

Does institutional environment affect the economic development? Evidence from selected CEE countries

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Abstract. *Economic theory identifies different variables, affecting economic development. Many economists and analysts focused their research from the determinants in the neoclassical economic growth model to the three rooted variables of economic development: institutions, geography and openness to trade. Aim of this paper is to investigate linkage between institutional environment and economic development in the selected Central and Eastern European countries (CEE). In order to explore relationship of the “deep determinants” of economic development to institutional environment several methodological approaches have been used. Empirical research was accomplished via SPSS 21 statistical software package. The results indicate the significance of institutional environment for future economic development.*

Keywords: data, economic development, institutional environment, CEE countries.

JEL Classification: C80, C88, O10, O30.

1. Introduction

Theoretical economy highlights diversified variables of economic development. Policymakers and economists converted their consideration from the economic determinants of neoclassical growth model to the three rooted variables of economic development, specifically: institutions, geography and openness to trade. The principal debate is about the significance of mentioned variables, exactly between institutional environment and geography (Acemoglu et al., 2005; Presbitero, 2006). Promoters of institutional quality discuss that institutional surrounding, evaluated through property rights index, corruption perception index, business freedom index and alternative institutional determinants, are crucial factors for economic development.

In the actual economic literature, there is a major compliance that low quality of institutions expressed through high corruption, absence of rule of law, bureaucratic environment constraints, and low level of business, political or civil freedom, obstruct economic development. Popular economists emphasize that the effect of geography and institutional environment on GDP per capita or other similar income is correlated to economic growth and development (Acemoglu et al., 2001; Easterly and Levine, 2003; Rodrik et al., 2004). By Bloch and Tang (2004) trade openness is important source of economic growth or development. This approach they presented through various empirical research. Borrmann, Busse and Neuhaus (2006), Bolaky, Freund (2004) investigated that countries having quality of institutions profit from trade openness than the countries that possess low quality of institutions. According to Gagliardi (2008) institutions build supportive landscape for economic development. What is uncertain is can institutional environment measures help reveal deviations in income per capita among selected high income countries and Central Eastern European (CEE) countries.

Research goal is to examine the correlation between institutional measures and economic development. This paper is classified into four section. The first part considerates theoretical background of three rooted variables of economic development. The second part reveals methodological approaches connected to the measures of institutional environment. The third part of the paper is dealing with empirical data and applied methodology. The fourth part represents analysis and research conducted via statistical software package SPSS 21.

2. Economic development and determinants of institutional environment: Theoretical approach

Directly prevalent rhetoric related to institutional environment and economic development experiences two theoretical issues. The first presumption is that institutions have important influence on economic development, rejecting the possibility of institutional change. The second, although we concentrate attention on relation “institutional environment – economic development”, the section of the linkage is ideological in a fixed, overly simplified way. According to Acemoglu et al. (2005), and

North (2005), institutions are the final factors of economic development. Relationship can be observed from economic development to institutions. Economic development alters institutions in many ways. Raised economic growth can influence greater demand for high-quality institutions (such as, political institutions with higher transparency and accountability) and its environment. Expansion of countries' wealth makes institutions inexpensive. Economic development generates advanced transformations, including new institutions.

Does institutions with higher business freedom affect economic growth and development? If we admit that free market is the most suitable for economic development, there is no objective method to regulate what exactly free market means (Chang, 2002a, 2002b). Many economic theory discuss that "liberalized" institutions assure property rights most secure, contribute strong business freedom and economic development (Acemoglu et al., 2001, 2005; La Porta et al., 2008). Nonetheless, the investigating connection between economic development and institutions is very difficult. Today's predominant dialogues to institutional environment and economic development do not recognize that the correlation among mentioned variables changes during the time and distincts in different countries or societies. Stiglitz (2007) emphasizes that excessive protection of Institutional Property Rights may have negative influence on economic development. However, powerful protection of institutional property rights may stimulate companies to invest in knowledge and innovation, especially in software, chemical or pharmaceutical industries. Still, Institutional Property Rights protection is absolutely crucial for acceleration of economic growth and development in many countries.

