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Saint-Petersburg, Russia*Статья поступила 10 апреля 2019 г.***QUALITY ASSESSMENT OF THE INSTITUTIONAL SYSTEMS  
OF ESTONIA, LITHUANIA, POLAND AND BELARUS**

*The article presents the results of a quantitative assessment of the quality of the institutional system of Estonia, Lithuania, Poland and Belarus. In order to create a model the following Worldwide Governance Indicators were used – Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption. The indicator Gross National Income (GNI) per capita constant US dollars is used to characterize the level of economic development. The period of analysis is from 2004 to 2015. Despite relatively similar starting conditions after the collapse of the USSR for the analyzed countries the outcome of institutional change is different. The quantitative assessment of the impact of the indicators of the quality of institutions shows “bottleneck” institutions for the economic development. The results of the research can be used in the development of economic policy. Taking into consideration the analysis of the World Bank data it can be stated, that Estonia, Lithuania, Poland have successfully completed the transition process. However, Belarus is in hybrid transitional state, stuck in the process of transition or, in other words, Belarusian economy functions in the conditions of institutional trap.*

**Keywords:** *Estonia, Lithuania, Poland, Belarus, institutional system, economic policy, economic development, economics of transition, Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption.*

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г. Санкт-Петербург, Россия**ОЦЕНКА КАЧЕСТВА ИНСТИТУЦИОНАЛЬНОЙ СИСТЕМЫ  
ЭСТОНИИ, ЛИТВЫ, ПОЛЬШИ И БЕЛАРУСИ**

*В статье изложены результаты количественной оценки качества институциональной системы Эстонии, Литвы, Польши и Беларуси. При построении модели в качестве исходных данных использованы индикаторы «право голоса и подотчетность», «политическая стабильность и отсутствие насилия», «эффективность государственного управления», «качество регулирования», «верховенство права» и «контроль коррупции», публикуемые Всемирным банком в соответствии с методикой Worldwide Governance Indicators. Показатель «валовой национальный доход (ВНД) на душу населения в постоянных ценах» использован для характеристики уровня экономического развития. Анализ показателей проводился за период с 2004 по 2015 годы. Несмотря на относительно схожие стартовые условия после распада СССР для анализируемых стран, результаты институциональных изменений различны. Проведенная количественная оценка влияния индикаторов качества институтов на уровень экономического развития позволила выделить для каждой страны факторы, приводящие к эффекту «бутылочного горлышка». Полученные результаты могут быть использованы при разработке мер экономической политики. Принимая во внимание данные Всемирного банка, можно констатировать, что Эстония, Литва, Польша успешно завершили переходный процесс. Однако Беларусь находится в гибридном переходном состоянии,*

экономика застряла в процессе перехода или, другими словами, белорусская экономика функционирует в условиях институциональной ловушки.

**Ключевые слова:** Эстония, Литва, Польша, Беларусь, институциональная система, экономическая политика, экономическое развитие, экономика переходного периода, право голоса и подотчетность, политическая стабильность и отсутствие насилия, эффективность государственно-го управления, качество регулирования, верховенство права, контроль коррупции.

**Introduction.** One of the key factors in making investment decisions by economic agents is the quality of the institutional system. However, the problem of a quantitative assessment of the quality of institutions is not solved fully. The various approaches which are used are mainly of an empirical nature and are based on the intuition of investors. One of the common methods used to assess the quality of institutions is the World Bank's Worldwide Governance Indicators. They are significant due to their widespread use in the business community, and therefore, governments which are interested in attracting foreign investment should take into account the results of institutional assessment based on Worldwide Governance Indicators.

**Method and objects of research.** The World Bank uses research of households and firms by international institutions, information provided by commercial business information providers, non-governmental organizations, and public sector organizations in order to calculate Worldwide Governance Indicators [9].

