <b>0.45</b>   | <b>0.70</b>     | <b>0.52</b>          |

Source: The Worldwide Governance Indicator, *World Bank*

The presented indicator, in all three cases, show a low institutional efficiency level in SEE countries. However, it is important to mention that for the observed period, there has been an increase in the level of institutional efficiency in the observed countries, especially in BiH and Serbia, who have made the greatest progress.

#### 4.2.2 Shadow Economy in SEE Countries

According to the available data for the rate of shadow economy in the countries in the sample, the average value in the period from 2003 to 2008 is 32% of GDP, which implies that the presence of shadow economy in the SEE countries is very high. When we focus on individual countries, Slovenia has the lowest rate of shadow economy (average rate of 25%), as well as Croatia (average rate of 31%). They are followed by BiH (average rate of 33%) and Albania (average rate of 33%), while Serbia (average rate of 35%) and Macedonia (average rate of 36%) have the highest the rates of shadow economy of the countries in the sample. Interestingly, the average rate of shadow economy in countries in the sample decreased over the last 6 years, with a value of 33% in 2003, and decreased to a value of 30% in 2008. This coincides with changes of institutional indicators. Detailed results are presented in Table 17.

Table 17. Shadow Economy in SEE Countries

| <b>Year</b> | <b>Albania</b> | <b>BiH</b>   | <b>Croatia</b> | <b>Macedonia</b> | <b>Serbia</b> | <b>Slovenia</b> | <b>SEE Countries</b> |
|-------------|----------------|--------------|----------------|------------------|---------------|-----------------|----------------------|
| 2003        | 34.40          | 33.50        | 32.10          | 38.40            | 37.10         | 26.40           | <b>33.65</b>         |
| 2004        | 33.90          | 33.60        | 31.70          | 37.40            | 36.20         | 26.20           | <b>33.17</b>         |
| 2005        | 33.70          | 33.30        | 31.30          | 36.90            | 35.30         | 25.80           | <b>32.72</b>         |
| 2006        | 33.30          | 33.30        | 30.80          | 36.00            | 34.90         | 25.30           | <b>32.27</b>         |
| 2007        | 32.90          | 32.80        | 30.40          | 34.90            | 34.30         | 24.70           | <b>31.67</b>         |
| 2008        | 32.80          | 31.50        | 29.90          | 33.40            | 34.10         | 24.20           | <b>30.98</b>         |
| <b>Mean</b> | <b>33.50</b>   | <b>33.00</b> | <b>31.03</b>   | <b>36.17</b>     | <b>35.32</b>  | <b>25.43</b>    | <b>32.41</b>         |
| <b>N</b>    | <b>6</b>       | <b>6</b>     | <b>6</b>       | <b>6</b>         | <b>6</b>      | <b>6</b>        | <b>36</b>            |
| <b>Min</b>  | <b>32.80</b>   | <b>31.50</b> | <b>29.90</b>   | <b>33.40</b>     | <b>34.10</b>  | <b>24.20</b>    | <b>30.98</b>         |
| <b>Max</b>  | <b>34.40</b>   | <b>33.60</b> | <b>32.10</b>   | <b>38.40</b>     | <b>37.10</b>  | <b>26.40</b>    | <b>33.65</b>         |

*Note:* \* The rate of shadow economy is expressed as % of GDP using MIMIC method.

Source: F., Schneider, *Shadow Economies and Corruption All Over the World: New Estimates for 145 Countries*, 2007, p. 1-47;

F., Schneider, A., Buehn, & E.C., Montenegro, *Shadow economies all over the World: New Estimates for 162 Countries from 1999 to 2007*, 2010, p. 1-52.

#### 4.2.3 Economic Indicators in SEE Countries

When it comes to economic indicators of the SEE countries in the sample, in this case "GDP per capita", "unemployment" and "tax rate" are observed.

According to "GDP per capita" data, it can be concluded that its average value in the period from 2003 to 2008 totaled US \$ 6988 (based on which it can be said that the GDP per capita in these countries is moderate). If the countries are observed individually, it can be concluded that Slovenia has the largest GDP per capita (average value of US \$ 18820) and Croatia (the average value of US \$ 10499). They are followed by Serbia (average value of US \$ 3626) and Macedonia (the average value of US \$ 3171), while Bosnia and Herzegovina (the average value of US \$ 2991) and Albania (the average value of US \$ 2820) have the lowest GDP per capita from the countries in the sample. It is important to notice that the average value of GDP per capita in the six countries from the sample is constantly increasing, with the value of US \$ 6170 in 2003 to the value of US \$ 7839 in 2008 (more than 27%). Detailed results are presented in Table 18.

