

Shelestova, D.A.; Tolstel, M.S.; Starostina, E.S.

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Methodological Approach to the Study of International Economic Integration Influence on Development of the EAEU Members

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Methodological Approach to the Study of International Economic Integration Influence on Development of the EAEU Members

D.A. Shelestova, M.S. Tolstel, E.S. Starostina

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D.A. Shelestova, M.S. Tolstel, E.S. Starostina
shelestovada@volsu.ru, tolstelms@volsu.ru, starostinaes@volsu.ru
Volgograd State University, Institute of World Economy and Finance, 400062
Prospekt Universitetskiy 100, Volgograd, Russia

Methodological Approach to the Study of International Economic Integration Influence on Development of the EAEU Members

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Abstract

Research background: In modern conditions the international integration processes act as pledge of a sustainable development of the states, activation of investment cooperation, implementation of joint perspective projects. The emergence of new international economic integration organizations predetermines the need to rethink the patterns of development models of international economic integration processes, especially in the context of their impact on the economies of the participating countries. The analysis methods for assessing the effects of the international economic integration (Bergeijk, Brakman (2010), Blomstrom, Kokko (1997), Keaptsoglou, Karlaftis, Tsamboulas (2010), Michalopoulos, Tarr (1997), Plummer, Cheong, Hamanaka (2010), Zwinkels, Beugelsdijk (2010), Vinokurov (2010) shows that none of them alone doesn't allow a comprehensive assessment of the regional integration effects. Therefore, in the presence of statistical and other relevant information necessary to use the methods of quantitative analysis in the complex, taking into account their strengths and weaknesses, opportunities and constraints.

Purpose of the article: The purpose of the study is to develop the theoretical foundations and development of methodology for assessing the impact of international economic integration in the socio-economic development of the participating countries (for example, the Eurasian Economic Union (EAEU)).

Methodology/methods: The authors created methodological approach to the study of influence of international economic integration on development of the EAEU members based on reaching of target indexes of international movement of goods, services and factors of production.

Findings & Value added: Depending on the value of the integral indicator, the authors list four levels of the economic potential of the countries participating in the EAEU. The presented methodological approach allows to early diagnose problem areas and to choose from a variety of management solutions for its improvement.

Introduction

The modern economic science is not yet able to determine the full effect of the integration processes implementation at the regional level. This is due not to the complexity of calculation results of integration and multiplicity of the process effects in time and space.

The analysis methods for assessing the effects of the international economic integration (Bergeijk, Brakman (2010), Blomstrom, Kokko (1997), Kepaptsoglou, Karlaftis, Tsamboulas (2010), Michalopoulos, Tarr (1997), Plummer, Cheong, Hamanaka (2010), Zwinkels, Beugelsdijk (2010), Vinokurov (2010)) shows that none of them alone doesn't allow a comprehensive assessment of the regional integration effects. Therefore, in the presence of statistical and other relevant information necessary to use the methods of quantitative analysis in the complex, taking into account their strengths and weaknesses, opportunities and constraints.

Thus, the purpose of the study is to develop the theoretical foundations and the methodology for assessing the impact of international economic integration in the socio-economic development of the Eurasian Economic Union (EAEU) members.

Literature Review

There are a lot of theoretical and empirical works that focused on economic effects of international economic integration for member countries and the rest of the world as before (ex-ante) or after (ex-post) their entry. They examines the effect of integration on trade flows and economic growth, the availability of convergence of economic performance between member countries, determine who is the most desirable partner and what form these agreements are most effective and preferred.

The main methods of quantitative analysis, which can be evaluated positive negative effects of integration affecting the country, region, industry in a given country are: computable General and Partial Equilibrium models (CGE) (allow to conduct scenario-based evaluation of integration effects), gravitational econometric model (allow to calculate the impacts of integration, the potential for lack of membership), the intersectional balance model, different indexes (System of Indicators of Eurasian Integration - the SIEI EBD).

