

The Assessment of Reforms in Different Countries by Social-Economic Development Integral Index

Samson Davoyan and Tatevik Sahakyan

Abstract—The purpose of this report is to suggest a new methodology for the assessment of the comparative efficiency of the reforms made in different countries by an integral index. We have highlighted the reforms made in post-crisis period in 21 former socialist countries.

The integral index describes the social-economic development level. The integral index contains of six indexes: The Global Competitiveness Index, Doing Business, The Corruption Perception, The Index of Economic Freedom, The Human Development, and The Democracy Index, which are reported by different international organizations. With the help of our methodology we first summarized the above-mentioned 6 indexes and attained 1 general index, besides, our new method enables us to assess the *comparative efficiency* of the reforms made in different countries by analyzing them.

The purpose is to reveal the opportunities and threats of social-economic reforms in different directions.

Keywords—Assessment, comparative, effectiveness, reforms.

I. INTRODUCTION

THE variety of reforms, implemented in different countries, requires to assess and analyze its results objectively. Regardless of the level of economic system (global, the unions of countries, countries), the assessment of its proportions, proper features has always been and is one of the main problem for the research of different economic schools [1]. From this point of view, it is more important to assess the whole social development level using special criteria. In this report we try to solve this problem representing the system of different indexes describing different fields of human activity. The purpose of this report is to suggest a new methodology for the assessment of the comparative efficiency of the reforms made in different countries by an integral index. We have highlighted the reforms made in post-crisis period in 21 former socialist countries. These countries are Armenia, Azerbaijan, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Mongolia, Poland, Romania, Russia, Slovak Republic, Slovenia, Tajikistan, Ukraine, and Vietnam.

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The integral index contains of six indexes: The Global Competitiveness Index, Doing Business, The Corruption Perception, The Index of Economic Freedom, The Human Development, and The Democracy Index, which are reported by different international organizations. We selected the dynamics of the above mentioned 6 indexes. All six indexes are represented for different time periods. We have chosen the indicators for the last 4 years. Particularly, The Global Competitiveness Index for 2009-2012 and 2012-2013 periods by World Economic Forum, Doing Business for 2010-2013, Corruption Perception for 2008-2011, Economic freedom for 2009-2012, Human Development Index for 2009-2012, Democracy Index for 2006, 2008, 2010 and 2011. As regulator-parameters we considered the changes of the ranks and scores of the above mentioned indexes. The purpose is to reveal the opportunities and threats of social-economic reforms in different directions. As a result we have the integral assessment of social-economic development for chosen countries.

II. STATISTICAL REVIEW

The integral index describes the social-economic development level and through it we assess variety of reforms for 2009-2012. On this purpose we have suggested a new methodology for the assessment of social-economic development integral index based on six different indexes.

A. The Global Competitiveness Index (GCI)

The Global Competitiveness Index (GCI) released by the World Economic Forum, which is a comprehensive tool, that measures the competitiveness of 144 countries, contains of 3 sub-indexes: basic requirements, efficiency enhancers, innovation and sophistication factors, that are based on 12 pillars (institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, etc.) including 111 indicators [2]. Fig. 1 represents the trends of change of The Global Competitiveness Index for 2009-2013 [3].