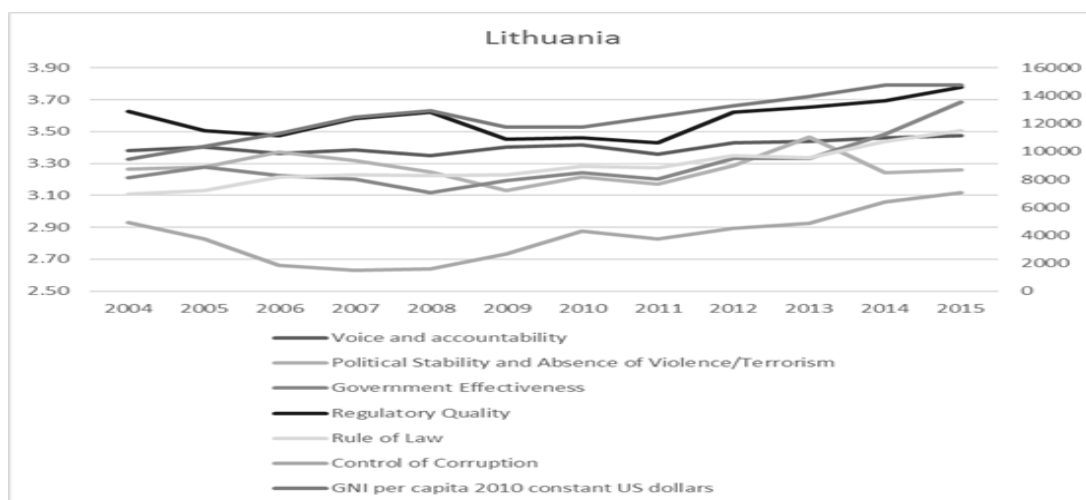
This research shows how the quality of institutions influence economic development based on the mathematical methods. In order to do that the indicator "Gross National Income (GNI) per capita at constant prices" (World Bank) was used [8]. Institutional development was assessed by the Worldwide Governance Indicators –

"Voice and Accountability", "Political Stability and Absence of Violence", "Government Effectiveness", "Regulatory Quality", "Rule of Law" and "Control of Corruption". The analysis of the indicators was carried out for the period from 2004 to 2015.

The indicators are recalculated for the scale from 0 to 5, instead of from -2.5 to 2.5 used by the World Bank, for easier comparability of calculations, where 0 is the worst indicator and 5 is the best indicator.

The research was done for Belarus, Lithuania, Estonia and Poland. The institutional systems of Belarus and these countries have significant differences [5].

**Results and its discussion.** During the analyzed period from 2004 to 2015, the rate of GNI per capita at constant prices in Lithuania shows a fairly steady growth, and in general has increased by 56%. For the same period in Lithuania, the indicator "Voice and Accountability" increased by 3%. The indicator "Political Stability and Absence of Violence" remained at the same level. The indicator "Government Effectiveness" grew by 15%, while "Regulatory Quality" grew only by 4%. The "Rule of Law" indicator for the same period increased by 13%, and the "Control of Corruption" by 6% (Figure 1).



**Figure 1. – GNI per capita in Lithuania and indicators of the quality of the country's institutional system in points**

Source – own development based on World Bank data [8, 9]

Based on the World Bank data, a linear regression is constructed based on the data from 90 countries, which characterizes the interrelation of the indicator of GNI per capita at constant prices and the indicator "Voice and Accountability" in points. The relationship is expressed by the following formula:

$$Y=3726*X-934,8 \quad (1)$$

where Y is Gross National Income per capita, constant US dollars 2010,

X is a score of the indicator "Voice and Accountability" from 0 to 5.

The correlation coefficient is 0.27, which indicates a weak dependence between the analyzed indicators. Therefore, this indicator is not taken into account in the further analysis.

Based on the World Bank data, a linear regression is constructed based on the data from 90 countries, which characterizes the interrelation of the indicator of GNI per capita at constant prices and the indicator "Political Stability and Absence of Violence" in points. The relationship is expressed by the following formula:

$$Y=6657,1*X-7296 \quad (2)$$

where Y is Gross National Income per capita, constant US dollars 2010,

X is a score of the indicator "Political Stability and Absence of Violence" from 0 to 5.

The correlation coefficient is 0.51, which indicates the moderate dependence between the analyzed parameters. Therefore, it is possible to calculate the potential level of GNI per capita in accordance with the established dependence (formula 2). In Lithuania, the potential level of GNI in terms of "Political Stability and Absence of Violence" is lower by 2% than actual GNI level, which indicates that for Lithuania this indicator is a bottleneck and can be considered as a factor for the growth of GNI.

Based on the World Bank data, a linear regression is constructed based on the data from 90 countries, which characterizes the interrelation of the indicator of GNI per capita at constant prices and the indicator "Government Effectiveness" in points. The relationship is expressed by the following formula:

$$Y=10738,8*X-16808,3 \quad (3)$$

where Y is Gross National Income per capita, constant US dollars 2010,

X is a score of the indicator "Government Effectiveness" from 0 to 5.