Table 18. GDP per capita in SEE Countries

| <b>Year</b> | <b>Albania</b> | <b>BiH</b>     | <b>Croatia</b>  | <b>Macedonia</b> | <b>Serbia</b>  | <b>Slovenia</b> | <b>SEE Countries</b> |
|-------------|----------------|----------------|-----------------|------------------|----------------|-----------------|----------------------|
| 2003        | 2401.70        | 2548.30        | 9434.80         | 2807.00          | 3049.30        | 16781.10        | <b>6170.37</b>       |
| 2004        | 2549.50        | 2697.70        | 9822.20         | 2931.80          | 3332.90        | 17500.10        | <b>6472.37</b>       |
| 2005        | 2709.10        | 2928.30        | 10224.20        | 3063.60          | 3528.10        | 18169.20        | <b>6770.42</b>       |
| 2006        | 2874.40        | 3081.60        | 10718.30        | 3214.00          | 3715.70        | 19135.70        | <b>7123.28</b>       |
| 2007        | 3067.00        | 3256.60        | 11280.50        | 3415.20          | 3950.50        | 20349.90        | <b>7553.28</b>       |
| 2008        | 3323.40        | 3435.70        | 11516.00        | 3595.40          | 4180.30        | 20988.20        | <b>7839.83</b>       |
| <b>Mean</b> | <b>2820.85</b> | <b>2991.37</b> | <b>10499.33</b> | <b>3171.17</b>   | <b>3626.13</b> | <b>18820.70</b> | <b>6988.26</b>       |
| <b>N</b>    | <b>6</b>       | <b>6</b>       | <b>6</b>        | <b>6</b>         | <b>6</b>       | <b>6</b>        | <b>36</b>            |
| <b>Min</b>  | <b>2401.70</b> | <b>2548.30</b> | <b>9434.80</b>  | <b>2807.00</b>   | <b>3049.30</b> | <b>16781.10</b> | <b>6170.37</b>       |
| <b>Max</b>  | <b>3323.40</b> | <b>3435.70</b> | <b>11516.00</b> | <b>3595.40</b>   | <b>4180.30</b> | <b>20988.20</b> | <b>7839.83</b>       |

*Note:* \* GDP per capita is expressed in US\$ using PPP calculations.

Source: World Development Indicators, In *World Bank Database*

According to the "unemployment" data, it can be concluded that its average rate in the period 2003 to 2008 was 18% (which indicates a high level of unemployment in these countries). If the countries are observed individually, it can be concluded that Macedonia has the highest unemployment (average value 35%) along with BiH (average of 27%). They are followed by Serbia (average value 17%) and Albania (average value 12%), while Croatia (average value 11%) and Slovenia (average of 5%) have the lowest unemployment rate of the countries in the sample. It is interesting that the average unemployment rate in the six countries in the sample decreased in the reporting period, from the value of 18% from 2003 to the value of 16% in 2008. Detailed results are presented in Table 19.

Table 19. Unemployment in SEE Countries (in %)

| <b>Year</b> | <b>Albania</b> | <b>BiH</b>   | <b>Croatia</b> | <b>Macedonia</b> | <b>Serbia</b> | <b>Slovenia</b> | <b>SEE Countries</b> |
|-------------|----------------|--------------|----------------|------------------|---------------|-----------------|----------------------|
| 2003        | 12.70          | 26.00        | 13.90          | 36.70            | 15.20         | 6.70            | <b>18.53</b>         |
| 2004        | 12.60          | 28.30        | 13.70          | 37.20            | 18.50         | 6.30            | <b>19.43</b>         |
| 2005        | 12.50          | 26.00        | 12.60          | 37.30            | 20.80         | 6.50            | <b>19.28</b>         |
| 2006        | 12.40          | 31.80        | 11.10          | 36.00            | 20.80         | 6.00            | <b>19.68</b>         |
| 2007        | 13.50          | 29.70        | 9.60           | 34.90            | 18.10         | 4.80            | <b>18.43</b>         |
| 2008        | 13.00          | 23.90        | 8.40           | 33.80            | 13.60         | 4.40            | <b>16.18</b>         |
| <b>Mean</b> | <b>12.78</b>   | <b>27.62</b> | <b>11.55</b>   | <b>35.98</b>     | <b>17.83</b>  | <b>5.78</b>     | <b>18.59</b>         |
| <b>N</b>    | <b>6</b>       | <b>6</b>     | <b>6</b>       | <b>6</b>         | <b>6</b>      | <b>6</b>        | <b>36</b>            |
| <b>Min</b>  | 12.40          | 23.90        | 8.40           | 33.80            | 13.60         | 4.40            | <b>16.18</b>         |
| <b>Max</b>  | 13.50          | 31.80        | 13.90          | 37.30            | 20.80         | 6.70            | <b>19.68</b>         |