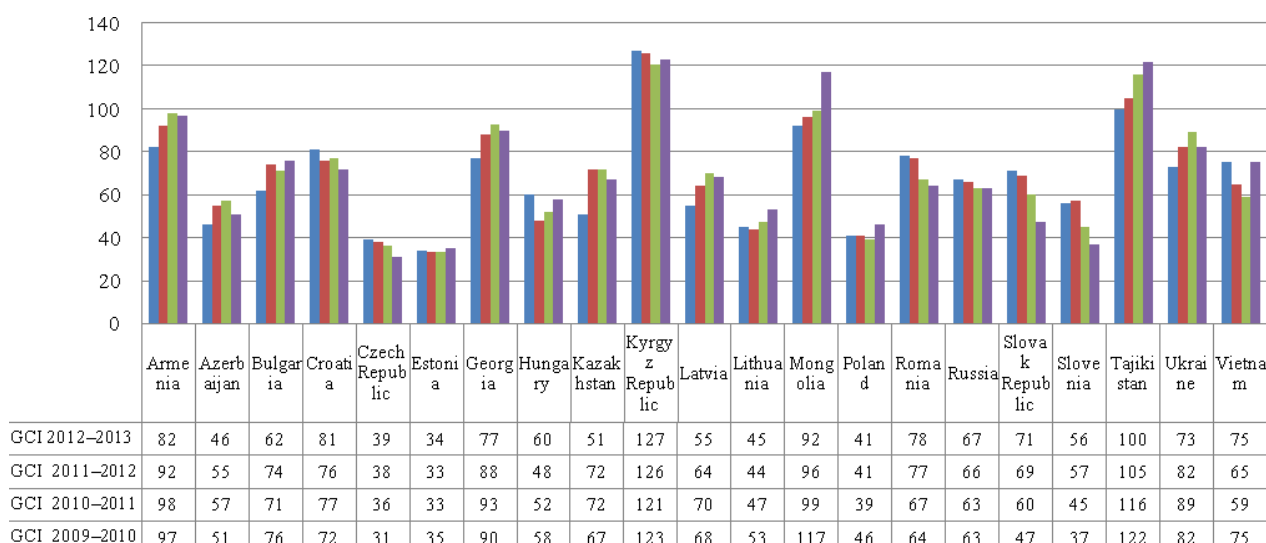


Fig. 1 The trends of change of The Global Competitiveness Index for 2009-2013

B. Doing Business

Doing Business released by the World Bank and International Financial Corporation assesses business activity for 185 countries on the basis of 10 areas of regulation (starting a business, dealing with construction permits, getting

credits, paying taxes, etc.) with 36 sub-indexes considering the survey results of organizations in different sectors of economies [4]. Fig. 2 represents the trends of change of Doing Business for 2010-2013 [5].

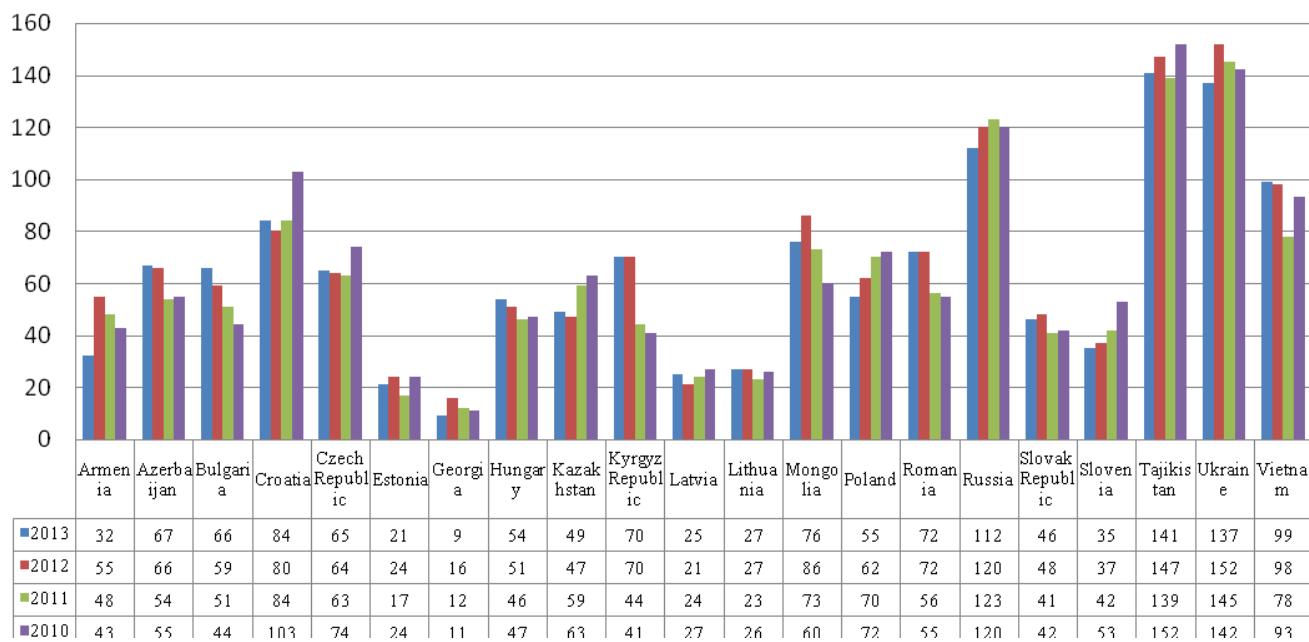


Fig. 2 The trends of change of Doing Business for 2010-2013

C. The Corruption Perception Index

The Corruption Perception Index published by Transparency International anti-corruption organization measures the perceived levels of public-sector corruption for 183 countries based on different assessments and business opinion surveys [6]. The countries, included in the rank of The

Corruption Perception Index, are classified on a scale of 0 to 10. The countries, that get 0 are the highly corrupt in judicial system, media, legislative, police, business, public, educational, military areas [7]. Fig. 3 represents the trends of change of The Corruption Perception Index for 2008-2011 [8].