There is a wide-spreaded concurrence in the economic literature that institutions play a more significant role than other variables of economic development e.g. geography and openness to trade. Bosker and Garretsen (2008) and Rodrik et al. (2004) revealed that geography has only indirect impact on GDP per capita. A country's GDP per capita, as a measure of economic growth and development, depends on the pair determinants: country institutions and the quality of institutional environment in its neighboring countries. The major interpretation suggests that trade is the principal determinant of whether the economic development of countries accelerates or not. According to Dollar and Kraay (2003) suggestion, institutional environment and trade, both, play crucial role to economic growth and development in the long-term. Various empirical investigations provide an observation that the relative significance of geography and trade rely upon on the quality of institutions. Borrmann et al. (2006) indicated that, at certain levels of trade openness, some countries have advantages from trade more than other countries. The empirical results reveal that countries with low-quality institutions have not been able to take the advantage of trade. Besley and Ghatak (2010) emphasize two sections regarding the linkage between property rights and economic development: the instruments through which property rights influence economic performance and the variables of property rights. In the first part, they reveal certain economic costs of low level of property rights. Besley-Ghatak model and conclusions consist the instruments proposed by De Soto (2000) connecting property rights' growth with usage of assets as indirect and economic effectiveness.

Still, the investigation of the influence of the property rights model is not linear or simple assignment: Domingo (2013) investigates the correlation between property rights and social and political approval, finding contradictory proof, primary because it should take into consideration measures of the political and social factors in which property leadership are entrenched; and Locke (2013) revealed contradictory proof in the connection of land rights and growth (through investment, credit and effectiveness), perceiving a ‘cluster of institutions’ that affect economic growth and development. Paldam and Gundlach (2007) solved this difficulty by utilizing two variables of institutional quality: democracy and corruption. They emphasized strong support on the cooperation of institutions, income and economic development.

3. Methodology and empirical data

Beneficial to examine relationship of the “deep determinants” of economic development to institutional environment several methodological accesses and indices have been argued:

- The Institutional Property Rights Index (IPRI), developed by Property Rights Alliance and Institute for Liberty and Democracy methodology.
- The Business Freedom Index (BFI), refined by Heritage Foundation methodology.
- The Corruption Perceptions Index (CPI), established by Transparency International methodology.
- The Enabling Trade Index (ETI), founded by Global Alliance for Trade Facilitation methodology.

The Institutional Property Rights Index’s – IPRI 2016 scores and rankings are developed on data acquired from authorized sources by established international institutions. The empirical data is supplied in various styles and dissimilar scale. As a consequence, most of the data is rearranged in order to exactly correlate between countries and inside the Institutions Property Rights Index’s particular determinants and total score. The general ranking of indices from 0 to 10, where 10 is the highest value for a property rights order and 0 is the lowest value for a property rights system in a specific country.

The same declarative logic is conducted to the three variables and the ten factors. While the average system conducted considers comparable relevance of individual variables for the ending IPRI value, certain measures may be conducted to measure relevance of the various determinants on institutional property rights of a country. The IPRI for 2016 uses data from period 2010-2016. The 10 Items are composed from various sources, which signify that they should distinct admission terms for the updated data accessible. The enforced reasoning in the examination need to incorporate the current available data package for the institutional property rights index. Besides measuring the score of the Institutional Property Rights Index - IPRI and its determinants, countries were classified according to calculated grades. Countries with the similar frequencies, may be positioned in the similar ranking-class. To avoid this situation IPRI scores uses decimals, and this way the final scores were differentiated, and rank place also.

The Business Freedom Index - BFI is total determinant of the effectiveness of government regulation of business performance. The measurable score is borrowed from a set of variables that include: difficulty of beginning, performing, and concluding a business activity. The business freedom grade for each country is a number between 0 and 100. Number 100 is equal to the freest business surrounding. The grade is composited on 10 determinants, each one is evaluated in the same way, applying the data from the Doing Business Survey. Every primary variable is transformed to a scale of 0 to 100, after which the average of the transformed measure is estimated. The results perform the country's business freedom grade. Every variable factor is transformed to a grade from 0 to 100 applying the following formula:

$$\text{Factor Score}_i = 50 \text{ factor}_{\text{average}} / \text{factor}_i ,$$

which is established on the ratio of the country data for every factor connected to the world factor average score, multiplied by 50. For example, on average worldwide, it needs 18 actions to gain fundamental permission.