Source: World Development Indicators, In *World Bank Database*

When it comes to the "tax rate" (expressed through rate of value added tax) in SEE countries in the sample, according to the available data, it can be concluded that its average value in the period 2003 to 2008 was 19.11%. If the countries are observed individually, it can be concluded that Croatia has the highest tax rate (average of 22.00%), followed by Slovenia (average value 20.00%), Albania (average value 20.00%) and Serbia (average of 18.67%). Macedonia (average value 18.00%) and BiH (average of 16.00%) have the lowest tax rate from the countries in the sample. Detailed results are presented in Table 20.

Table 20. Value added tax in SEE Countries (in %)

| <b>Year</b> | <b>Albania</b> | <b>BiH</b>   | <b>Croatia</b> | <b>Macedonia</b> | <b>Serbia</b> | <b>Slovenia</b> | <b>SEE Countries</b> |
|-------------|----------------|--------------|----------------|------------------|---------------|-----------------|----------------------|
| 2003        | 20.00          | 15.00        | 22.00          | 18.00            | 20.00         | 20.00           | <b>19.17</b>         |
| 2004        | 20.00          | 15.00        | 22.00          | 18.00            | 20.00         | 20.00           | <b>19.17</b>         |
| 2005        | 20.00          | 15.00        | 22.00          | 18.00            | 18.00         | 20.00           | <b>18.83</b>         |
| 2006        | 20.00          | 17.00        | 22.00          | 18.00            | 18.00         | 20.00           | <b>19.17</b>         |
| 2007        | 20.00          | 17.00        | 22.00          | 18.00            | 18.00         | 20.00           | <b>19.17</b>         |
| 2008        | 20.00          | 17.00        | 22.00          | 18.00            | 18.00         | 20.00           | <b>19.17</b>         |
| <b>Mean</b> | <b>20.00</b>   | <b>16.00</b> | <b>22.00</b>   | <b>18.00</b>     | <b>18.67</b>  | <b>20.00</b>    | <b>19.11</b>         |
| <b>N</b>    | <b>6</b>       | <b>6</b>     | <b>6</b>       | <b>6</b>         | <b>6</b>      | <b>6</b>        | <b>36</b>            |
| <b>Min</b>  | <b>20.00</b>   | <b>15.00</b> | <b>22.00</b>   | <b>18.00</b>     | <b>18.00</b>  | <b>20.00</b>    | <b>18.83</b>         |
| <b>Max</b>  | <b>20.00</b>   | <b>17.00</b> | <b>22.00</b>   | <b>18.00</b>     | <b>20.00</b>  | <b>20.00</b>    | <b>19.17</b>         |

Source: World Development Indicators, In *World Bank Database*

### 4.3 Empirical Analysis

To examine the relationship between variables of interest: institutional efficiency (which in this case is represented by the EBRD Transition Index), economic indicators ("GDP per capita", "unemployment" and "tax rate"), the status of membership in European Union (in this case a dummy variable was used in which the value of 0 means that the country did not have the status of member of the European Union in the reporting period and 1, which means that the country had the status of member of the European Union in the reporting period) and shadow economy indicators in SEE, the initial step was to calculate the Pearson Correlations. The results are presented in Table 21 below.

Table 21. Results of Preliminary Analysis (Pearson Correlation)