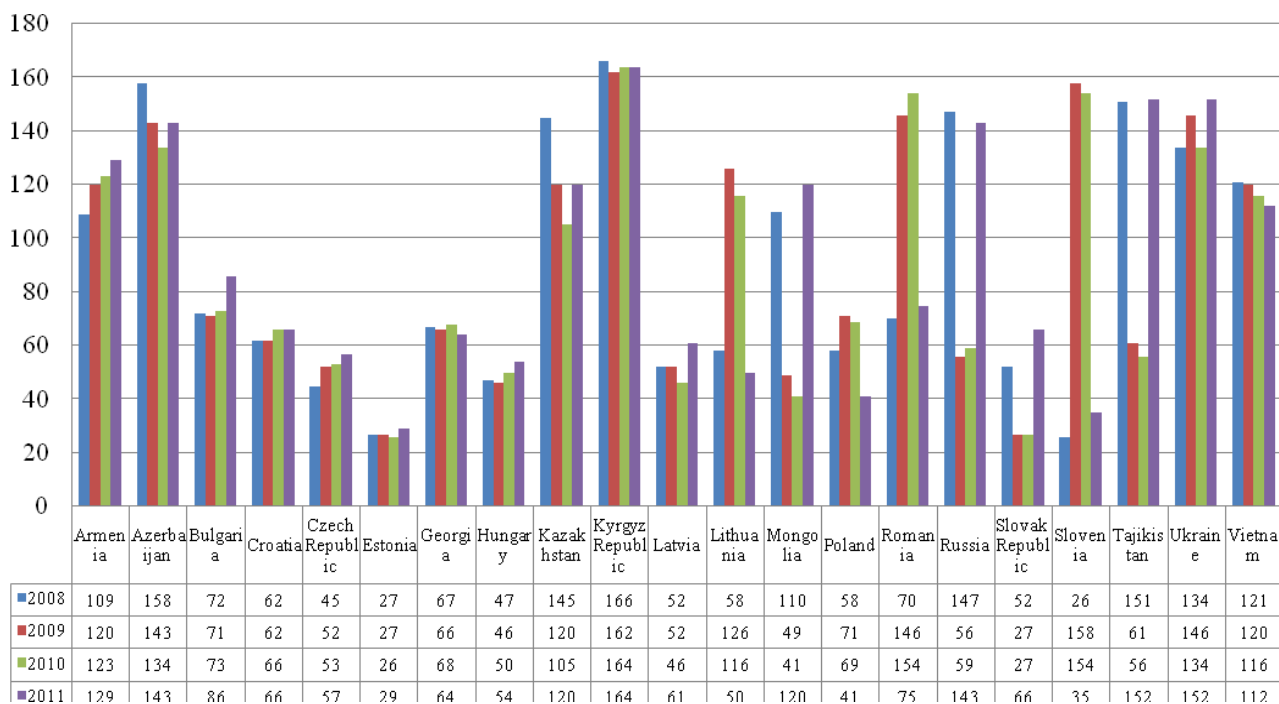


Fig. 3 The trends of change of The Corruption Perception Index for 2008-2011

D. The Index of Economic Freedom

The Index of Economic Freedom assesses the economic freedom of countries through 10 indicators (Business Freedom, Trade Freedom, Fiscal Freedom, Government spending, Monetary Freedom, Investment Freedom, Financial Freedom, Property Rights, Freedom from Corruption, Labor Freedom) [9]. All ten indicators of the Index are scaled

equally. Each of them gets 0 to 100 economic freedom grading scale; countries that get 100 are the freest economies of the world. The Index has been published by The Heritage Foundation and The Wall Street Journal since 1994 for 179 countries [10]. Fig. 4 represents the trends of change of Economic Freedom Index for 2009-2012 [11].

