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Vatamaniuk O.
Doctor of Economics, Professor,
Professor at Economic Theory Department,
Ivan Franko National University of Lviv, Ukraine;
e-mail: ostap.vatamaniuk@gmail.com; ORCID ID: 0000-0002-8455-6422
Ostroverkh P.
Ph. D. in Economics, Professor,
Head of Economic Theory Department,
Ivan Franko National University of Lviv, Ukraine;
e-mail: postroverkh@gmail.com; ORCID ID: 0000-0003-1909-8338
Salovskyi O.
Ph. D. student at Economic Theory Department,
Ivan Franko National University of Lviv, Ukraine;
e-mail: o.salovskyi@gmail.com; ORCID ID: 0000-0002-2024-9626

BASIC INSTITUTIONS AND ECONOMIC DEVELOPMENT IN CENTRAL- AND EASTERN-EUROPEAN POST-COMMUNIST COUNTRIES

Abstract. Contrasting outcomes of economic reforms conducted by the post-communist countries in Central and Eastern Europe over the last thirty years seem to be directly associated with the peculiarities of their formal and informal institutions. The rapid pace and flexible adjustment of institutional changes, along with mindful heed towards existing institutional frameworks, have become the key to the success of more than a dozen of countries, which eventually and ultimately joined the European Union. In order to analyze the impact of institutions' quality on economic development in post-socialist countries, the authors substantiate the approach, which outlines five basic groups of institutions: property, power, competition, innovations, and values. A number of indicators collected or calculated by international organizations such as the World Bank, Transparency International, The Heritage Foundation, among others, have been used to describe and quantify the impact of these institutions. In addition, they have been applied to construct and calculate composite indices for each of the five basic groups of institutions, as well as to generalize an integrated institutional index. The authors have chosen the World Bank data on gross domestic products per capita to illustrate the level of economic development of the studied countries. Subsequently, a list of simple linear and multiple regression models has been created, which facilitated identifying a statistically significant impact of an ample number of selected institutions on the level of well-being in post-socialist countries. In particular, the influence of power, innovation, and competition institutions is especially noticeable, also confirmed for the composite indices for these groups of institutions. Furthermore, in multiple regression models, a combination of one of the indicators of power or the corresponding composite index with the R&D expenditures' share indicator and the Human development index seems a common pattern. In overall, different versions of the models built contain parameters that attribute to four of the five basic institutions. The absence of property-related indicators in these models could probably be explained via the nature of chosen indices and possibilities of the significant indirect impact of property institutions through the indicators of power institutions.

Keywords: institutions, economic development, Central and Eastern European countries, institutional changes, basic institutions, regression analysis.

JEL Classification B52, O17, O43, P30

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Ватаманюк О. З.
доктор економічних наук, професор,
професор кафедри економічної теорії,
Львівський національний університет імені Івана Франка, Україна;
e-mail: ostap.vatamaniuk@gmail.com; ORCID ID: 0000-0002-8455-6422

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Островерх П. І.
кандидат економічних наук, професор,
завідувач кафедри економічної теорії,
Львівський національний університет імені Івана Франка, Україна;
e-mail: postroverkh@gmail.com; ORCID ID: 0000-0003-1909-8338
Саловський О. Б.
аспірант кафедри економічної теорії,
Львівський національний університет імені Івана Франка, Україна;
e-mail: o.salovskyi@gmail.com; ORCID ID: 0000-0002-2024-9626