The correlation coefficient is 0.78, which indicates a strong dependence between the analyzed indicators. Based on the proposed dependency the potential level of GNI per capita for Lithuania is 54% higher than the actual one, i.e. it is not a factor hindering economic development.

Based on the World Bank data, a linear regression is constructed based on the data from 90 countries, which characterizes the interrelation of the indicator of GNI per capita at constant prices and the indicator "Regulatory Quality" in points. The relationship is expressed by the following formula:

$$Y=10760,2*X-17426,8 \quad (4)$$

where Y is Gross National Income per capita, constant US dollars 2010,

X is a score of the indicator "Regulatory Quality" from 0 to 5.

The correlation coefficient is 0.77, which indicates a strong dependence between the analyzed indicators. Based on the proposed dependency the potential level of GNI per capita for Lithuania is 57% higher than the actual one, i.e. it is not a factor hindering economic development.

Based on the World Bank data, a linear regression is constructed based on the data from 90 countries, which characterizes the interrelation of the indicator of GNI per capita at constant prices and the indicator "Rule of Law" in points. The relationship is expressed by the following formula:

$$Y=10412,4*X-15280 \quad (5)$$

where Y is Gross National Income per capita, constant US dollars 2010,

X is a score of the indicator "Rule of Law" from 0 to 5.

The correlation coefficient is 0.73, which indicates a strong dependence between the analyzed indicators. Based on the proposed dependency the potential level of GNI per capita for Lithuania is 44% higher than the actual one, i.e. it is not a factor hindering economic development.

Based on the World Bank data, a linear regression is constructed based on the data from 90 countries, which characterizes the interrelation

tion of the indicator of GNI per capita at constant prices and the indicator “Control of Corruption” in points. The relationship is expressed by the following formula:

$$Y=9835,3 \cdot X-13766,5 \quad (6)$$

where Y is Gross National Income per capita, constant US dollars 2010,

X is a score of the indicator "Control of Corruption" from 0 to 5.

The correlation coefficient is 0.72, which indicates a strong dependence between the analyzed indicators. Based on the proposed dependency the potential level of GNI per capita for

Lithuania is 15% higher than the actual one, i.e. it is not a factor hindering economic development. However, it should be noted that the potential level of GNI per capita is significantly lower for this indicator than for indicators such as, “Government Effectiveness” (potential is higher than actual by 54%), “Regulatory Quality” (57%), “Rule of Law” (44%) (Figure 2). In general, it can be stated that institutional system of Lithuania has a margin of safety, which can be an indicator of successful completion of transition process.

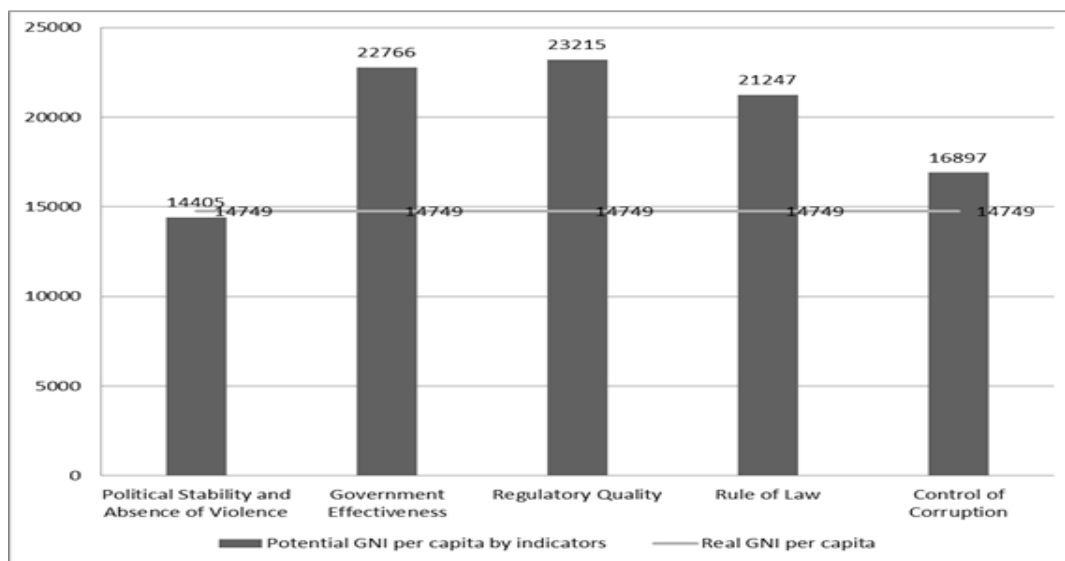


Figure 2. – Comparison of potential and real GNI per capita in Lithuania in 2015, constant US dollars 2010  
Source - own development based on World Bank data [8, 9]

