INSTITUTIONAL INFLUENCE ON THE INTERREGIONAL DISPARITIES IN THE SOCIO-ECONOMIC DEVELOPMENT IN UKRAINE

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Abstract. This study examines institutional influence on the interregional disparities in socio-economic development in Ukraine. The research methodology is based on the new institutional approach and application of regression analysis: three empirical models consisting of the coefficients of variation of gross regional product per capita, available income per capita, salary per employee in place of dependent variables, and institutional governance indicators in place of independent ones, are tested on a linear correlation. The empirical evidence indicates the correlation between available income variation and institutional governance is insignificant, but that there is a strong and significant correlation with gross regional product and salary. Our preliminary assumption on the negative sign of regression parameters does not come true; therefore, we conclude that the positive nature of institutional influence on the interregional disparities in Ukraine could be explained by the resource-oriented structure of Ukrainian economy: overall economic growth leads to speeding-up of economic development of the leading regions, which in turn, causes deepening interregional disparities.

Key words: Institutional Governance, Interregional Disparities, Socio-Economic Development, New Institutionalism, Living Standards Dynamics.

1. Introduction

Research into the institutional influence on economic development holds one of the prominent places in modern economics. The seminal works of R. Coase and D. North laid the groundwork for this line of research within the framework of the new institutionalism [1-3]. A cornerstone idea of the new institutional theory is an assumption that a market-unfriendly political and legal environment increases the cost of transactions for economic agents, which has a negative impact on business activity. As a result poorly developed institutions foster the existence and development of a black economy, an inefficient distribution of public resources, and grabber-oriented economic activity.

A number of empirical studies indicate the presence of a significant correlation between indicators of institutional and economic development [4-7]. In addition, this approach illustrations a basic tenet of the «resource curse» phenomenon – the situation where a resource-rich country experiences a recession due to the functioning of market-unfriendly institutions [8-11].

Wide usage of the new institutional approach demonstrates high theoretical and empirical value and importance in modern economic studies. This theoretical and methodological approach also formed the underlying basis applied to analyses of institutional change in the post-communist transition countries, including Ukraine [12-14]. However, the issues regarding the regional dimension of institutional influence on the socio-economic development in Ukraine have not been thoroughly covered in the economic studies.

2. Materials and methods

The research goal of this study is to analyze institutional influence on the interregional disparities in socio-economic development in Ukraine. Within the framework of this study we seek to achieve the following research goals:

- to choose the indicators to be analyzed;
- to formulate an analytical model;
- to conduct empirical analysis and discuss its results.

The new institutionalists use linear and non-linear regression models as a research tool consisting, in most cases, of one dependent and several independent variables. Indicators widely used in economic studies such as growth rate of GDP, value added, personal income, investment (savings) etc. represent the dependent variables, i.e. the latter are the official state or international indexes. The collection of independent variables is a complicated process due to the non-economic nature of institutional development, which explains the complexity of using such indicators.

One of the most popular among research databases of institutional development is the World Governance Indicators (WGI) Report, developed by D. Kaufmann, A. Kraay, and M. Mastruzzi, and published annually by the World Bank [15]. This methodological approach is based on the percentile ranking of different indicators capturing public opinion on the ability of a national government to implement sound policies in such areas as control of corruption (CC), government effectiveness (GE), political stability (PS), regulatory quality (RQ), rule of law (RL), and voice and accountability (VA). The value of each indicator varies from 0 to 100, meaning greater values represent better public opinion on the national government policy.

Within the framework of this study the analytical model takes the following form of linear regression:

$$y = a_0 + a_1 * CC + a_2 * GE + a_3 * PS + a_4 * RQ + a_5 RL + a_6 * VA + \varepsilon \quad (1)$$

where a_0-a_6 represent parameters, CC, GE, PS, RQ, RL, VA – independent variables, y – coefficient of variation

of relative regional development indicator, ε – average approximation error.

Let us take real gross regional product (GRP) per capita, real available individual income, and real salary per employee in place of regional development indicators [16]. They have a high informative value: GRP per capita is the most aggregate indicator of regional socio-economic development; available income and salary are often used in the studies on the regional living standards dynamics in Ukraine.

Available data on the above-mentioned variables, published by the State Statistics Service of Ukraine (SSSU) and the World Bank, cover the following time series (see table 1 and table 2):

- GRP per capita: 2002-2012;
- real available income per capita: 2002-2013;
- real salary per employee: 2005-2013;
- institutional governance indicators: 2002-2013.

We make an assumption on the presence of a negative correlation between respective coefficients of variation and institutional governance indicators, meaning that market- and democracy-friendly institutions alleviate regional disparities.

Table 1.
Coefficients of variation of real GRP per capita (2002-2012), real available income per capita (2002-2013), real salary per employee (2005-2013) in Ukraine *

Year / CV	Real GRP per capita	Real available income per capita	Real salary per employee
2002	0,52	0,52	X**
2003	0,56	0,56	X
2004	0,57	0,57	X
2005	0,55	0,55	0,21
2006	0,56	0,56	0,20
2007	0,59	0,59	0,21
2008	0,57	0,57	0,21
2009	0,56	0,56	0,19
2010	0,56	0,56	0,17
2011	0,51	0,51	0,18
2012	0,55	0,55	0,17
2013	X	0,52	0,17

* Calculated by author
** Data are not available

Table 2.
Institutional governance indicators in Ukraine, % (2002-2013) [17]

