
ECONOMICS

Sociology

Asta Mikalauskiene,

*Vilnius University,
Vilnius, Lithuania,*

E-mail:

asta.mikalauskiene@kbf.vu.lt

Dalia Štreimikiene,

*Vilnius University,
Vilnius, Lithuania,*

E-mail:

dalia.streimikiene@kbf.vu.lt

Kristina Mulagalejeva,

*Vilnius University,
Vilnius, Lithuania,*

E-mail:

Kristina.Mulagalejeva@gmail.com

Received: May, 2016

1st Revision: October, 2016

Accepted: November, 2016

DOI: 10.14254/2071-
789X.2016/9-4/5

JEL Classification: L2, M12,
M14

Keywords: globalisation; the effect of globalisation; the assessment of globalisation; indexes.

ASSESS THE IMPACT OF GLOBALISATION PROCESSES BY INDICES

ABSTRACT. The article analyses the possibilities to assess the impact of globalization processes by the application of the index to evaluate the interpretations of the concepts of globalisation, the development of scientific approaches as well as to distinguish globalisation factors and examine the measurement methods of globalisation. Specific index variables that have influence on the globalisation processes of countries are compared and the most important key factors and globalisation indicators applicable for countries are grouped.

Introduction

Relevance of the research. Globalization continues to be important subject odd debates among political activists, academics, business leaders, and policymakers. The studies conducted in this field revealed that current rapid economic and political changes taking place around the world implicate injustice. There are no evident income convergence between developed and developing countries (Batog, and Batog, 2015). Some scientists the same changes happening around the world see as progress driven by know-how, knowledge and information transfer (Zvirblis, Buracas, 2012). On both sides of the debate, however there are weak and strong points. One can notice the powerful global forces transforming the world societies and having impact on the most developed and developing nations (Mackevicius *et al.*, 2012; Kiausiene, Streimikiene, 2013). The main economic premises of globalization are generally accepted in regions throughout the world. People tend to believe their countries will benefit from trade, free enterprise, and investment by foreign companies. These views are especially common in many of the world's poorest countries; nevertheless the enthusiasm for

economic globalization has waned considerably over the last few years in many wealthy nations.

In order to understand the impacts of globalization processes various assessment techniques are applied. Therefore there are wide diversity of indices and other tools used all over the world for assessment of the impact of globalisation processes for world countries. The various indices were widely applied which allow to evaluate the interpretations of the concepts of globalisation, the development of scientific approaches as well as to distinguish globalisation factors and examine the measurement methods of globalisation.

The aim of the paper to analyse globalisation theories and to conducted comparative assessment of globalization processes for the several world countries by applying various globalization indices developed all over the world.

The main tasks to achieve this aim are:

- To present theoretical analysis of globalization processes;
- To analyse and systematize globalization measurement methods;
- To define specific index variables that have influence on the globalisation processes of countries;
- To compare countries in terms of assessment of globalization processes by applying various indices.

To define the most important key factors and globalisation indicators for assessment of globalization processes.

1. Theoretical analysis of globalisation processes

The term *globalisation* was first mentioned in Merriam-Webster English dictionary in 1951 (Green, 2013) and during the time was used to express experience in the field of education. As of 1960, the concept was used in the works of economists and sociologists. However, according to linguistic experts, the term became popular in the scientific literature only in 1983. This is basically associated with Livet, the article of whom was published in Harvard Business Review back then. The article describes the term globalisation as the fusion of different products produced by large multinational corporations.

Therefore, the theories of globalisation can be separated into three periods of development starting from 1950, the day when the term globalisation was mentioned for the first time and ending with current days (*Table 1*).