БАЗОВІ ІНСТИТУЦІЇ ТА ЕКОНОМІЧНИЙ РОЗВИТОК ПОСТКОМУНІСТИЧНИХ КРАЇН ЦЕНТРАЛЬНОЇ І СХІДНОЇ ЄВРОПИ

Анотація. Значні відмінності в результатах, досягнутих постсоціалістичними країнами Центральної та Східної Європи у реформуванні своїх економік протягом тридцяти років, безпосередньо пов'язані з особливостями та динамікою їхніх інституційних систем. Ефективне поєднання швидких економічних реформ з увагою до чинних формальних і неформальних інституцій та коригуванням бажаного напряму їхніх змін стало запорукою успіху понад десятка країн, які раніше чи дещо пізніше стали повноправними членами Європейського Союзу. Для аналізу впливу інституцій на економічний розвиток у постсоціалістичних країнах обґрунтовано підхід, який передбачає виокремлення п'яти базових груп інституцій: власності, влади, конкуренції, інновацій і цінностей. Для кількісного опису та оцінки цих інституцій використано низку показників, зібраних чи розрахованих такими організаціями, як Світовий банк, Transparency International, Heritage Foundation тощо. Крім того, на основі цих показників побудовано також композитні індекси для опису кожної з п'яти базових груп інституцій та узагальнений інтегральний інституційний індекс. Для оцінки рівня економічного розвитку країн використано дані Світового банку щодо валового внутрішнього продукту на особу. Побудовано низку простих і множинних регресійних моделей, які дають змогу виявити статистично значущий вплив багатьох показників інституцій на рівень добробуту в постсоціалістичних країнах. Зокрема, особливо відчутним є вплив влади, інновацій та конкуренції, що підтверджується і для композитних показників цих інституцій. У множинних регресійних моделях типовим є поєднання одного з показників влади або відповідного композитного індексу з показниками частки видатків на науково-дослідні роботи та індексу людського розвитку. Загалом, різні варіанти побудованих моделей містять складові, що стосуються чотирьох з п'яти базових інституцій. Відсутність у цих моделях показників, пов'язаних із власністю, пояснюється, імовірно, можливостями значного опосередкованого впливу цієї інституції через показники інституції влади.

Ключові слова: інституції, економічний розвиток, країни Центральної та Східної Європи, інституційні зміни, базові інституції, регресійний аналіз.

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Introduction. Thirty years have passed since two dozen of countries, representing the former «Socialist bloc», started the transformation of their command economies into market ones. The results of this transition process differ substantially. The most successful of these countries joined the European Union in 2004 and 2007, while some others, which delayed necessary reforms, are still lagging behind. Consequently, the gross domestic product per capita of the leaders became mainly 5—6 times higher than that of outsiders in the year 2020.

In practice, all post-communist countries faced the choice between rapid reforms (mainly in the form of shock therapy) and slower (gradual) reforms [1]. The adherents of quick changes claimed that fast liberalization of prices, financial markets, and trade, as well as privatization and macroeconomic stabilization, were necessary to guarantee the irreversibility of market reforms. On the other hand, the shock therapy approach was quite often criticized as a costly social experiment, which was going to cause economic hardships for most of the population [2].

Instead, the program of gradual reforms was primarily based on the denial of radical changes as its proponents objected to rapid liberalization and privatization. According to this point of view, progressive reform policies provide enhanced social and political stability and higher growth rates in the future. One of the main arguments here concerned the importance of institutional changes necessary to promote the effectiveness of the market economy.

However, the ample empirical data collected during the three decades presented a lot of evidence in favor of rapid reforms. The social costs of transition were much higher in countries, which delayed changes. Furthermore, the advocacy of the gradual approach often turned out to be an effective cover to benefit from huge rent-seeking opportunities in the process of transition. Consequently, rapid reforms resulted in more efficient institutions than gradual ones [3].

The purpose of the paper presented is to provide a basic quantitative analysis of relationships between institutions' quality and economic development in post-communist Central- and East-European countries using regression tools.

Literature review. According to D. North, institutions are the «rules of the game» in a society that shape human interactions and structure incentives in social exchange [4]. To a great extent, the diversity in economic performances could be traced to the differences between institutions among countries. Even earlier, B. Hawrylyshyn outlined the interplay of economic and political institutions, suggesting that societal orders depend on three main constituents, namely values, political practices, and economic structure [5]. More recently, D. Acemoglu and A. J. Robinson concluded that nations rise when they create pro-growth democratic political institutions, which, in turn, promote appropriate economic institutions [6], especially private property and competition.