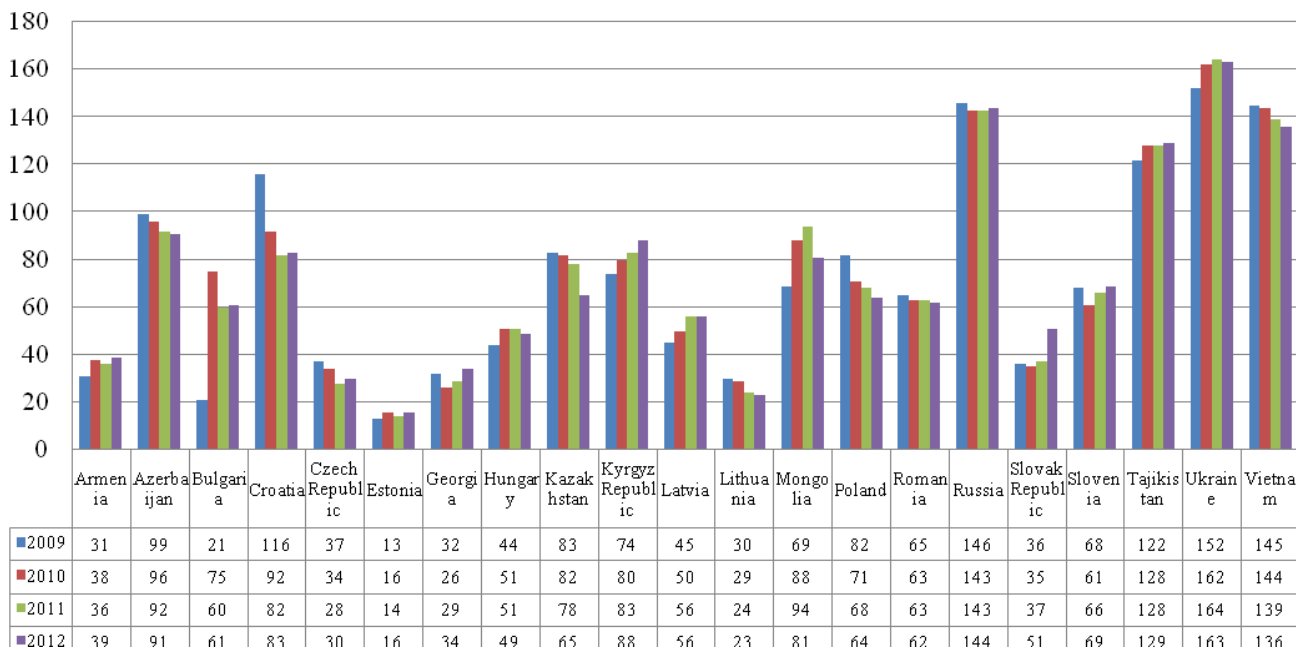


Fig. 4 The trends of change of Economic Freedom Index for 2009-2012

E. The Human Development Index

The Human Development Index is a summary indicator that measures a standard of living, the literacy rate, the life

expectancy in order to compare and assess the human potential of different countries [12]. Fig. 5 represents the trends of change of The Human Development Index for 2008-2011 [13].

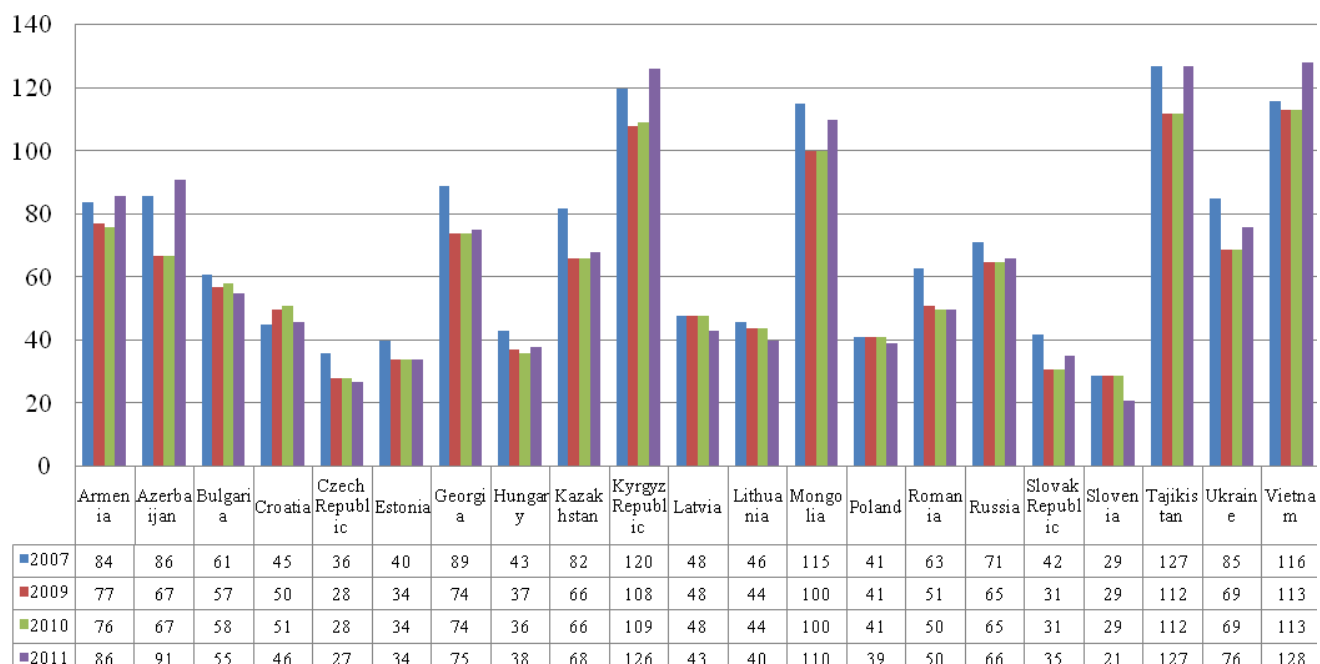


Fig. 5 The trends of change of The Human Development Index for 2008-2011

F. The Democracy Index

The Democracy Index, compiled by the Economist Intelligence Unit, is the classification of 167 countries by the level of the democracy. The Index includes 60 indicators grouped in five categories: electoral process and pluralism, civil liberties, functioning of government, political participation, and political culture [14]. Fig. 6 represents the trends of change of The Democracy Index for 2006-2011 [15].