Table 1. Approaches towards globalisation from 1950 to nowadays

1. Period 1950-1990		
Authors:	Definition	Globalisation theories (years)
Wallerstein (2011; 2000), Meyer (2006), Luman (1997), Robertson (1995), Waters (1995)	Globalisation is perceived as a historical process. Globalisation is experienced in several different areas of life. The concepts do not embrace the entire phenomenon; the authors define globalisation as the result of the development of social relations.	Wallerstein's World System Theory (1974). Meyer's theory (2006) that specifies the significance of world system when analysing a country. Wallerstein's theory of Globalistic Approach on Nowadays Society (1984). Luman represents a review of the contemporary processes through the global prism (1970-1980). Globalisation theory by Robertson (1990).

RECENT ISSUES IN ECONOMIC DEVELOPMENT

2. Period 1990-1990		
Authors:	Definition	Globalisation theories (years)
Therborn (2011), Zinovjev (2003), Mironenko (2012).	Definitions mostly refer to the economic side. Globalisation is included in various spheres of public life.	Theborn's Globalisation Waves (2000) and Zinovjev's theory on globalisation as a grand process overwhelm all the aspects of life (2000). Mironenko offers a globalistic model of the world economic development (1990).
3. Period from 2000 to nowadays		
Authors:	Definition	Globalisation theories (years)
Robertson (2003), Castells (2001), Grinin (2005).	Globalisation is seen as a complex and unification of all the life spheres. The prognosis of possible globalisation effects is provided. The process of the world's economic and cultural integration.	Robertson's theory (2003), in which cultural aspects of globalisation are highlighted, describes the globality of social processes created by mass information. Castell's holistic definition of economic globalisation (2001). Čiegis (2005) – the importance of sustainable development in the processes of globalisation.

Source: concluded by authors under the sources indicated.

A great number of authors admit the uncertainty of this concept. As the concept combines a great number of various areas, a various-side overview of globalisation can be performed. According to historians, this process is a stage of the development of capitalism; culturologists link globalisation to cultural westernisation by including the economic expansion of Americans; and, referring to economists, globalisation is a process that is in particularly related to financial markets. Despite the fact that it is difficult to define what globalisation is, the majority of authors agree on two provisions: globalisation is currently in progress and it is in a phase of development. The second table below provides the definitions of globalisation suggested by international, European organisations, Lithuanian and Oxford dictionaries.

Table 2. Definitions of globalisation

Source	Definition
Oxford English dictionary	- it is a process of globalisation that originates from the word "global". The term means being dependent or covering the entire word "global" or "universal" (Simpson, Weiner, 1989).
Lithuanian dictionary of international words (2013)	- penetration of the market that covers the entire world into the countries' life caused by rising international financial markets, increasing global trade, development of multinational businesses and telecommunications innovations.
International Monetary Fund	- intensified links of country economies, increased movement of goods, services and capital among countries, more rapid technological expansion (International Monetary Fund, 1997).
International Forum on globalisation	- domination of international corporations and bank institutions in the global economic system and its non-accountability to governments or democratic processes (Milardovic, Paukovic, Vidovic, 2008).
World Trade Organization (2006)	- a historic stage characterized by the capitalist market expansion such as the Industrial Revolution that took part in the 19th century. It is a fundamental transformation of societies arising from the new technological revolution that leads to the combination of economic and social forces in a new territorial dimension (Pascale, 2006).
World Bank (2013)	- increasing integration of different economies and societies around the globe.

UN Social Policy and Development Division: Poverty (1999)	- related to an increasing mutual economic dependence of countries around the world. This refers to labor force increased due to foreign investments, growing number of goods and services transactions among countries, global cash flows, increasing global migration and rapidly growing technological development.
World Health Organization (2004)	- it is an increased and united coordination of people and countries as well as interdependence that usually involves two interrelated elements: opening of borders to rapid movement of goods, services, finances, people and ideas around the world; and global and national levels of institutional as well as political structures that help to encourage such a mobility.

Source: concluded by authors under the sources indicated.