| Pearson Correlation<br>N = 36 | "Rate of Shadow Economy" | "EBRD Transition Index" | "GDP per capita"       | "Unemployment"         | "Tax Rate"             | "Status of EU Membership" |
|-------------------------------|--------------------------|-------------------------|------------------------|------------------------|------------------------|---------------------------|
| "Rate of Shadow Economy"      | 1.000                    |                         |                        |                        |                        |                           |
| "EBRD Transition Index"       | - 0.615<br>(p = 0.000)   | 1.000                   |                        |                        |                        |                           |
| "GDP per capita"              | - 0.923<br>(p = 0.000)   | - 0.714<br>(p = 0.000)  | 1.000                  |                        |                        |                           |
| "Unemployment"                | 0.724<br>(p = 0.000)     | - 0.443<br>(p = 0.007)  | - 0.682<br>(p = 0.000) | 1.000                  |                        |                           |
| "Tax Rate"                    | - 0.375<br>(p = 0.024)   | 0.715<br>(p = 0.000)    | 0.500<br>(p = 0.002)   | - 0.685<br>(p = 0.000) | 1.000                  |                           |
| "Status of EU Membership"     | - 0.786<br>(p = 0.000)   | 0.405<br>(p = 0.014)    | 0.822<br>(p = 0.000)   | - 0.500<br>(p = 0.002) | - 0.183<br>(p = 0.286) | 1.000                     |

Based on these results it can be concluded that: better institutions are correlated with less shadow economy, higher "GDP per capita" is also correlated with less shadow economy, higher unemployment is linked with more shadow economy, higher taxes are correlated with less shadow economy and countries which are EU members are correlated with less shadow economy. Since we have initial indication that variables of interest are correlated with shadow economy, we continue our investigation by estimating a multivariate regression model with the following specification:

$GE$  = "Rate of Shadow Economy";

$EBRD$  = "EBRD Transition Index";

$GDPPC$  = "GDP per capita";

$UE$  = "Unemployment";

$TAX$  = "Tax Rate";

$EU$  = "Status of EU Membership";

$\beta_0$  is intercept;

$\beta_1$  to  $\beta_5$  are coefficients to be estimated;

$\varepsilon$  is the error term with typical characteristic;

it denotes country "i" at year "t", where  $i = 1, \dots, 6$  and  $t = 2003 - 2008$ .

$$GE_{it} = \beta_0 + \beta_1 \times EBRD_{it} + \beta_2 \times GDPPC_{it} + \beta_3 \times UE_{it} + \beta_4 \times TAX_{it} + \beta_5 \times EU_{it} + \varepsilon_{it} \quad (1)$$

Taking into account the characteristics of the data set (which observes 6 countries for a period of 6 years), in this case, longitudinal/panel linear regression analysis was used. In this model, the rate of shadow economy (GE) is the dependent variable, while the EBRD Transition Index (EBRD), "GDP per capita" (GDPPC), "Unemployment" (UE), "Tax Rate" (TAX), and the status of membership in the European Union (EU) represent the independent variable. It is important to note that in this case, according to the results of Hausman test that indicates statistically significant results ( $p = 0.000 < 0.05$ ), "Fixed-effect" method longitudinal/panel linear model (which takes into account specific differences between countries in the sample) was used as the estimator. Also according to the Wooldridge test ( $p = 0.133 > 0.05$ ) it can be concluded that there is no autocorrelation between variables in this model. The results are presented in the Table 22 below.

Table 22. Results of Longitudinal/Panel Linear Regression

| Dependent variable: Rate of Shadow Economy (SE) |             |         |                          |          |
|---|-------------|---------|--------------------------|----------|
| Method: Fixed-effects                           |             |         |                          |          |
| Number of obs: 36                               |             |         | Number of groups: 6      |          |
| Variable  | Coefficient | FE      | t                        | p (Sig.) |
| Constant  | 0.51305     | 0.04229 | 12.13                    | 0.000    |
| “EBRD“  | -0.27078    | 0.04179 | -6.48                    | 0.000    |
| "GDPPC"   | -0.00434    | 0.00163 | -2.65                    | 0.014    |
| "UE"  | 0.00091     | 0.00048 | 1.89                     | 0.071    |
| "TAX"   | 0.00088     | 0.00147 | 0.60                     | 0.553    |
| "EU"  | 0.00059     | 0.00662 | 0.09                     | 0.929    |
| R-squared within = 0.8258                       |             |         | Obs per group: min = 6   |          |
| R-squared between = 0.7810                      |             |         | Obs per group: avg = 6.0 |          |
| R-squared overall = 0.7769                      |             |         | Obs per group: max = 6   |          |
| F (5, 25) = 23.70                               |             |         | (Prob> F) = 0.000        |          |
| Hausman Specification Test                      |             |         |                          |          |
| chi2 (5) = 54.08                                |             |         | Prob> chi2 = 0.000       |          |
| Wooldridge test                                 |             |         |                          |          |
| F (1, 5) = 3.677                                |             |         | Prob> F = 0.113          |          |

The obtained results from our FE panel model are very coherent with correlation coefficients between variables of interest reported in the previous table. However, while correlation coefficients do not reveal direction of influence, these results are much more useful in a sense that they provide evidence on determinants which affect the level of shadow economy in SEE. In particular, and as we expected, there is enough indications to conclude that better institutions (i.e. higher EBRD institutional index) are associated with smaller incidence of shadow economy in SEE. This confirms theoretical discussion as well as it is in line with many empirical findings from this field. If we need to quantify this relationship, our results indicate that an increase of institutional efficiency by 1% (i.e. in the context of our model it is 0.01, since our index is ranged from 0 to 1) should reduce the level of shadow economy by 0.27% (GE index is ranged from 0-100).