There is a variety of institutions that are considered to affect the economic development of societies. Hence, it seemed pertinent to determine a small but ample number of the most important ones. For example, S. Pejovic outlines three basic institutions, namely asset ownership rights, freedom of contract, and constitutional political power [7], which directly apply to a market economy, characterize its core and create corresponding stimuli for economic agents. Besides, other scholars also classify property rights, political power, division of labor, management, human capital, knowledge, information, innovations as key institutions [8; 9].

Despite the significant number of publications in this field, certain research aspects require further analysis. Firstly, the study of institutions, in general, tended to be relatively more qualitative than quantitative. Secondly, the scholars mentioned above majorly focused on exploring and explaining the evolution peculiarities of western economies, while post-socialist transformation cases were mostly allocated secondary attention. Thirdly, some approaches were proposed to determine key basic institutions; however, they concentrated on illustrating only one research angle, mainly economic, thereby lacking relevant cross-disciplinary aspects.

In our study, we will follow the approach proposed by O. Salovskyi [10]. We determine property, power, competition, innovations, and values as five basic interdependent institutions' groups that significantly affect economic growth. As this approach shares the interdisciplinary ontology of B. Hawrylyshyn's practice-proven ideas, it allows setting a more complex vision of determinants influencing economic development. The reasons to substantiate precisely that choice of basic institutions can be found in numerous studies.

Locke focuses on the advantages that firm property rights bring to the owners, particularly enhanced economic freedom, legal property protection, increased mobility, strong investment incentives, etc. [11]. H. De Soto underlines the importance of secure private property rights for developing nations [12]. In the latter, individuals encounter numerous discriminatory limitations or unclear requirements that handicap them from establishing well-enforced formal rights and benefit from obtained capital assets. Since these restrictions quite often originate from the activities of biased or corrupt politicians, power, or, more precisely, political power, was chosen as the next fundamental institution within our approach.

In the previously mentioned study, D. Acemoglu and A. J. Robinson proved the importance of the interplay between political and economic institutional systems and introduced relevant concepts of

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inclusive and extractive institutions [6]. Governments that usually concentrate authorities and don't allow for more even power distribution tend to build extractive economic institutions for the gain of smaller interest groups and not the society as a whole, thus impeding economic development. On the other hand, countries that rely on and enforce democratic traditions seem to boost economic performance and incomes, even with the «minimalist conception of democracy» [13].

Furthermore, inclusive political institutions, combined with secure property rights, create solid prerequisites for competition, which, according to A. Smith, combined with self-interest, establish an «invisible hand of the market». Adequate competition institutions foster more efficient and productive companies and industries, higher quality of products, and competitive prices, as well as spur innovations [14]. Conversely, empirical evidence highlights that stiff or harsh domestic competition tends to inhibit economic growth [15]. Therefore, there is a need for reasonable competition institutions and policies to balance the former and the latter.

On the contrary, the correlation between foreign competition and economic growth is determined by the technological gap between developed and developing economies. Technical leaders initiate major innovations while lagging economies rely more on imitation [15]. It is worth noting that in both groups of countries, technological advancements and related institutions of innovations contributed to higher efficiency. In transition economies, innovative development, technology transfers, academic research commercialization, and encouragement of small and medium entrepreneurship are considered primary means [16].

It should also be noted that any economic decisions made in terms of property, political power, competition, innovations, or any other economic institutions are to a great extent shaped by human thinking, society norms, culture, history, or, in other words, specific values. In particular, S. Beugelsdijk, M. Klasing, and P. Milionis provide evidence that social polarization and values diversity in society, rather than the prevalence of certain norms, impede growth [17]. Moreover, a more significant difference in attitudes also corresponds to lower institutional quality.

Even though the importance of property, power, competition, innovations, and values was investigated individually in earlier studies, in this article, the authors will attempt to illustrate the significance of these five groups of institutions for economic development altogether in a more quantitative manner.

Research Methodology. The levels of economic development and well-being in different countries were compared using the World Bank's gross domestic product per capita data [18]. The quality of institutions was estimated employing a number of indicators collected or calculated by various organizations and funds such as World Bank, Transparency International, and Heritage Foundation, etc. These measures represent five groups of institutions mentioned above. At the first stage, we studied the effect on economic dynamics caused by each indicator within a group. Then intermediate composite indices for each group of institutions were created, namely, the integral index for power, the integral index for competition, etc., as multidimensional averages of all in-group indicators. Finally, the integral institutional index was calculated as an average of the five indices' groups with weight coefficients applied.