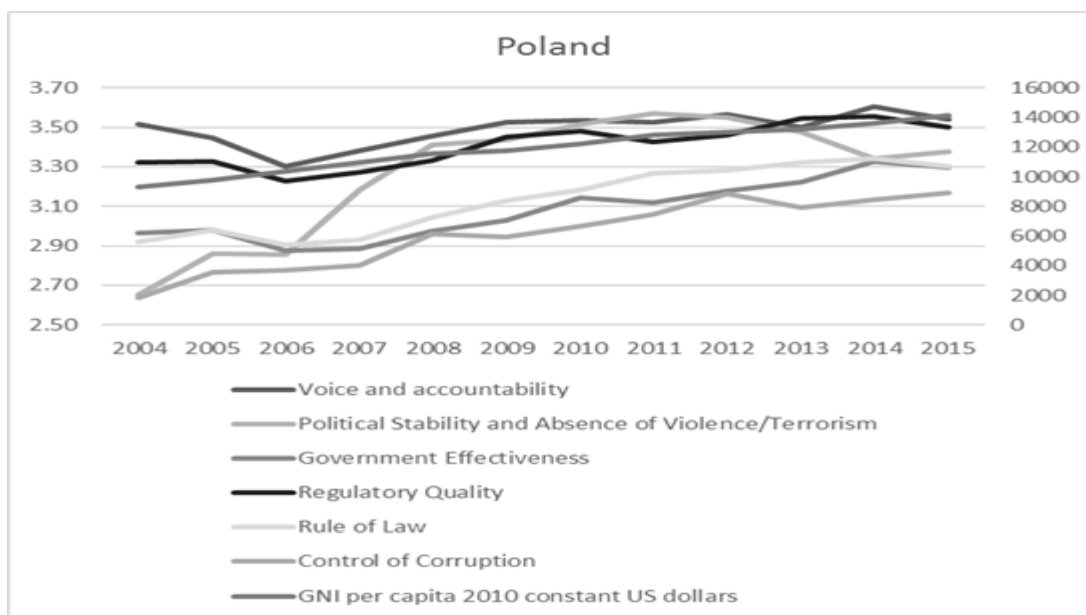


Figure 3 – GNI per capita in Poland and indicators of the quality of the country's institutional system in points

Source - own development based on World Bank data [8, 9]

During the analyzed period from 2004 to 2015, the rate of GNI per capita at constant prices in Poland shows a fairly steady growth, and in general has increased by 52%. For the same period in Poland, the indicator “Voice and Accountability” increased by 3%. The indicator “Political Stability and Absence of Violence” increased by 27%. The indicator “Government Effectiveness” increased by 11%, while “Regulatory Quality” increased only by 5%. The “Rule of Law” indicator for the same period increased by 13%, and the “Control of Corruption” by 20% (Figure 3).

Formula (2), applied to Poland, shows that the calculated potential GNI in terms of the indicator “Political Stability and Absence of Violence” exceeds the actual GNI by 7%, i.e. it is not a deterrent to economic development.

Formula (3), applied to Poland, shows that the calculated GNI in terms of “Government Effectiveness” indicator is higher than actual