The Corruption Perceptions Index – CPI collected empirical data from a number of various sources that support approach of economists and other experts of the level of corruption in the public area of the country. The following activities are followed to estimate the Corruption Perception Index:

- Selection of appropriate data sources: Every data source that is used to compose the Corruption Perceptions Index should accomplish the next standard to qualify as a relevant source:
 - Evaluates perceptions of corruption in the public sector of the country.
 - Evaluation should be conducted on a respectable and credible methodology, which grades and ranks countries on the similar scale.
 - Implemented by an adequate institution and expected to be repeated regularly.
 - Acceptable variation of grades to differentiate among countries.
- Standardisation of different data sources to a scale of 0-100 where 0 represents the highest level of anticipated corruption and 100 presents the lowest level of anticipated corruption.
- Calculation the average value: For a country to be incorporated in the Corruption Perception Index, a minimum of three sources should be relevant for individual country. A country's CPI score is estimated as the average of all standardised grades for certain country. Grades are not decimal numbers.
- CPI for country (j) can be calculated as the mean of standardized corruption scores for specific country:

$$CPI^j = \frac{1}{N_j} \sum_{i=1}^{N_j} S_i^j$$

$$S_i^j = \left[V_i^j - \mu_t^{sub} \right] * \frac{\sigma_{t-1}^{sub}}{\sigma_t^{sub}} + \mu_{t-1}^{sub} ,$$

where:

V_t^j – the value of an individual corruption rating for specific country in year t;

μ_t^{sub} – mean of subgroup for particular corruption rating in year t;

σ_{t-1}^{sub} – standard deviation of subgroup from CPI in year t-1;

σ_t^{sub} – standard deviation of subgroup from CPI in year t;

μ_{t-1}^{sub} – mean from subgroup from CPI year t.

- Announcement a variable of ambivalence: The Corruption Perception Index is guided by a standard error and interval of confidentiality with the grade, which consists of the variation in grades of the data available for the particular country.

The Enabling Trade Index – ETI evaluates the rang to which countries get in place institutions, policies, infrastructures and services promoting the free movement of goods across borders and to terminals. The ETI, as a complex indicator, is calculated of an aggregation of particular indicators measuring various trade-enabling determinants. These determinants are classified into seven pillars:

- Domestic market access,
- Foreign market access,
- Efficiency and transparency of border administration,
- Availability and quality of transport infrastructure,
- Availability and quality of transport services,
- Availability and use of ICTs and
- Operating environment.

Every indicator (pillar) is collected of 57 indicators and subindicators. Indicators and subindicators are strained from different sources (e.g. the Global Express Association, the International Trade Centre and the United Nations Conference on Trade and Development the World Bank, and the World Trade Organization). In extension, few indicators are drawn from the Executive Opinion Survey (the World Economic Forum).

4. Results and discussion

Examination of determinants of economic development and institutional environment was conducted by utilization of assorted methodologies and entrenched linkage among selected high income countries and Central Eastern European countries (CEE), regarding distinctive surveys and variables. Identification of relationship between selected variables was performed by supplementary data and correlation coefficients by Spearman. In research results presented in Table 1, which investigates categorization of high income and CEE countries by appliance of Property Rights Alliance and Institute for Liberty and Democracy, the best categorized countries are selected high income countries (Finland, New Zealand, Luxembourg and Norway).

Table 1. Categorization of selected high income and CEE countries by conducting assorted methodologies and variables of institutional environment and economic development for 2016-2017

	Rank GDP per capita PPP 2016	Rank Institutional Property Rights Index IPRI -2016 (128)	Rank Business Freedom Index BFI -2017 (180)	Rank Corruption Perception Index CPI-2016 (176)	Rank Enabling Trade Index ETI-2016 (136)
Selected high income countries					
Finland	8	1	11	2	5
New Zealand	10	2	2	1	10
Luxembourg	1	3	6	9	3
Norway	3	4	12	5	9
Switzerland	4	5	3	4	6
Singapore	2	6	1	6	1
Sweden	6	7	9	3	4
Japan	9	8	15	10	8
Netherlands	5	9	7	7	2
Canada	7	10	5	8	11
CEE countries					
Estonia	14	11	4	11	7
Czech Republic	11	12	13	16	12
Slovakia	13	13	18	17	16
Lithuania	15	14	8	14	13
Poland	16	15	16	12	14
Latvia	18	16	10	15	18
Hungary	17	17	17	18	17
Slovenia	12	18	19	13	15
Romania	19	19	14	19	19
Moldova	20	20	20	20	20

Source: Estimation is conducted on data published by the Central Intelligence Agency and World Bank country data base, Property Rights Alliance, Institute for Liberty and Democracy, Heritage Foundation, Transparency International and Global Alliance for Trade Facilitation for 2016-2017.