Therefore, Oxford English Dictionary emphasises the process that influences the entire world. Similarly to the Oxford Dictionary, World Globalisation Fund highlights a world-wide scale; however, it is stated that the process is primarily economic, and that the process is exceeding the boundaries of national territory. The Lithuanian dictionary of International Words and International Monetary Fund distinguish the technological aspect. The World Trade Organization and the World Bank accentuate economic aspects; however, the attention is also paid to human aspects. United Nations broaden the definition and include in it more than only the economic field. The explanation of the World Health Organisation is adapted to health sphere; however, it can be noted that it is the most comprehensive of all definitions as it provides the relevance of economic, social, technological and political processes of globalisation.

After the analysis of the theories of globalisation, it can be concluded that globalisation is a world-involving process which covers all our activities. It is an increase of influence of external economic, social and cultural factors engaging all the member countries of the process, formation of single international markets without any national barriers and the development of uniform legal conditions applicable for all countries. The definition mentioned before can be considered as one of the shortest. It includes not only economic but also other spheres of the impact of globalisation.

2. Theoretical aspects of the globalisation measurement methods

Similarly to many other processes globalisation can be assessed by both qualitative and quantitative indicators. Regardless of the fact that quantitative indicators are widely used in various spheres of globalisation development, attempts to express its development in a single integrated indicator is a rather new and unexplored phenomenon. After summarising the scientific literature on the topic of globalisation assessment, the indexes of globalisation can be divided into several groups:

- Single indicator;
- Single-dimension indexes;
- Multi-dimensional indexes.

Single indicator indexes represent one aspect and can be calculated by using one or two variables (for example, single variable index – export or index of two variables – intensity of export, i. e. export-to-GDP ratio). In globalisation, economic basis tends to dominate. It proves the process of globalisation based on the indicators of economic integration. Pursuant to Juščius (2008), the following indicators are used the most widely:

- International trade-to-GDP ratio;
- Direct and foreign portfolio investments as well as its structure;
- Indicators of international capital markets;

- Part of foreign assets and liabilities in Commercial banks' assets as well as liabilities;
- Indicators of the activity of multinational corporations.

The previously-mentioned indicators do not thoroughly reveal the level of globalisation processes and need a more detailed analysis. Its limitations and possible inaccuracies are clearly visible.

Indexes of a single dimension are usually aggregated by using several indicators and by applying to it certain value index according to the attitude of the index maker towards the significance of the indicator. It also reflects the scope of the globalisation dimension selected (for example, economic and politic size of globalisation).

Table 3. Globalisation indicators

Authors	Indicators
Filipenko (2010)	Economic sector income of the investor and the host country; Research internationalization level of the specific country's transnational companies; The rate of the research internationalisation and technological development in the specific country; The level of development of the trade internationalisation of high-tech goods in the country.
Dolgov (1998)	The scope and dynamics of direct foreign investments compared to the scope and dynamics of all the investments; The scope and growth of the international production of goods and services in comparison to the scope and growth of the scope of the entire world's GDP; The scope of international investment projects and its dynamics compared to the general scale of similar projects; The scope of the entire trade of international goods and services as well as its growth rate compared to GDP; Data on international operations related to patents, licenses and know-how; The scope of international banks and other credit institutions as well as its dynamics compared to the general scope and dynamics of all the operations; The scope and dynamics of stock market compared to the general size of these markets and its growth rates.
Kuznecov (1998)	GDP export and import part of countries GDP; Part of the employed that are directly or indirectly related to external trade; The number of international organisations – investors; Size of loans in the international market.
Kuvaldin (2000)	The increase of international division of labour and specialisation; The economy of production volume that may influence the decrease of costs, prices and therefore the growth of economy; The increase of labour productivity by applying industrial rationalisation on the international scale; The development of new technologies and its expansion among countries; The increase of international competition (Kuvaldin, 2000).
Mubarakov (2013)	The growth of social-economic differentiation in society; The increase of technological backwardness in comparison to well-developed countries; The growth of unemployment arising from application of new technologies.

Source: concluded by authors under the sources indicated.