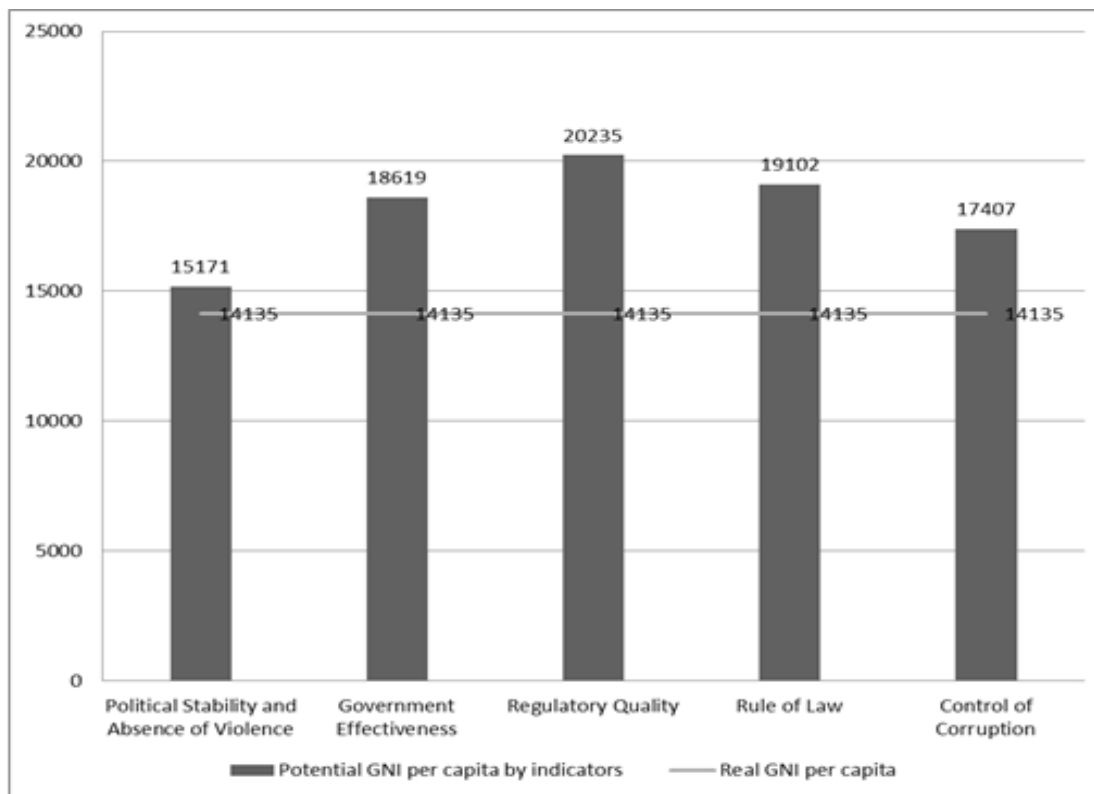
GNI by 32%, that is, it is not a deterrent to further economic growth.

Formula (4), applied to Poland, shows that the calculated potential GNI in terms of the indicator “Regulatory Quality” exceeds the actual GNI by 43%, i.e. it is not a deterrent to economic development.

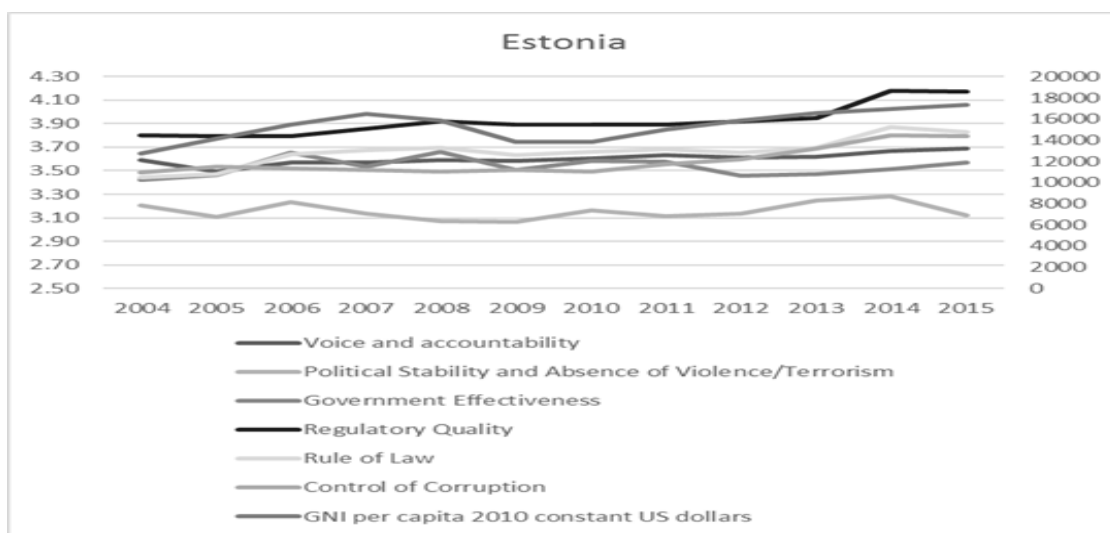
Formula (5), applied to Poland, shows that the calculated potential GNI in terms of “Rule of Law” indicator is higher than actual GNI by 35%, that is, it is not a deterrent to further economic growth.