Accordingly, this result provides also policy implication in a sense that it is worth investing into institutional improvement in a country, and indirectly, that should be supportive in reducing the level of shadow economy in SEE, which is currently at a very high level.

In the context of other results obtained in the model, since these variables are not of our primary interest, we will just shortly discuss the main messages. Interestingly enough, there is no significant effect in the model of taxes and EU membership status. However, unemployment and GDP per capita are obtained with a significant influence. According to these results, higher level of GDP per capita is associated with smaller level of shadow economy. This means that more development if considered as an increase in GDP per capita, reduces shadow economy. Contrary, more unemployment is linked with more shadow economy, which is as expected. Less job opportunities is something that pushes labor force into shadow economy, which is something theoretically discussed and empirically investigated.

Although our results are indicative, we need to discuss some of the limitations which we have in our empirical modeling. Firstly, and probably the easiest one to explain, is the lack of data. We faced lack of data which did not give us possibility to analyze longer time span, and in particular, the potential effect of the latest global and financial crisis on the relationships of interest.

Second and more difficult to discuss issue is potential problem of endogeneity in the model. GDP per capita and institutional indices are good candidate to be endogenous, and indeed, their correlation is at the threshold level acceptable for empirical modeling (0.71). Since we do not have enough data to instrument these variables with externally used instruments, this is a limitation. Probably, a more promising strategy would be to estimate a dynamic panel model and try to tackle endogeneity issue by generating internal instruments, but complexity of these models and very demanding statistical diagnostics that should be investigated for our small sample is hardly feasible strategy (36 observations only and using lags or changes of independent variables will simply reduce this sample further and unable appropriate estimate).

Finally, the limitation is potential specification bias. Our specification is driven partly by the literature, since there is no strong theoretical underpinnings what should be included in these models, and this concern always exists. When more data is available this shortcoming might be overcome.

However, we have estimated simple OLS regression, and our main conclusion holds, and results are fully consistent in terms of sign and significance.

## CONCLUSION

Effective institutions are important for society and for individuals living in them. We have seen from our research that institutions have a direct and indirect impact on economic growth and development, namely: an increase in investment, trade and integration, social capital, better management of ethnic and other conflicts, implementation of policies and political stability. Property rights, regulatory structures, the quality and independence of the judiciary, and bureaucratic capacity cannot be taken for granted because they have proved to be crucial for launching and sustaining economic growth (Rodrik et al, 2004). The positive effects of high-quality institutions contribute to the reduction of shadow economy in society and increase the activity of the formal economy.

This research has taken into consideration six SEE countries and the results of the analysis coincide with previous research. The results apply to countries in transition as well as developed countries. Shadow economy in TC is much higher than in developed countries. This can be linked to the fact that developed countries have also more efficient institutions and better institutional frameworks in general. If we take into account the theoretical research and our empirical findings that imply a correlation between the observed variables, we come to the conclusion that there is a significant negative correlation between the quality of institutions and shadow economy. In line with general literature, we also find empirical evidence that there is a statistically significant negative correlation between institutions and the rate of shadow economy in SEE.

The results indicate that "the EBRD Transition Index" and "GDP per capita" explain about 77% of the changes taking place in the rate of shadow economy in the countries of SEE. The regression model was statistically significant. Some of the limitations which we had in our empirical modeling are: the lack of data, potential problem of endogeneity in the model and the limitation as potential specification bias. However, we have estimated simple OLS regression, and our main conclusion holds, and results are fully consistent in terms of sign and significance. More precisely said, our results indicate that an increase of institutional efficiency by 1% (i.e. in the context of our model it is 0.01, since our index is ranged from 0 to 1) should reduce the level of shadow economy by 0.27% what confirms our hypothesis.