We start by comparing different measures for use as proxies to represent the development of property institutions in the market economy. As integral index components, in this case, three indicators were chosen: «Property rights» of Index of Economic Freedom by The Heritage Foundation [19], as well as «Strength of protecting rights of investors» and «Enforcing contracts and resolving commercial disputes» by World Bank's Doing Business [20]. At the same time, «Cost of registering property» and «Cost of business start-up procedures» indices were discarded because of their focus on the emergence of economic activity rather than the impact on economic development.

To calculate an integral index of power, four World Bank's Worldwide Governance Indicators (WGI) were selected, precisely «Government effectiveness», «Rule of law», «Voice and accountability», and «Political stability» [21]. The «Regulatory quality» index was not considered since it partly coincides with «Government effectiveness», while the latter better suits the purposes of this research. Similarly, the «Control of corruption» index deals with quite specific aspects of power, while this study aims at exploring a broader institutional background for economic

development. Besides, the peculiarities of corruption perception in societies were taken into account within another group of indicators.

An integral index for the competition was derived from the Global Competitiveness Index by the World Economic Forum [22] and three Index of Economic Freedom items: «Financial freedom», «Investment freedom», and «Trade freedom» [19]. Besides, whereas «Agriculture, forestry, and fishing, value added (% of GDP)» indicator of a primary sector by World Bank [18] might also be considered an essential representative of the country's competitiveness and economic development, it seems relevant to include it into the analysis.

To calculate an integral index for innovations, we chose two indicators, namely, «High-technology exports (% of manufactured exports)» and «Research and development expenditure (% of GDP)», presented by the World Bank [18]. Global Innovation Index was excluded from the current scope due to its limited range of data (from the year 2008 onwards), as compared to other measures used in this research.

Regarding the integral value index, it should be noted that this group of institutions represents the most complicated task in terms of finding appropriate measures for its description. Nonetheless, we considered using the next ones: «Business extent of disclosure» [18], the Corruption Perception Index (CPI) by Transparency International [23], and the Human Development Index [24]. The first indicator depicts the degree and values of openness of entrepreneurs and investors regarding disclosing information about their property and funds. Secondly, the CPI index stands for the tolerance and values/attitudes of citizens towards corruption. Finally, HDI also seems to be a decent representative of human potential development values and welfare for a country, despite being partially determined by a country's GDP per capita score.

In total, our research focuses on 17 indicators in five categories, with the corresponding five intermediate integral indices and one overall composite index of institutions (Table 3 in Appendix describes main steps of our procedure for creating integral indices; table 4 here provides integral indices per five groups of institutions and integral institutional index for the group of Central- and Eastern-European countries). The study examines the effects of institutions' quality on the economic development in fifteen Central- and Eastern-European countries, namely Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Moldova, Northern Macedonia, Poland, Romania, Slovakia, Slovenia, and Ukraine. Seeking the optimal compromise between long enough time series and sufficient diversity of indicators used, it was decided to focus on the data analysis for the years 2004 to 2018. Due to the lack of some data required, Albania, Serbia, and Montenegro remain beyond the scope of the research.

Research findings. At the start, the correlations between GDP per capita data and all explanatory variables, that is, 17 primary indicators and six composite ones, were analyzed. More specifically, GDP per capita data for the year 2018 was normalized by dividing data for single countries on the average value for the sample of 15 countries. *Table 1* summarizes the first step results. It presents the estimated coefficients of appropriate univariate OLS regressions (dependent variable — normalized GDP per capita), adjusted *R*-squared ratios, and *F*-statistics. In this case number of observations equals 15; values significant at $\alpha = 0{,}05$ are marked with*, at $\alpha = 0{,}01$ — with**, at $\alpha = 0{,}001$ — with***.