Formula (6), applied to Poland, shows that the calculated potential GNI in terms of the indicator “Control of Corruption” exceeds the actual GNI by 23%, i.e. it is not a deterrent to economic development.

So, the analysis shows that institutional system of Poland has a margin of safety for all indicators, which means that Poland has completed the transition process successfully (Figure 4).



**Figure 4. – Comparison of potential and real GNI per capita in Poland in 2015, constant US dollars 2010**  
Source - own development based on World Bank data [8, 9]



**Figure 5 – GNI per capita in Estonia and indicators of the quality of the country's institutional system in points**

Source – own development based on World Bank data [8, 9]

During the analyzed period from 2004 to 2015, the rate of GNI per capita at constant prices in Estonia shows a fairly steady growth, and in general has increased by 36%. For the same period in Estonia, the indicator “Voice and Accountability” increased by 3%. The indicator “Political Stability and Absence of Violence” decreased by 3%. The indicator “Government Effectiveness” increased only by 4%, while “Regulatory Quality” increased by 10%. The “Rule of Law” indicator for the same period increased by 11%, and the “Control of Corruption” by 9% (Figure 5).

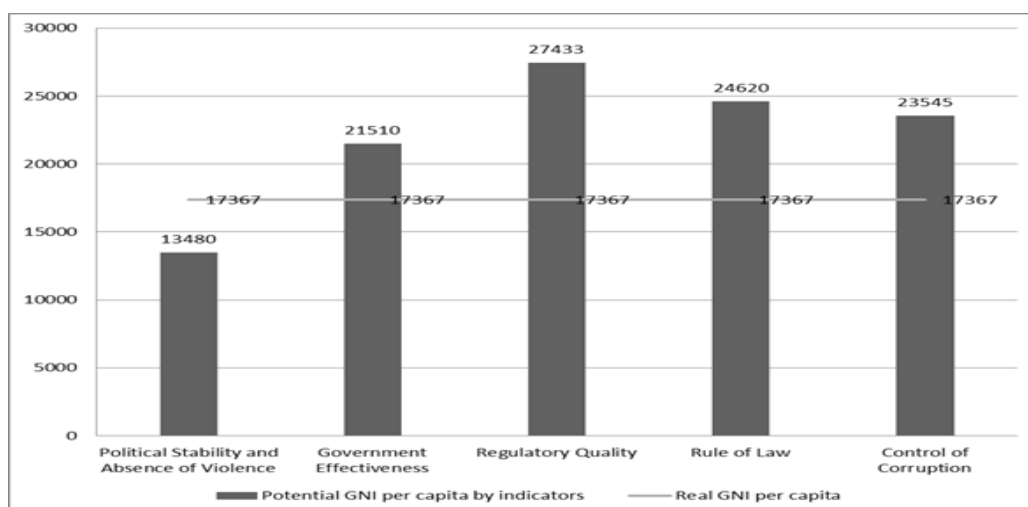
Formula (2) applied to Estonia shows that the calculated potential GNI in terms of the indicator “Political Stability and Absence of Violence” is lower than the actual GNI level by 22%, that

is, it is a bottleneck for the institutional development and is important for the growth of GNI.

Formula (3), applied to Estonia, shows that the calculated potential GNI in terms of “Government Effectiveness” indicator is higher than actual GNI by 24%, that is, it is not a deterrent to further economic growth.

Formula (4), applied to Estonia, shows that the calculated potential GNI in terms of the indicator “Regulatory Quality” exceeds the actual GNI by 58%, i.e. it is not a deterrent to economic development.

Formula (5), applied to Estonia, shows that the calculated potential GNI in terms of “Rule of Law” indicator is higher than actual GNI by 42%, that is, it is not a deterrent to further economic growth.