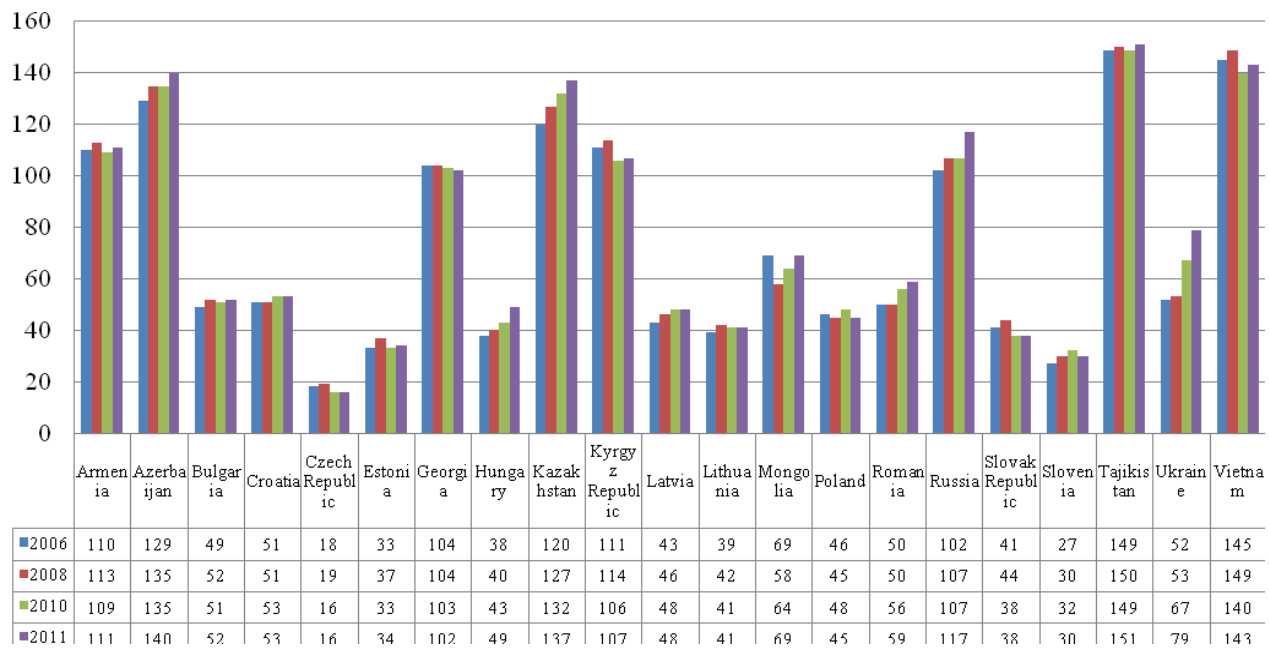


Fig. 6 The trends of change of The Democracy Index for 2006-2011

For all represented above indexes we can say, that they are considered to be particular assessment of social-economic development. Besides they often include such indicators, that are not assessed by statistic services and therefore they can only be estimated by experimental method, which is obviously limit wide usage opportunity of these indexes. One of the most important problems is to assess the weight of each component.

III. NEW METHODOLOGICAL APPROACH

Using these indexes, the mentioned above, we represent an integral index, that assess social-economic development level for 2007-2011 based on statistic data for six indexes (The Global Competitiveness Index, Doing Business, The Corruption Perception, The Index of Economic Freedom, The Human Development, The Democracy Index). As a result we have the integral assessment of social-economic development for chosen countries.

To attain the social-economic index suggested by us we calculated the ratio of observed six indexes. Those ratios were acquired experimentally by 48 Armenian experts who are state and non-governmental management workers, as well as economists. In the result of the assessment of the six indices normalized coefficients were provided and the total sum of their ratios is 1.

Those coefficients are:

α_i^j - the scale of each index,

i and j are indexes

$i=1, 2, \dots, 6$ - the six indexes,

$j=1, 2, \dots, 21$ - countries, the developing countries we evaluated.