By Property Rights Index Romania and Moldova are the lowest categorized CEE countries. Singapore is the freest high income country by Business Freedom Index. The best categorized CEE country by BFI is Estonia and Moldova the worst classified country. By examining variable of economic growth and development – GDP per capita (Purchasing Power Parity), the highest categorized country is Luxembourg and Singapore, and the lowest ranked countries Romania and Moldova. The highest categorized countries by the lowest level of corruption in public sector are New Zealand and Finland. Corruption level is the highest in Moldova. The most “free trade” countries are Singapore, Netherlands and Luxembourg. The best classified CEE country is Estonia (7th place) by Enabling Trade Index, while Moldova is the worst classified. Appended research should demonstrate the relationship of the attributes for comprehending institutional environment and economic development. The linkage of categorized variables of economic development and institutional environment (Gross Domestic Product per capita -Purchasing Power Parity, Property Rights Index, Business Freedom Index, Corruption Perception Index, Trade Enabling Index) is displayed in Table 2. The determination of relationship among selected variables was managed by SPSS 21.0 statistical software package.

Table 2. Correlation matrix for variables of institutional environment and economic development in the selected high income countries and CEE countries

	GDP pc	PRI	BFI	CPI	ETI
GDP pc	1.000	.839**	.586**	.779**	.880**
PRI	.839**	1.000	.656**	.898**	.827**
BFI	.586**	.656**	1.000	.674**	.692**
CPI	.779**	.898**	.674**	1.000	.803**
ETI	.880**	.827**	.692**	.803**	1.000

**Correlation is significant at the 0.01 level (2-tailed).

Source: author own calculations.

Research results indicate the linkage between “deep” determinants of economic development and institutional environment, presented by a set of relevant and reliable indices. Positive relationship between the Gross Domestic Product per capita and PRI, ETI and CPI indices, followed by correlation coefficients 0.839, 0.880 and 0.779, indicates that achieving faster economic development depends on higher property rights, better trade conditions and low level of corruption in selected countries. Strong positive interrelationship is noticeable between PRI indices and CPI and ETI indices accompanied by correlation coefficients 0.898 and 0.827, respectively. The degree of stability of institutional environment and acceleration of economic development between selected CEE and high income countries examined by differentiate methodologies, suggest that Global Alliance for Trade Facilitation methodological method highly correlates with the economic development, illuminated by very high correlation between GDP per capita as reliable determinant of economic development and Enabling Trade Index (ETI).

5. Conclusions

The established examination on selected variables distribute recommendations for convenient institutional environment and future acceleration of economic growth and development. Various proposals may be emphasized from the conducted research in selected high income and CEE countries:

- It is determined significant strong positive correlation between GDP per capita and following indices: Property Rights Index (0.839), Enabling Trade Index (0.880) and Corruption Perception Index (0.779).
- Positive linkage is present among IPRI indices, CPI and ETI indices followed by correlation coefficients 0.898 and 0.827, respectively.

Economic theory perceives three deep determinants of economic growth and development: institutions, geography and trade openness. In accordance with access of institutional development, high-quality institutions decrease ambivalence, diminish macroeconomic evaporation, assure institutional property rights, which are elements of economic growth and development acceleration. Trade openness can raise Gross Domestic Product per capita along with competitiveness advantages or via technology transfer, competitive interplay impact with foreign enterprises. The aim of the investigation points on the linkage between GDP per capita (Purchasing Power Poverty), as a relevant measure of economic development, and the variables of institutions and its environment. The results of research declare that differences among observed high

income and CEE countries may be correlated with the originators of institutional property rights, corruption perception or trade openness. Apparently, the lessons of the selected high income countries are helpful for selected CEE countries in reconsolidation of the recent countries into European Union. The usage of the appropriate procedures and economic policy should raise along with developing environment for quality institutions, business sophistication, enabling trade and faster economic development of the selected CEE countries. The IPRI, CPI and ETI indices are useful instruments to foster partnership among institutions, business society and international associations. Nevertheless, access of methodology of the Enabling Trade Index established by the Global Alliance for Trade Facilitation encourages interesting new perception into the determinants of economic development in CEE countries.

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