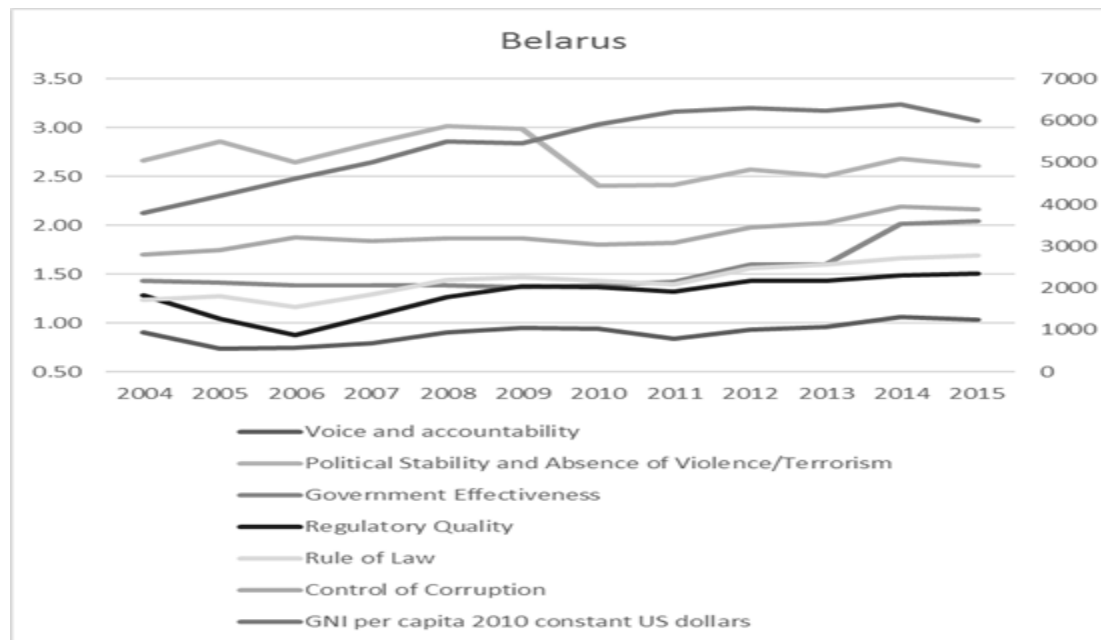
**Figure 6. – Comparison of potential and real GNI per capita in Estonia in 2015, constant US dollars 2010**

Source - own development based on World Bank data [8, 9]



Formula (6), applied to Estonia, shows that the calculated potential GNI in terms of the indicator “Control of Corruption” exceeds the actual GNI by 36%, i.e. it is not a deterrent to economic development.

The bottleneck for the institutional system in Estonia is “Political Stability and Absence of Violence”, however it should be noted that other indicators have significant margins of safety, which means that Estonia has completed the transition process successfully (Figure 6).



**Figure 7. – GNI per capita in Belarus and indicators of the quality of the country's institutional system in points**

Source - own development based on World Bank data [8, 9]

During the analyzed period from 2004 to 2015, the rate of GNI per capita at constant prices in Belarus shows a fairly steady growth, and in general has increased by 58%. For the same period in Belarus, the indicator “Voice and Accountability” increased by 3%. The indicator “Political Stability and Absence of Violence” decreased by 2%. The indicator “Government Effectiveness” increased by 43%, while “Regulatory Quality” increased by 18%. The “Rule of Law” indicator for the same period increased by 36%, and the “Control of Corruption” by 27% (Figure 7).

Formula (2), applied to Belarus, shows that the calculated potential GNI in terms of the indicator “Political Stability and Absence of Violence” exceeds the actual GNI by 68%, i.e. it is not a deterrent to economic development.