The main indicators derive from several globalisation trends such as international trade in production, goods and services, financial operations, the scope of currency markets and dynamics compared to the general scale of cash markets (*Table 3*).

Multi-dimensional composite indexes are composed of several main globalisation dimensions selected by the index compiler. The dimensions are aggregated. Each of it is assigned with a specific index proportion based on the attitude of the index compiler towards the significance of the dimension. Multi-dimensional globalisation index is a synthetic parameter of globalisation, the aim of which is to reflect globalisation to the fullest.

Multi-dimensional composite index of globalisation is a subjective index and mostly depends on the paradigm approach towards globalisation, its dimensions, factors as well as the aim according to which it was made. When making a composite index it is necessary to solve the following problems:

- Selection of dimensions and variables;
- Distribution of dimension and grossing-up factors;
- Mathematical calculation;
- Selection of the time limit;
- Normalisation of variables.

In order to assess a multi-dimensional process such as globalisation, the size of which cannot be objective and accurately measured, it is required for the globalisation index to be: valid as it must accurately and specifically reflect the phenomenon of the concept for which the index is designed to measure; have a correct coverage as different elements and indicators of an index must have values corresponding its relevance.

Lately there have been several attempts to create a generally applicable globalisation index that would include both qualitative and quantitative changes taking place in countries within the context of globalisation. There are two best-known and most often cited globalisation indexes: Kearney's globalisation index (KFP) published in American journal *Foreign Policy* and Dreher's globalisation index (KOF).

According to Samimi, Lim and Buang (2011), indexes can be divided into synthetic (multi-dimensional composite) indexes and single-dimension / indicator indexes (*Figure 1*).

Within the level of organisations the Foreign Sales Index is calculated. It evaluates the comparative share of sales abroad. Besides, the Network Spread Index evaluates the scope of subsidiaries and foreign direct investment. Index of Transnationality is calculated as an average of three values (share of sales abroad, share of foreign capital and share of foreign employees) is used to measure the overall level of internationalization where the Transnational Activities Spread Index determines the number of countries with which a specific organisation has contacts. When this calculation method is applied, the internationalisation level of organisations that work in several countries is higher; however, both indexes ignore the distances between the countries even though the practice shows that at first international contacts are established with the neighbouring countries and only later on it is forged towards more distant and less known markets.