As can be seen from *Table 1*, it comprises eleven single indicators from our initial set that considerably affect the economic development in post-communist Central- and Eastern-European countries. The other six indices were not included here as their effect on GDP per capita turned to be insignificant or excessively weak. Among the remaining single indicators from *Table 1*, all the coefficients in linear regressions are highly significant, mostly at $\alpha = 0{,}001$, with the only exception. As was logically expected according to economic theories and common sense, all but one regressor are positively related to the dependent variable. Also, adjusted *R*-squared ratios seem relatively high, mainly within the 0,67—0,9 range.

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Table 1

GDP per capita and institutions quality: cross-country data for the year 2018 (dependent variable — normalized GDP per capita)

Variables	Coefficient in linear regression	Adjusted *R*-squared ratio	*F*-statistic
Property rights	0,037***	0,675	30,1
Government effectiveness	0,760***	0,824	66,4
Voice and accountability	1,044***	0,873	97,3
Political stability	0,576***	0,650	27
Rule of law	0,821***	0,925	173,2
Global competitiveness index (GCI)	0,084***	0,837	73,1
Agriculture, forestry, and fishing, value added (% of GDP)	-0,164***	0,730	38,8
High technology exports (% of manufactured exports)	0,065**	0,427	11,4
Research and development expenditure (% of GDP)	0,762***	0,679	30,6
Corruption perception index (CPI)	0,040***	0,806	59
Human development index (HDI)	8,665***	0,913	148,4
Integral property index	2,209**	0,487	14,3
Integral power index	2,519***	0,920	161,2
Integral competition index	2,658***	0,821	64,8
Integral innovations index	0,885***	0,723	37,5
Integral values index	2,186*	0,269	6,1
Integral institutional index	2,715***	0,896	122,1

Source: authors' calculations based on [18—24].

It should be noted that the performance of the composite measures differs substantially. In particular, the integral innovations index has higher explanatory power than two single indicators in the innovations' group (adjusted *R*-squared ratio equals 0,723 versus 0,427 and 0,679, respectively). The composite power index provides a rather efficient generalization of four WGI indicators' effects, as the adjusted *R*-squared ratio equals 0,920, very close to the highest value (0,925) for the single measure (the rule of law). The integral competition index slightly deteriorates the outcome, compared to the global competitiveness index (adjusted *R*-squared ratio decreased from 0,837 to 0,821). However, the composite indices for property and values institutions mostly failed as their adjusted *R*-squared ratios are far less than the corresponding values for single indicators. Finally, the integral institutional index provides a reliable indicator of successful economic development with a highly significant coefficient and *F*-statistic and a worth-noting adjusted *R*-squared ratio (0,896).

At the next stage of the research, multiple regression models were derived, taking into account the strength and significance of different indicators used earlier. Basically, this step makes sense if such models would have higher explanatory power. As a result of this stage, ten models' specifications for cross-country data were obtained — columns in *Table 2* present seven specifications with the highest adjusted *R*-squared ratio.

Table 2

Multiple regression models: cross-country data (dependent variable — normalized GDP per capita)

Models Variables	1	2	3	4	5	6	7
Government effectiveness	0,511**	0,541***					
Voice and accountability			0,775***				
Rule of law				0,457**			
Integral power index					2,033***	1,367*	
Agriculture, forestry and fishing, value added (% of GDP)	-0,071**						

Table 2 (continued)

Models Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Research and development expenditures (% of GDP)		0,322*	0,307**		0,22*		0,363**
Corruption perception index							0,027***
Human development index				4,19**		4,224*	
Const	1,097***	0,478***	0,327***	-2,648*	-1,236***	-3,867**	-0,687**
Adjusted *R*-squared ratio	0,870	0,874	0,927	0,956	0,941	0,942	0,884
F-statistic	47,7	49,7	89,6	151,8	113,1	115	54,1

Source: authors' calculations based on [18—24].

It has to be mentioned that all but one of the models submitted include some power indicators, either one of World Banks' WGI or the composed index. These are usually combined with the R&D measure or the Human development index. Another two statistically significant factors that affected GDP per capita (yet far less than the ones previously mentioned) were the ratio of value-added in agriculture, forestry, and fishing and corruption perception index. The adjusted R-squared ratio for the three best models' specifications lies within the 0,94—–0,95 range.