As noted in Michalopoulos and Tarr works (Michalopoulos, Tarr, 1997), the effects associated with growth, it's difficult to describe and even more difficult to measure, this is because, unlike static, dynamic effects are more

complex. They arise for a number of reasons, which usually divided into two categories: 1) growth in output due to the growth of production factors; 2) inducing the growth in total factor productivity due to the acceleration of technological progress. As sources of growth can also be a specialization, economies of scale, the income convergence of member countries, transfer of technology and other factors. All this variety of causes through which integration association is able to affect growth of the member countries, it's hard to grasp using only one model.

At the same time, the effects of integration associations formation is not limited to the impact on trade flows and production structure; they can be associated with the growth of investment opportunities, increased competition, a deepening of specialization and cooperation, transfer of knowledge and technology migration.

The main value of the estimates of the effects of integration obtained by using Computable General equilibrium models, is not specific values, but in terms of impact on specific economic indicators. Moreover, it shows that among the economic indicators there is a clear relationship and any change in economic policy affects the elements of the economic system (Piermartini, Teh, 2005).

However, in recent years to analyze the consequences of participation in regional trade agreements dynamic General equilibrium models are increasingly used. They have a number of advantages, in particular, better assess the long term effects. At the same time, it's necessary to take into account that the dynamic model is rather complicated and not always possible to achieve acceptable quality.

In the analysis of regional economic relations and an assessment of regional integration potential there is the System of Indicators of the Eurasian Integration (SIEI) EBD (Vinokurov, 2010) which acts as the instrument of monitoring and an assessment of integration processes in the Former Soviet Union and represents the complex system consisting of the indexes covering various aspects of economic and social integration.

We intend that, by this study, to expand the scope of investigation regarding the field of economic integration influence. We will analyze the economic integration influence on economic potential of members in the current context. The purpose of the study is development of methodology for assessing the impact of international economic integration in the socio-economic development of the participating countries (for example, the Eurasian Economic Union (EAEU)) which allows a comprehensive assessment of the regional integration effects.

Methodology of the Research

The authors propose a methodology for assessing the impact of multi-level economic integration within the Eurasian Economic Union on the socio-economic development of the participating countries on the basis of integral index, based on the identification, evaluation and prediction of the influence of factors external and internal environment on the changing economic potential of the participants of the integration association.

The basis for the evaluation of economic potential factors became a set of indicators, divided into five groups and included in the proposed model: 1) the indicators of the factors of production; 2) the indicators of the competitive environment; 3) the indicators for assessing transboundary movement of goods and services (evaluation of external and mutual trade, the analysis of the turnover of the services (the indicators of mutual trade, which characterize quantitative and qualitative parameters of trade flows among countries of the integration group; their impact on economic development; status of the industrial sector of the countries of the EAEU)); 4) the indicators of financial and investment potential; 5) the indicators of social well-being (Pridachuk, 2016).

Estimation of their values is based on the use of the index method to assess the relationship of various elements of the economic system. The calculated indices included in the aggregate model estimates the realization of the EAEU countries economic potential.

The proposed model is based on the assumption that only systemic development factors and conditions of economic and social activity capable of creating a high level of economic potential development. The development of one of these components will not ensure the achievement of economic synergies in the process of Eurasian integration.

It's important to determine key performance indicators and their target values (according macroeconomic conditions, and synergy of integration association).

The level of the EAEU members' economic potential integral indicator (EPR) is calculated as follows:

$$EPR = \sqrt{\sum_{i=1}^n d_i (1 - p_i)^2}, \quad (1)$$

where p_i – a normalized value of i-indicator;

d_i – a weighting factor (set by expert on the basis of the influence of this indicator on economic potential integration association member).

Normalized values of indicators influencing the economic potential of the countries participating in the EAEU are calculated by the formulas (2) and (3) for indicators showing respectively the direct effect (the increase in dynamics is considered as a positive trend) and reverse effect (decrease of values in dynamics – positive trend):

$$p_i = 1 - \frac{x}{x_n}, \quad (2)$$

$$p_i = 1 - \frac{x_n}{x}, \quad (3)$$

where x – an actual value of i -indicator;

x_n – a target value of i -indicator;

p_i – a normalized value of i -indicator.