$\alpha_1^j=0,21$ - the scale of The Global Competitiveness Index in the social-economic development integral index for all $j=1,2,\dots,21$ countries,

$\alpha_2^j=0,13$ - the scale of Doing Business Index in the social-economic development integral index for all $j=1,2,\dots,21$ countries,

$\alpha_3^j=0,16$ - the scale of The Corruption Perception Index in the social-economic development integral index for all $j=1,2,\dots,21$ countries,

$\alpha_4^j=0,15$ - the scale of The Economic Freedom Index in the social-economic development integral index for all $j=1,2,\dots,21$ countries,

$\alpha_5^j=0,17$ - the scale of The Human Development Index in the social-economic development integral index for all $j=1,2,\dots,21$ countries,

$\alpha_6^j=0,18$ - the scale of The Democracy Index in the social-economic development integral index for all $j=1,2,\dots,21$ countries,

$$\alpha_1^j + \alpha_2^j + \alpha_3^j + \alpha_4^j + \alpha_5^j + \alpha_6^j = \sum_{i=1}^6 \alpha_i^j = 1,$$

\sum the sign of summary.

With the help of our methodology we first summarized the above-mentioned 6 indexes and attained 1 general index.

$$H_{int.index}^j = \sum_{i=1}^6 \alpha_i^j N_i^j,$$

$H_{int.index}^j$ - the social-economic development integral index,

i and j are indexes

$i = 1, 2, \dots, 6$ - the six indexes,

$i = 1$ The Global Competitiveness Index, $i = 2$ Doing Business,

$i = 3$ The Corruption Perception Index, $i = 4$ The Economic Freedom Index,

$i = 5$ The Human Development Index, $i = 6$ The Democracy Index:

$j = 1, 2, \dots, 21$ the developing countries we evaluated

$j = 1$ - Armenia, $j = 2$ - Azerbaijan, $j = 3$ - Bulgaria,

... $j = 21$ - Vietnam

α_i^j - the scale of each index,

N_i^j - the rank of the j country by i index

For example, Armenia is ranked 3 among 21 countries for 2011-2013 by the Global competitiveness index (considering

the change of rank and score), therefore $N_1^1 = 3$

The first stage of creating the index was the rearrangement of the indexes included in analyze. The principle of rearrangement was to group the countries by the change of

rank of that index to the previous year in descending order. Calculating the index of the selected countries for each year we group the countries in accordance with their descending place. Then we adjusted the change with scale coefficients substantiated methodologically. As all the indexes are measured for more than 100 countries, particularly The Global Competitiveness Index for 144 countries, Doing Business for 185 countries and scores of the countries who ranked 1-40 are considerably higher compared to other countries which are placed after 40, so if the country is up to 40th place, its ratio is 0.4, and the ratio for replacement of the country is 0.6. For the country over the 41st place the ratios for both parameters are 0.5: for example, if Armenia made a progress in 2011 versus 2010 increasing 5 places among 21 countries, the rank of Armenia for example by The Global Competitiveness Index will be $0.4 \times$ The Global Competitiveness Index score of Armenia $+ 0.6 \times 5$.

Fig. 7 represents the social-economic development integral index in reports for 2007-2011 compare with the base year (2007). Fig. 8 represents the social-economic development integral index by the new methodology for 2007-2011 compare with the base year (2007). Fig. 9 represents the social-economic development index in reports and by the new methodology for 2007-2011.