Рік/ показник	CC	GE	PS	RQ	RL	VA
2002	13,2	29,3	31,3	29,4	24,4	31,3
2003	18,5	33,2	32,7	28,9	23,4	30,3
2004	18,0	33,7	28,8	39,7	26,8	29,3
2005	29,8	34,1	37,0	34,3	27,3	41,3
2006	27,3	34,6	44,2	32,4	24,4	47,1
2007	24,3	28,6	48,6	36,9	26,3	48,1
2008	22,8	27,7	45,5	32,5	29,3	50,0
2009	16,3	22,0	34,1	31,6	24,2	49,3
2010	17,1	25,4	45,8	34,0	24,6	46,4
2011	17,1	21,8	43,4	29,9	23,5	44,6
2012	15,8	31,6	41,7	28,7	26,1	39,8
2013	12,0	30,1	21,3	28,7	23,2	37,0

Taking into consideration the presence of six independent variables in the model and a relatively small number of observations (n=11 for GRP; n=12 for available income; n=9 for salary) it is necessary to exclude independent variables which enhance the multicollinearity as well as do not have a significant correlation with a resultant factor. The empirical results are provided in the tables 3-5.

3. Empirical results and discussion

The correlation between the values of coefficients of variation and GRP per capita (2), available income (3), and salary (4) takes the following regression forms:

$$y = 0,3862 + 0,0007 * CC + 0,003 * RQ + 0,0022 * RL \quad (2)$$

$$y = 0,3591 - 0,0017 * CC - 0,0039 * GE \quad (3)$$

$$y = 0,0589 + 0,0018 * CC + 0,0011 * RQ + 0,0023 * RL \quad (4)$$

Table 3.
Coefficients of regression (2) (α=0,05)

Name	Symbol	Empirical value	Critical value
Multiple correlation coefficient	R_{xy}	0,943	>0,63
Coefficient of determination	d	0,89	>0,527
F-test	F	32,4	>4,46
t-test	t	t= 8,05	>2,3
Average approximation error	ε	3%	<15%

Table 4.
Coefficients of regression (3) (α=0,05)

Name	Symbol	Empirical value	Critical value
Multiple correlation coefficient	R_{xy}	0,575	>0,63
Coefficient of determination	d	0,33	>0,527
F-test	F	4,925	>4,96
t-test	t	t= 2,202	>2,306
Average approximation error	ε	11,9%	<15%

Table 5.
Coefficients of regression (4) (α=0,05)

Name	Symbol	Empirical value	Critical value
Multiple correlation coefficient	R_{xy}	0,819	>0,67
Coefficient of determination	d	0,67	>0,632
F-test	F	6,09	>5,14
t-test	t	t= 3,492	>2,447
Average approximation error	ε	3,6%	<15%

The regression coefficients analysis indicates the inadequacy of model (3), therefore, it should be excluded from the further consideration. Models (2) and (4) are characterized by a strong empirical correlation between the resultant and factorial variables; the regression parameters have a high significance. The value of average approximation

error does not exceed its critical value; therefore we conclude these models are highly accurate.

The positive sign of the regression parameters contradicts our assumption about the negative correlation between resultant and factorial variables. It implies that a positive change in the area of institutional governance contributes to deepening the interregional disparities in Ukraine.

Looking at the nature of the correlation between variables discussed with regard to the structure and functioning of the Ukrainian economy, we can put forward the idea that positive changes in corruption fighting, rule of law enforcement and regulatory policy improve a business environment in the country, facilitating the overall national economic growth. Taking into account the resource-dependent and resource-oriented nature of regional development in Ukraine, we can postulate that overall economic growth might lead to speeding-up the development of the leading regions, i.e. market-friendly institutions by themselves do not facilitate the reduction of interregional disparities, but, on the contrary, fosters their deepening. There arises the necessity to analyze the mechanism through which the institutions influence the overall socio-economic development in a country with further transition to a regional level; however, this analysis should become the subject of a separate study.

4. Limitations of this study

Regarding this study it is necessary to express three concerns. First of all, regional development is a multi-dimensional process; its socio-economic component cannot be covered by a few indicators such as GRP, available income, and salary. The latter were used in order to analyze the overall nature of the correlation between institutions and disparities of territorial development in Ukraine; the usage of other indicators can significantly widen the basis for further analysis and discussion within this research line. The same concern relates to the empirical model: the presence of linear correlations between two resultant and three factorial variables does not mean the absence of non-linear correlations, especially, if the model to be amplified by adding new independent and/or dependent variables.

Secondly, special attention should be paid to institutional governance indicators. Their considerable practical importance and wide application in empirical studies does not discount the availability of no-less informative indicators of institutional development. In addition, the methodology of the WGI report is a subject of criticism [18].

The third concern is related to the length of analyzed times series. The presence of two or three independent variables in the model requires a bigger number of observations than those which were used in this study. However, available data, published by the State Statistics Service of Ukraine, only allowed for the inclusion of a relatively small number of years. We recommend that in the future the SSSU cover longer times series in regional statistics.

5. Conclusions

Induction of data allows us to conclude there is a positive correlation between interregional disparities and institutional development in Ukraine. The empirical evidence indicates a strong correlation between the coefficients of variation of GRP per capita and salary per employee, and institutional governance indicators expressing the ability of a national government to conduct sound policies in such areas as control of corruption, regulatory, and rule of law.

Further development of this study could be directed towards improving the model. A separate study could be dedicated to researching the mechanism through which institutions influence socio-economic development on a national level reflecting its impact on interregional disparities.

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