Discussion. Primarily, some general comments about the main results of the research have to be made. The intention to determine some basic institutions which can be considered as the key factors of economic development turned to be successful enough. Indeed, multiple regression models derived here comprise variables, which belong to different sets of indicators, representing four of five basic institutions' groups selected by the authors. The only missing category is property institutions, but there are sensible reasons to presume its substantial indirect influence through the power indices.

Another concept that proved at least partially effective in the paper is concerned with constructing composite indices that described corresponding institutions. Actually, only the integral property index, as well as two single indicators used to describe this institution, failed to be helpful. In addition, the Human development index turned out to be much more efficient than the composite index for values institutions. Partially this fact may be caused by the strong correlation between our dependent variable (GDP per capita) and HDI, one-third of which value is determined by precisely this variable. Nonetheless, we derived a sufficient number of models with high adjusted *R*-squared ratios, not including HDI.

On the other hand, the integral innovations index and especially integral power and integral competition indices appeared to be successful enough. Slightly running ahead, it should be noted that in multiple regression models derived by straightforward econometric techniques using panel data, the role of these composite indices seems even more important.

Conclusions. Post-communist countries in Central and Eastern Europe reached remarkably different results in terms of transforming their economic systems and increasing the well-being of their citizens. To a great extent, such diversities could be elucidated by variations in the speed of reforms and peculiarities of institutional changes in these countries.

To study the differences noted, the authors determined five basic groups of institutions in order to examine their effects on economic development. Numerous indicators were considered as potential proxies to describe our basic institutions; however, 17 primary ones were chosen eventually. Combining these, the authors calculated composite indices for all basic institutions and, finally, integral institutional index. As the proxy for the level of economic development, the World Bank data for the GDP per capita was selected.

Using indicators mentioned and their composite indices, a number of simple and multiple regression models were built. Many of the proxies applied revealed statistically significant effects on the dependent variable. Eventually, different multiple regression models turned to comprise

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variables that represent four out of five basic institutions. Among the composite indices, the integral innovations, integral power, and integral competition indices appeared to be especially successful in showcasing viable correlations of corresponding basic institutions with economic development.