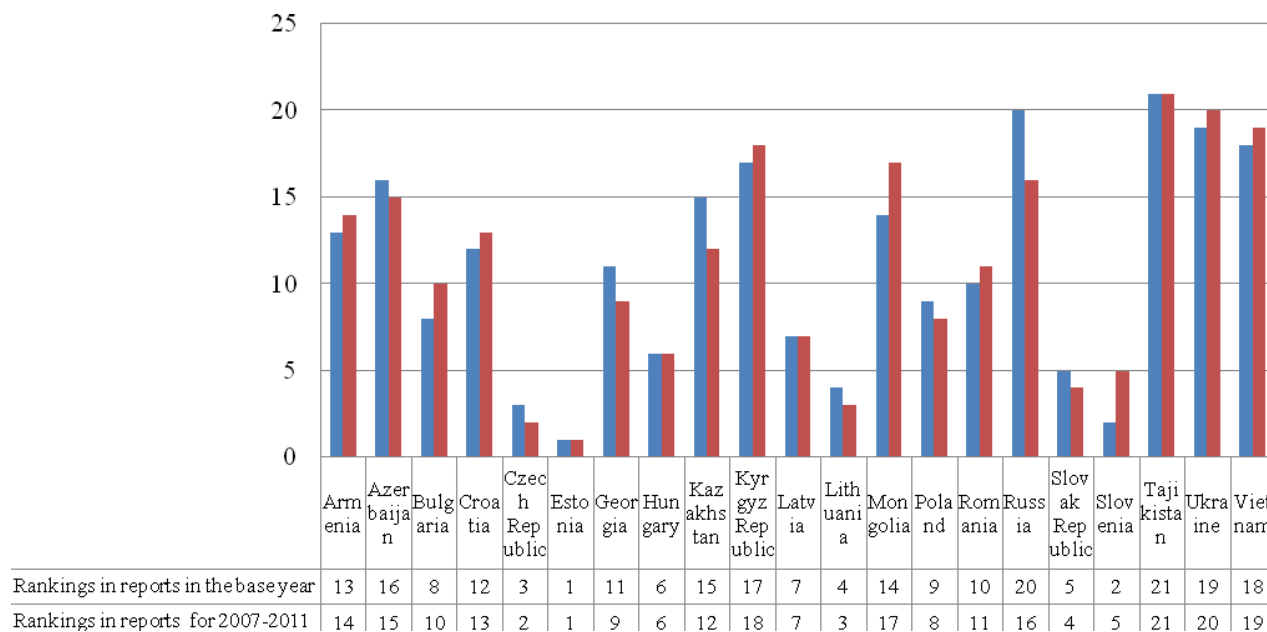


Fig. 7 The social-economic development integral index in reports for 2007-2011 compare with the base year (2007)

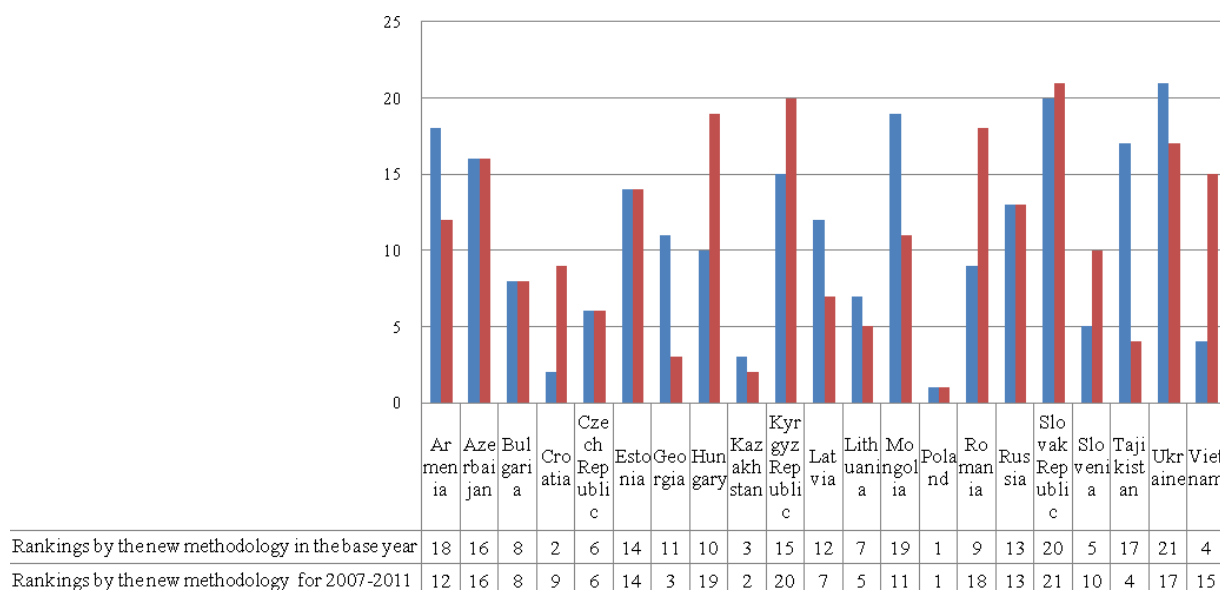


Fig. 8 The social-economic development integral index by the new methodology for 2007-2011 compare with the base year 2007

At the second stage countries were rearranged by the methodology mentioned above. This approach was repeated for each year combining with the previous year. As a result of the first and second stages we had a new range of countries for each index for 2007-2011.

At the third stage we gave scale coefficients to all six indexes considering the importance and the variety of included indicators, eliminating the usage of the same indicator and finally we had social-economic development integral index of each country for 2007-2011.