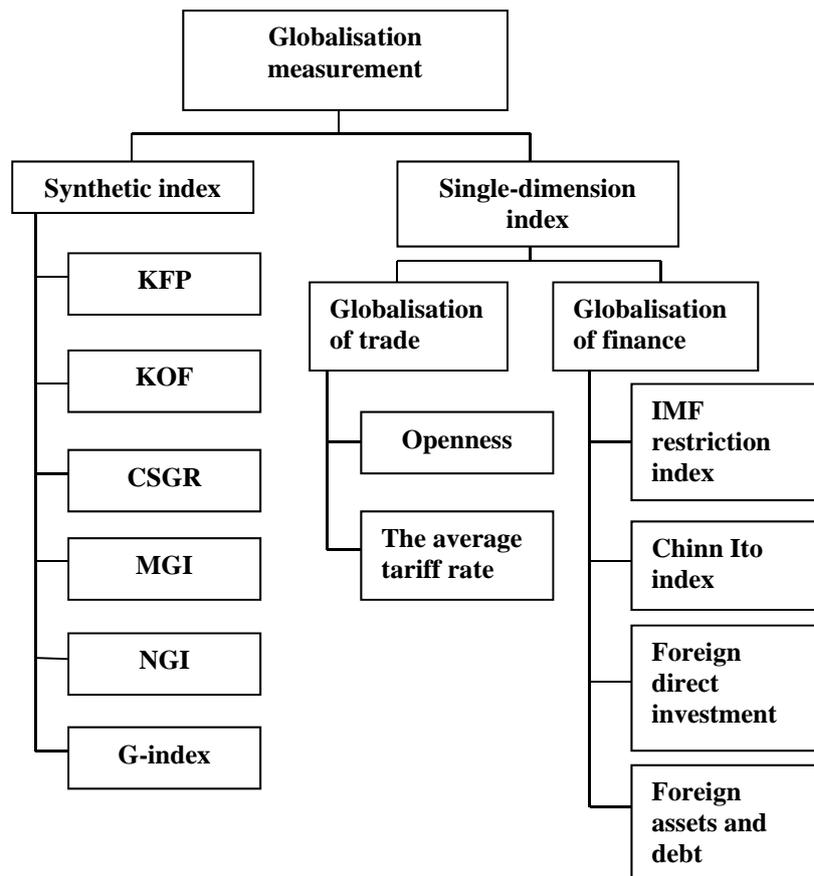


Figure 1. Classification of globalisation measurement

Source: concluded by authors pursuant to Samimi, P., Lim, G. C., Buang, A. A. (2011).

The level of country's globalisation is bound by the internationalisation scale of organisations only in part as it depends on the activity of the government of country in the international politics, economics, social and environmental space. It is to be noted that some factors that influence the globalisation of a country are controlled limitedly by the country itself: the participation in international organisations, entrance into conventions and agreements lead to liabilities, which are difficult to change by the initiative of a single country; constantly increasing concern on environmental protection obliges the countries to participate in various programmes and change trade partners; the fear of international terrorism force the countries to consolidate efforts for ensuring security.

When assessing the globalisation scope of a country, different indicators that reflect the process in the best way are calculated. Later, they are often aggregated into globalisation indexes. Scientists use various sets of indicators and methodology for index calculation. In this way, it determines the ratings of country globalisation. For the assessment of country's globalisation Industrial Science and Technology Working Group uses nine relative indicators (GDP for one citizen, the part of persons employed in the field of research and development, telephone density, internet density and etc.), the maximum estimate of which can be equal to one. The countries are compared in accordance to individual indicators and the index of globalisation that is obtained by summing up the estimates.

Kearney's index of globalisation is calculated by assessing the economic integration of a country, technological contacts, personal contacts and political commitments. According to Dabour (2000), Dreher (2006), Dreher, Gaston, Martens (2008), Rao, Tamazian and Vadlamannati (2011), KOF globalisation index includes three dimensions: economic globalisation, politic globalisation and social globalisation. This index is calculated by using 25 indicators (the number of indicators can vary) and used as of 1970. Held *et al.* (1999)

prepared a set of indicators, which allow assessing international (regional) links of a country. The set of indicators consists of five groups of indicators: political-legal, military, economic, socio-cultural and environmental indicators. This assessment methodology stands out for the fact that it involves more aspects of global integration. What is the most important, the influence of globalisation on environment and the status of militarisation is determined.

Despite the fact that Kearney's and KOF globalisation indexes are calculated by assessing the same economic, political and social aspects, the selection of different number of indicators and different calculation methodologies lead to different results. Economic aspects of countries globalisation that have been traditionally assessed by applying the indicators of labour and capital movement form only one part of the globalisation process. Political integration gains greater significance as it highly influences economic policy and social integration.

According to Bandurin, when calculating the indicators it is significantly relevant to have in mind the fact that globalisation processes most often take part in developed countries, whereas developing countries are not an intensive participants of it. Therefore, globally accepted indicators for the assessment of globalisation can decrease the level of globalisation in some countries and show excessively high level in the other ones. CSGR index can be provided as an example. It includes economic, social and political dimension for 62 countries starting from 1982 and ending in 2004. Pursuant to Caselli, (2012), Caselli, Gemelli (2008), Joyce (2006), Lockwood and Redoano (2005), this index can be applicable as an addition to the index of Kearney as it takes into consideration geographical peculiarities of a country.