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Appendix
Table 3

The procedures for creating integral indices

Steps	Description
Collection of credible indicators for the five groups of institutions. Selection of the most appropriate ones for further calculations	Indicators developed by World Bank, Transparency International, The Heritage Foundation, The World Economic Forum, and United Nations Development Program
Creation of integral indices for each of the five groups as multidimensional averages of all in-group indicators	$Y_{ij} = \frac{\sum_{i=1}^{m} \frac{x_{ij}}{X_j}}{m}$, where x_{ij} stands for components (in-group indicators) of a certain integral index for a particular country; i = 1,2, ..., m and signifies the number of in-group component indicators, and j = 1,2, ..., n stands for the number of countries in total
Creation of integral property index (different weight coefficients were used according to the indicators' relative significance for current research purpose)	$Y_{ij\,(property)} = \frac{\sum_{i=1}^{m} (\frac{2*x_{1j}}{X_{j1}} + \frac{x_{2j}}{X_{j2}} + \frac{x_{3j}}{X_{j3}})}{4}$, where x_{1j} stands for the *«Property rights»* of *Index of Economic Freedom* indicator, x_{2j} — the *«Strength of protecting rights of investors»* one, and x_{3j} — the*» Enforcing contracts and resolving commercial disputes»* one
Creation of integral power index	$Y_{ij\,(power)} = \frac{\sum_{i=1}^{m} (\frac{x_{1j}}{X_{j1}} + \frac{x_{2j}}{X_{j2}} + \frac{x_{3j}}{X_{j3}} + \frac{x_{4j}}{X_{j4}})}{4}$, where x_{1j} stands for the *«Government effectiveness»* indicator, x_{2j} — the*» Rule of law»* one, x_{3j} — *«Voice and accountability»* one, and x_{4j} — *«Political stability»* one
Creation of integral competition index (different weight coefficients were used according to the indicators relative significance for current research purpose)	$Y_{ij\,(competition)} = \frac{\sum_{i=1}^{m} (\frac{2*x_{1j}}{X_{j1}} + \frac{x_{2j}}{X_{j2}} + \frac{x_{3j}}{X_{j3}} + \frac{x_{4j}}{X_{j4}} + \frac{x_{5j}}{X_{j5}})}{6}$, where x_{1j} stands for the *Global Competitiveness Index*, x_{2j} — the *«Financial freedom»* indicator, x_{3j} — *«Investment freedom»* one, x_{4j} — *«Trade freedom»* one, and x_{5j} — *«Agriculture, forestry, and fishing, value added (% of GDP)»* one
Creation of integral innovations index	$Y_{ij\,(innovations)} = \frac{\sum_{i=1}^{m} (\frac{x_{1j}}{X_{j1}} + \frac{x_{2j}}{X_{j2}})}{2}$, where x_{1j} stands for the *«High-technology exports (% of manufactured exports)»* indicator, x_{2j} — for *«Research and development expenditure (% of GDP)»* one
Creation of integral values index (different weight coefficients were used according to the indicators relative significance for current research purpose)	$Y_{ij\,(values)} = \frac{\sum_{i=1}^{m} (\frac{2*x_{1j}}{X_{j1}} + \frac{2*x_{2j}}{X_{j2}} + \frac{x_{3j}}{X_{j3}})}{5}$, where x_{1j} stands for the *«Business extent of disclosure»* indicator, x_{2j} — for *Corruption Perception Index (CPI)*, and x_{3j} — *Human Development Index*
Creation of integral institutional index as an average of the five indices' groups with weight coefficients applied	$Y_{ij\,(institutional)} = W_1 * Y_{ij\,(property)} + W_2 * Y_{ij\,(power)} + W_3 * Y_{ij\,(competition)} + W_4 * Y_{ij\,(innovations)} + W_5 * Y_{ij\,(values)}$, where w_i (i = 1,2,..,5) signifies the weight coefficients applied to each group correspondingly. In particular, w_1 = 0,19, w_2 = 0,34, w_3 = 0,19, w_4 = 0,09, and w_5 = 0,19. The weight coefficients have been applied by using a pairwise comparison matrix according to the indicator's relative importance and the ability to represent corresponding groups of institutions adequately
Elaboration of linear and multiple regression models to investigate the relationships between basic institutions and economic development	Seventeen primary and six integral institutional indicators have been tested for relationships with normalized GDP per capita indicator while outlining regression coefficients, adjusted *R*-squared ratios, and *F*-statistics values. Adjusted *R*-squared ratio *F*-statistic

Source: authors' development.

Table 4

Integral indices per five groups of institutions and integral institutional index, 2018

Country	Year 2018					
	Integral power index	Integral property index	Integral competition index	Integral innovations index	Integral values index	Integral institutional index
Bosnia and Herzegovina	0,735	0,716	0,891	0,357	0,777	0,735
Bulgaria	0,948	1,106	1,029	0,881	1,063	1,009
Estonia	1,227	1,142	1,235	1,561	1,279	1,253
Latvia	1,140	1,059	1,078	1,242	1,046	1,104
Lithuania	1,182	1,110	1,147	1,051	1,127	1,139
Moldova	0,747	0,911	0,778	0,256	0,841	0,758
North Macedonia	0,822	1,045	0,882	0,388	0,995	0,869
Poland	1,067	1,052	1,237	1,162	1,137	1,118
Romania	0,914	0,960	0,981	0,752	1,071	0,951
Slovakia	1,110	1,052	1,186	0,956	0,917	1,063
Slovenia	1,216	1,369	1,178	1,384	1,085	1,228
Hungary	1,049	1,065	1,083	1,635	0,846	1,073
Ukraine	0,599	0,689	0,690	0,512	0,885	0,680
Croatia	1,041	1,192	1,072	0,889	0,957	1,046
Czech Republic	1,204	0,992	1,308	1,976	0,973	1,209

Source: authors' calculations based on [18—24].

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