Putting the indicators of α_i^j and N_i^j in the equation we will have H_i^j .

$$H_{int.index}^j = \sum_{i=1}^6 \alpha_i^j N_i^j,$$

For $j=1,2,\dots,21$ countries we assess the average of the summary for 4 years.

$$(1-st\ year\ H_i^j + 2-nd\ year\ H_i^j + 3-rd\ year\ H_i^j + 4-th\ year\ H_i^j) / 4$$

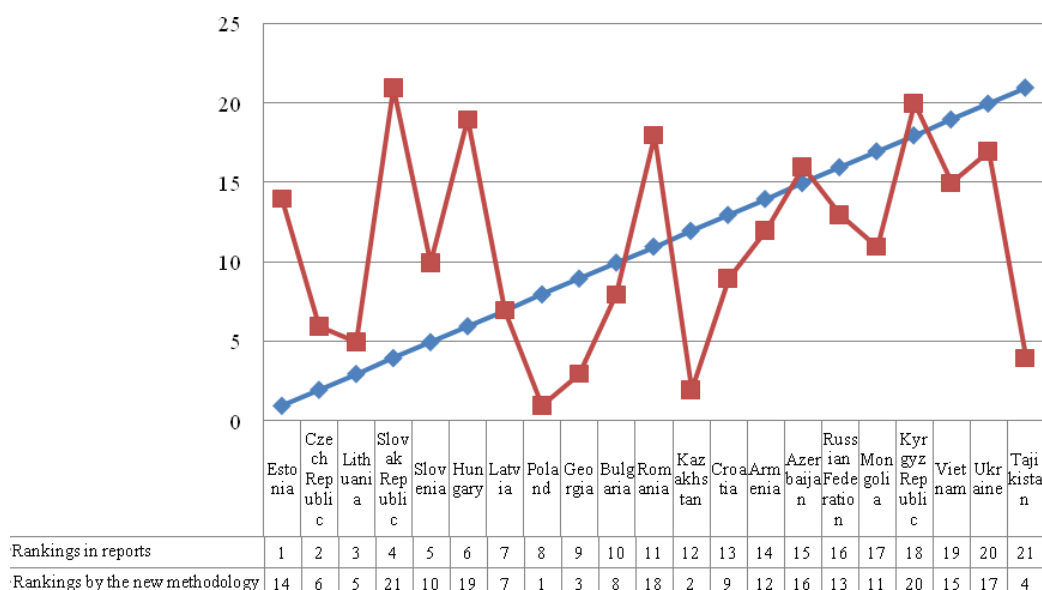


Fig. 9 The social-economic development index in reports and by the new methodology for 2007-2011

According to the suggested methodology, we measure social-economic development integral index for 21 countries considering the change of rank and score adjusted with scale coefficients for 2007-2011. The results witness, that the reforms for 2007-2011 has more effectively implemented in Poland, Kazakhstan and Georgia, but less effectively in Slovak Republic, Slovenia, Hungary.

Finally, with the help of our methodology we first summarized the above-mentioned 6 indexes and attained 1 general index, besides, our new method enables us to assess the comparative efficiency of the reforms made in different countries by analyzing them.

REFERENCES

- [1] M. Csanadi, "Reforms and transformation paths in comparative perspective: Challenging comparative views on east European and Chinese reforms", p. 25, 2005.
- [2] Kaufmann, Daniel and Kraay, Aart and Mastruzzi, Massimo, "Governance matters VII: aggregate and individual governance indicators 1996-2007," Policy Research Working Paper Series 4654, The World Bank, p. 30, 2008.
- [3] The Global Competitiveness Report, The World Economic Forum, weforum.org.
- [4] Kaufmann, Daniel and Kraay, Aart, "On Measuring Governance: Framing Issues for Debate," MPRA Paper 8187, University Library of Munich, Germany, p 58, 2007.
- [5] Doing Business Report, The World Bank, doingbusiness.org.
- [6] Corruption Perceptions Index 2012: Full Source Description/Transparency International, p. 45, 2012.
- [7] Kaufmann, Daniel, "Corruption, Governance and Security: Challenges for the Rich Countries and the World, " MPRA Paper 8207, University Library of Munich, Germany, p. 77, 2004.
- [8] www.transparency.org
- [9] Ambassador Terry Miller, Kim R. Holmes, Edwin J. Feulner, "2012 Index of Economic Freedom", The Heritage Foundation and The Wall Street Journal, New York, p. 62, 2012.
- [10] Kaufmann, Daniel and Kraay, Aart and Mastruzzi, Massimo, "The worldwide governance indicators: methodology and analytical issues," Policy Research Working Paper Series 5430, The World Bank, p. 55, 2010.
- [11] www.heritage.org
- [12] Gil Mehrez and Daniel Kaufmann, "Transparency, Liberalization and Financial Crises," Finance 0308008, EconWPA, p 27, 2003.
- [13] United Nations Organization, UNDP.org
- [14] R. Kent Weaver and Bert A. Rockman (eds.), "Do Institutions Matter? Government Capabilities in the United States and Abroad", Washington D.C.: The Brookings Institution, p. 17, 1993.
- [15] Economist Intelligence Unit, www.eiu.com.

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