The Maastricht globalisation index (MGI) of Dreher, Gaston and Martens (2008) includes seven variables: global politics, organised violence, international trade and finance, social and cultural, technological and environmental variables. It is the only index that has an aspect of environmental globalisation.

Vujakovic (2010) has developed an NGI index, which has five new variables: trademark applications of non-indigenous population, portfolio investment funds, patent applications of non-indigenous population and agreements on environmental protection. G index has been developed to measure the mutual dependency level between national and international economics. This index mostly assesses by economic dimension. Its weakness is considered as non-disclosure of the entire calculation information. The previously-mentioned synthetic indexes can be divided in accordance to its component dimensions (*Table 4*).

Table 4. Classification of the synthetic globalisation indexes

KFP	KOF	CSGR	NGI	MGI	G index
Economic integration		Economic		International politics	Economics
Technological links		Social		Organised violence	
Individual contacts				International trade	
				International finances	Technologies
Political involvement		Political		Social and cultural	
				Technologies and environmental protection	

Source: Samimi, Lim, Aziz (2012).

According to Martens (2008), the measurement of globalisation is a rather complex task as there is no universally accepted definition of globalisation and globalisation has many aspects, which are difficult to cover in one index. Pursuant to Caselli (2012), synthetic indicators do not show more information than the indicators of a single dimension; so, when performing calculations, a part of information is lost.

Indicators of a single dimension are more easy to calculate and compare as they have a greater psychological effect. Therefore, it is possible to affect the decision-making in a greater way than when using synthetic indicators. Casselli also notes that synthetic indicators are important instruments of globalisation measurement. However, they can only supplement the existing indicators and cannot replace them.

The measurement of globalisation is a complex task having in mind the fact that there is no single universally accepted definition of globalisation. There is a great number of methods used for the measurement of globalisation. However, a standard rule for measurement does not exist. Recently, many scientists tried to combine all the dimensions of globalisation into one single index. Every scientist selects components and indicators according to their understanding of the processes of globalisation.

As a matter of fact, it can be stated that globalisation processes cover all our fields of activity and refer to an increase of influence of external economic, political, social and cultural factors in all the countries. These processes are related to the formation of a single international market without national barriers as well as the development of unified legal conditions applicable for all countries. Despite the fact that countries play an important role in the research works on globalisation, the majority of globalisation aspects cannot be assessed or analysed only within the limits of the nation state. There are several levels of globalisation impact: world, individual country, branch or individual companies. One of the greatest globalisation factors is economic that arises when multi-national companies in the same time operating in all the countries are established. This phenomenon changes the distribution of branches, the level of the country and global economy in general. International organisations and international companies are of significant importance as it controls and directs the processes of globalisation. In order to assess a multi-dimensional process such as globalisation, the size of which cannot be objective and accurately measured, it is required for the globalisation index to be: accurate as it should accurately and specifically reflect the phenomenon of the concept for which the index is designed to measure; different elements and indicators of an index must have values corresponding their relevance.

3. Globalisation assessment methods

The complexity of globalisation refers to the complexity of its quantification. In addition, global quantitative and qualitative changes are interrelated, so in many ways it is difficult to disassemble. There are many various indexes that show the level of globalisation; so it is tried to analyse each of it. According to Juščius (2006), when assessing the index of globalisation, the limited possibilities of this instrument in research works is to be taken into account:

- The number of groups selected for the index;
- Non-homogenous globalisation elements;
- Non-equal materiality figures;
- Ignorance of important processes;
- Reliability of statistical sources.

The limited number of groups selected for the globalisation index cannot fully express the complex and multifaceted essence of processes. Cultural, environmental, social and other globalisation processes are often left quantitatively unmeasured. However, it comes without saying that statistical analysis cannot cover all the possible parameters of the phenomenon under study. In many ways the indexes combine non-homogeneous globalisation elements; its dependence does not mean that the comparative value of these elements in globalisation processes is not equal. The indicators of different globalisation index groups are made of not equal materiality values. Not always these values complement each other in a logical manner;

the suitability of some of it to reflect globalisation is not significant. False results can also be caused the ignorance of important processes in different groups of globalisation index. The calculations of globalisation index depend on the reliability of sources and data collection methods. Statistical data and calculation methodology are not always reliable.