This confirms theoretical discussion as well as it is in line with many empirical findings from this field. It is evident that the results imply that higher institutional efficiency is associated with a lower level of shadow economy in SEE countries. In accordance with the results it can be concluded that institutional efficiency in the SEE countries is rather low, and the size of shadow economy is at an alarmingly high level. Institutional reforms that should improve institutional quality in general are necessary if economic growth of these countries wants to be achieved, and the shadow economy reduced.

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## **APPENDIXES**

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## Appendix A: The Results of Longitudinal/Panel Linear Regression

```

Fixed-effects (within) regression              Number of obs   =        36
Group variable: Country                      Number of groups =         6

R-sq:  within = 0.8258                      Obs per group: min =         6
        between = 0.7810                      avg =        6.0
        overall = 0.7769                      max =         6

corr(u_i, Xb) = -0.7081                     F(5,25)          =       23.70
                                                Prob > F          =       0.0000

```

| GE      | Coef.     | Std. Err.                         | t     | P> t  | [95% Conf. Interval] |           |
|---------|-----------|-----------------------------------|-------|-------|----------------------|-----------|
| EBRD    | -.2707838 | .0417973                          | -6.48 | 0.000 | -.3568671            | -.1847006 |
| GDPPC   | -.0043436 | .0016373                          | -2.65 | 0.014 | -.0077156            | -.0009716 |
| UE      | .0009184  | .0004861                          | 1.89  | 0.071 | -.0000828            | .0019196  |
| TAX     | .0008899  | .0014798                          | 0.60  | 0.553 | -.0021578            | .0039376  |
| EU      | .0005937  | .0066256                          | 0.09  | 0.929 | -.013052             | .0142393  |
| _cons   | .5130589  | .0422933                          | 12.13 | 0.000 | .4259542             | .6001636  |
| sigma_u | .02607108 |                                   |       |       |                      |           |
| sigma_e | .00494487 |                                   |       |       |                      |           |
| rho     | .96527497 | (fraction of variance due to u_i) |       |       |                      |           |

```

F test that all u_i=0:      F(5, 25) =      20.60      Prob > F = 0.0000

```

## Appendix B: The Results of Hausman Test

|       | Coefficients |               | (b-B)<br>Difference | sqrt(diag(V_b-V_B))<br>S.E. |
|-------|--------------|---------------|---------------------|-----------------------------|
|       | (b)<br>fixed | (B)<br>random |                     |                             |
| EBRD  | -.2707838    | -.1630157     | -.1077681           | .                           |
| GDPPC | -.0043436    | -.0034067     | -.0009369           | .0013866                    |
| UE    | .0009184     | .0019356      | -.0010172           | .0003559                    |
| TAX   | .0008899     | .0100258      | -.0091359           | .                           |
| EU    | .0005937     | -.000808      | .0014017            | .                           |

b = consistent under Ho and Ha; obtained from xtreg  
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

```

chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
        =      54.08
Prob>chi2 =      0.0000
(V_b-V_B is not positive definite)

```

## Appendix C: The Results of Wooldridge Test

```

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F( 1,      5) =      3.677
Prob > F =      0.1133

```

## **Appendix D: List of Abbreviations**

|        |   |
|--------|---|
| ALL    | Albanian Lek (the official currency of Albania)                                 |
| BERI   | Business Environmental Risk Intelligence (indicators of infrastructure quality) |
| BIH    | Bosnia and Herzegovina  |
| CIS    | Commonwealth and Independent States   |
| CPI    | Corruption Perception Index   |
| EBRD   | European Bank for Reconstruction and Development                                |
| EU     | European Union  |
| GDP    | Gross Domestic Product  |
| GDPPC  | GDP per capita  |
| GE     | Rate of Shadow Economy  |
| HTC    | Household Tax Compliance Method   |
| ICRG   | International Country Risk Guide (indicators of the quality of bureaucracy)     |
| LISREL | Linear Independent Structural Relationship                                      |
| MIGA   | Multilateral Investment Guarantee Agency  |
| MIMIC  | Multiple Indicators Multiple Causes method                                      |
| NIE    | New Institutional Economics   |
| OECD   | Organisation for Economic Co-operation and Development                          |
| OLS    | Ordinary Least Squares or linear least squares                                  |
| PPP    | Purchasing Power Parity   |
| SEE    | Southeast Europe  |
| SEM    | Structural Equation Model TAX: Tax Rate   |
| TC     | Transition Countries  |
| UE:    | Unemployment  |
| US \$  | United States Dollar  |
| VAT    | Value-Added Tax   |