Normalization of variable values helps to avoid the dominance of extreme values of indicators and contributes to increasing the quality of the data.

The following index calculation stages can be distinguished (Figure 1).

Figure 1. Index calculation stages

1 step	Identification of economic potential factors of the EAEU members
2 step	Determination key performance indicators and setting the value of factors indicators
3 step	Normalization the value of factors indicators
4 step	Index calculation process (EPR)
5 step	Development of conclusions and strategic recommendation for EAEU countries

Source: own work

Depending on the value of the integral indicator, the authors list the following levels of the economic potential of the countries participating in the EAEU:

- 1) $[1,00-\infty)$ – high;
- 2) $[0,50-1,00)$ – average;
- 3) $[0,20-0,50)$ – low;
- 4) $[0,00-0,20)$ – critical.

The level of economic potential of the EAEU countries is considered to be high in the case where their activities are characterized by stable growth of indicators of the five selected groups, optimal conditions for cross border movement of goods, services and factors of production, high level of openness of national economies of the Eurasian Economic Union, a sufficient degree of financial sources of economy growth.

The average level of the economic potential of the EAEU countries presupposes stable values of the factors of production, competition and social welfare at high trade potential, but also a sufficient degree of availability of financial resources. There is a possibility of increasing the level to high due to creating competitive environment, increasing financial and investment potential. Special attention should be given to improving the indicators of social well-being. Time spent on improving the economic potential of high can be 1–3 years.

Under the low economic potential of the countries participating in the EAEU is defined as the condition in which the values of the indicators of economic potential's factors don't reach their target values. If the value of the integral index is closer to the lower boundary of the interval [0,20–0,50), the potential increase in the level of economic potential is not clear, the upper bound shows the existence of the possibility of its increase to the average level.

The level of economic potential of the countries participating in the EAEU is regarded as critical in the case when the violated treaty, the EAEU values of macroeconomic indicators determining the sustainability of economic development of EAEU member.

Results of empirical research

The Eurasian Economic Union (EAEU) – an international organization of regional economic integration, which ensures freedom of goods and services movement, capital and labor, and a coordinated and coherent policy in the sectors of the economy. The Eurasian Economic Union's members are Kazakhstan, Belarus, Armenia, Kyrgyzstan, and Russia (Table 1).

Table 1. Characteristics of the EAEU Member Countries (at 01.01.2017)

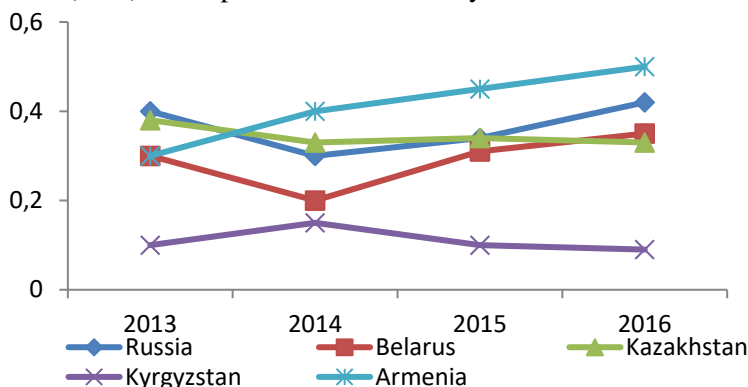
Country	Population, million people	GDP, billion US dollars	GDP - per capita, thousands US dollars	Inflation rate, %	Unemployment rate, %	Current account balance, million US dollars
Russia	142.4	3745	26.1	7.2	8.2	38560
Belarus	9.6	165.4	17.5	14	0.7 (2014)	-2379

Kazakhstan	18.4	460.7	25.7	14.6	5.7	-2785
Kyrgyzstan	5.7	21.01	3.5	2.9	8.1 (2014)	-867
Armenia	3.1	26.56	8.9	-0.4	18.1	-267

Source: CIA World Factbook (2017).