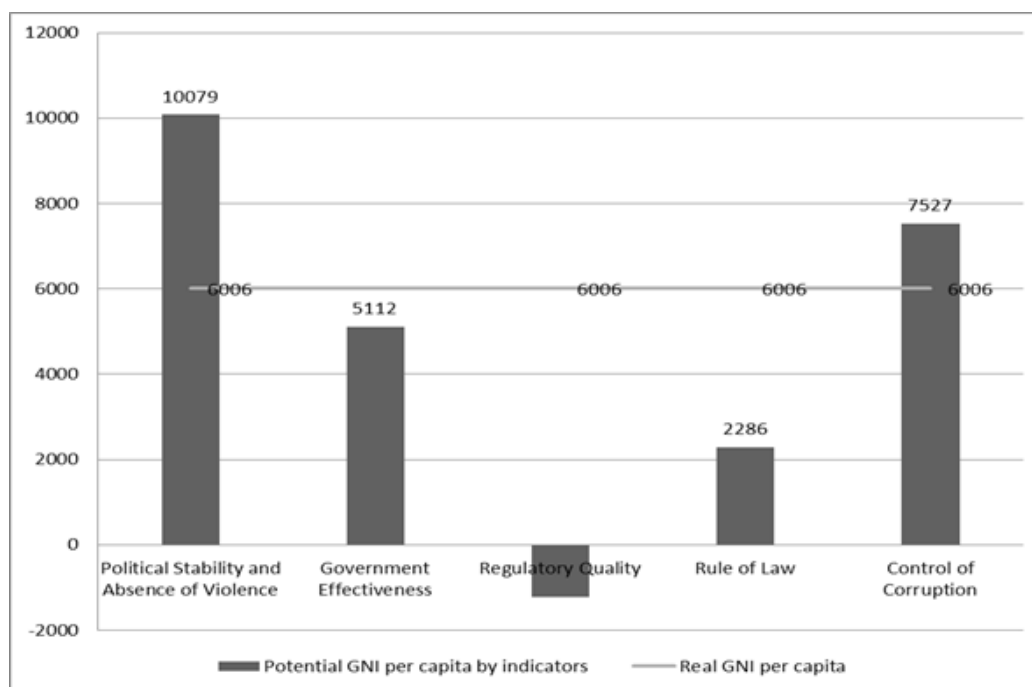
Formula (3) applied to Belarus shows that the calculated potential GNI in terms of the indicator “Government Effectiveness” is lower than

the actual GNI level by 15%, that is, it is a bottleneck for the institutional development and is important for the growth of GNI.

Formula (4) applied to Belarus shows that the calculated potential GNI in terms of the indicator “Regulatory Quality” is lower than the actual GNI level by 120%, i.e. it is a bottleneck for the institutional development and this indicator has significant reserves for the growth of GNI.

Formula (5) applied to Belarus shows that the calculated potential GNI in terms of the indicator “Rule of Law” is lower than the actual GNI level by 62%, that is, it is a bottleneck for the institutional development and is important for the growth of GNI.

Formula (6), applied to Belarus, shows that the calculated potential GNI in terms of “Control of Corruption” indicator is higher than actual GNI by 25%, that is, it is not a deterrent to further economic growth.



**Figure 8. – Comparison of potential and real GNI per capita in Belarus in 2015, constant US dollars 2010**

Source - own development based on World Bank data [8, 9]

It is evident that balance in the institutional system of Belarusian economy is absent, which leads to the conclusion that transition process for Belarus is not yet finished (Figure 8).

The quantitative assessment of the institutional system of Belarus for 2017 is similar to the results of the assessment for 2015, which is carried out in this research [6, p. 122-123].

The analysis shows that institutional system of Belarus is unbalanced, and significant elements of the institutional system are deterrent to economic development [1, 2, 3, 7]. Similar conclusion could be made because of the significant amount of institutional traps in Belarusian economy [4].

**Conclusion.** Thus, it can be concluded that with relatively similar starting conditions after the collapse of the world socialist system, which significantly influenced the quality of the institutional environment in Lithuania, Poland, Estonia and Belarus, there were multidirectional changes in institutions from 2004 to 2015. Institutional development was mostly positive in Lithuania, Estonia and Poland. Despite positive development of institutions in Belarus, their level of development lags behind the levels in the analyzed Baltic countries and Poland. Institutional systems of Lithuania, Estonia and Poland are consistent and fairly balanced and is not a deterrent to economic development. The institutional system of Belarus seems imbalanced, because some institutions are much more developed than oth-

ers, some institutions are deterrent to economic development, and, thus, economy are not consistent in the long run. The quantitative assessment of the impact of indicators of the quality of institutions on the level of economic development can be used in the development of economic policy measures. In Belarus institutions which are measured by indicators “Government Effectiveness”, “Regulatory Quality” and “Rule of Law” are bottleneck for the economic and institutional development. So, they should be prioritized when developing economic policy measures. Research shows that Lithuania, Estonia and Poland have successfully completed the transition according to the analysis of the World Bank indicators. However, Belarus is in hybrid transitional state, stuck in the process of transition or, in other words, Belarusian economy functions in the conditions of institutional trap.

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