For the EPR evaluation a system of economic potential factors was formed, consisting of 5 groups of factors, 15 indicators were selected to describe these factors. The dynamics of the EAEU members' economic potential integral indicator during the period of 2013-2016 varied by different countries (Figure 2). During the whole period of analysis, the level of the EAEU members' economic potential integral indicator was relatively low.

Figure 2. Dynamics of the EAEU members' economic potential integral indicator (EPR) in the period of 2013-2016 years



Source: own work.

Table 2 clearly shows that the EAEU member countries were not expected to be the top-ranked country in terms of overall global connectedness. In spite of this fact the Global Connectedness Score of the EAEU member countries is constant over the long-term, over the period 2005-2013 it ranged from 2 to 10 percent. This current economic marginality is caused by various reasons, such as natural conditions, history, development after USSR (connected with economic instability). Due to various consequences – internal as well as external – since the 2013th economic situation has been improving, this could lead to the growth of the Global Connectedness Score in the future. However, it is necessary to say that the Global Connectedness Rank (out of 140 countries) for all the EAEU members is still very low.

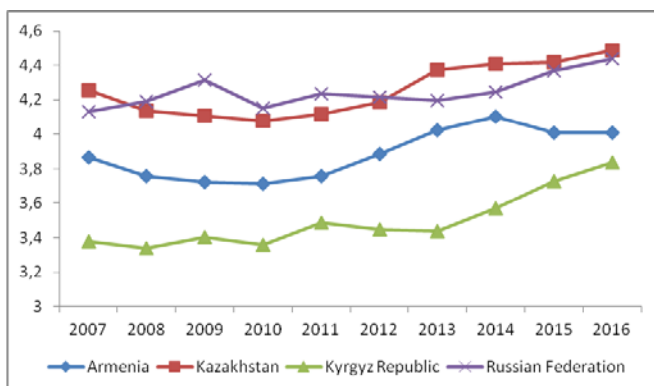
Table 2. Global Connectedness Scores: Characteristics of the EAEU Member Countries (period 2005-2013)

Country	Global Connectedness Score (0-100)								
	2005	2006	2007	2008	2009	2010	2011	2012	2013
Armenia	35	33	35	39	42	43	45	44	44
Belarus	30	30	31	31	32	33	36	36	37
Kazakhstan	48	48	53	52	49	50	52	53	48
Kyrgyz Republic	27	29	29	32	24	22	23	24	26
Russian Federation	43	45	41	42	44	44	44	43	44

Source: Ghemawat & Altman (2014).

Figure 3 shows changes in the positions of The Global Competitiveness Index (GCI) ranking. The situation is similar. According to the Index, the EAEU countries' competitiveness increased very little compared to the preceding year. At the time of writing, the Russian economy continues to face many deeply rooted challenges that will have to be addressed for the country to strengthen its competitiveness (Tolstel, 2016). It is reflected not only on the Russian economy, but also on the EAEU economies, instantly depriving them long-term growth potential.

Figure 3. The Global Competitiveness Index: the EAEU countries' review (period 2007-2016)



Source: own elaboration on the basis of the Competitiveness Dataset, [cit. 2016-08-02].
Available: www3.weforum.org/docs/gsr/2015-2016/GCI_DataSet_2006-2015.xlsx

Conclusions

As shown by the analysis of the impact of different economic integration levels within the Eurasian Economic Union on the socio-economic development of the participating countries, the potential for enhancing the economic effect of integration remains significant. It will increase due to the growth of mutual trade - its share remains significantly lower than in the EU and other regional associations, and through deepening integration, with the creation of the EAEU will cover not only market of goods but also the services market, labour and capital, which requires an appropriate institutional support (Pollack, 2001).

The expansion of the economic space greatly increases the potential of existing opportunities, which dramatically enhances the effect of the mentioned factors, differentiating and increasing their variability, this is especially important under the conditions of global instability. Industrial and trade policies of the EAEU countries must meet the basic requirements and principles of national security of each participating countries and integration associations in general. Currently not yet developed a systematic approach to this problem, there is no comprehensive picture of the industrial, trade policies and policies aimed at ensuring national, including economic, security on a consistent basis.

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