The author does not state that the results can be inaccurate due to rapidly changing information. Another disadvantage can be associated to the different understanding of the processes of globalisation. In order to evaluate the existing indexes it is necessary to take into account the globalisation definitions provided. The comparison of WRMC, ATK, MGI, KOF indexes in accordance to the eligibility criteria of Dreher, Gaston and Martens (2008) is provided in *Table 5*.

The suitability shows whether the index actually assesses globalisation (for example, rather than internationalisation). Another criterion is related to the assessment of reliability in different circumstances, in what level extreme values are influenced by other factors in a specific index year after year. In order to establish additional value, the index has to help to better understand processes of globalisation only from its components. Transparency allows us to decide whether the index is valuable for its expedience, if it can be restored based on scientific literature and data provided or defined precisely.

Table 5. Comparison of indexes in accordance to the criteria of index suitability

Category	Subcategory	WRMC (Randolp, 2001)	ATK (Kearney, 2007)	MGI (Martnes and Raz, 2009)	KOF (Dreher, 2006)
Suitability	Used definition of globalisation	Very narrow, only economic	Average	Very broad	Very narrow
	Differentiation of globalisation and internationalisation	No differentiation	No differentiation	No differentiation	No differentiation
	Type of changes assessed	Proximity, intensity	Proximity, intensity	Proximity, intensity	Proximity, intensity
	Geographical aspect	Not available	Not available	Available	Not available
	Scope	185 countries	72 countries	117 countries	122 countries
	Correlation with economic development	Low	High	High	High
Reliability	Sensitivity to extreme values	Method unpublished	High	Low	Low
	Sensitivity to the variations of different years	Very high (the use of highly fluctuating indicators)	High (some indicators of lower fluctuation)	Low (calculated average of fluctuating indicators)	High (some indicators of lower fluctuation)
	Method according to which the value is provided	A priori, with normative considerations	A priori, with normative considerations	Equal values	The analysis of main components
	Distortion of value	Method unpublished	Low distortion	No distortion	Low distortion
Additional value	Correlation inside the component	High	Low	Partly	Partly
	Correlation among the components	Unpublished	Unpublished	Average	Average
Transparency	Transparency of methodology	Average	High	High	High
	Data publication	Partly	Yes	Yes	Yes

Source: Dreher, A., Gaston, N., Martens, P. (2008).

The table shows that WRMC G index includes mostly economic factors; Kearney index also uses prior application of value that accentuates economic factors. It can be noted that according to all these indexes globalisation is not separated from internationalisation and liberalisation.

Other authors such as Choo Lim and Azis Buang (2012) have assessed six different globalisation indexes in accordance to other criteria (Table 6). The criteria can allow assessing already existing indexes and help to develop new ones. The table shows that if an index meets all the criteria, then it is the most accurate (except from insignificant value of indicators). This table helps to select the most suitable index in accordance to own understanding of the processes of globalisation as well as to improve the existing indexes by picking out its advantages and disadvantages.

Table 6. Comparison of globalisation indexes

Index	Year	Number of countries	Number of indicators	Criteria									
				Economic globalisation				Social globalisation		Political dimension	Insignificant value of indicators	Geographic control	Environment
				Foreign capital	Direct foreign investment	Trade flows	Restrictions on capital and trade	Culture	Information and contacts				
KFP	1971-2005	62	12	✗	✓	✓	✓	✗	✓	✓	✓	✗	✗
KOF	1970-2008	158	25	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
CSGR	1982-2004	62	16	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗
MGI	2000-2008	117	11	✓	✓	✓	✓	✗	✓	✗	similar	✓	✓
NGI	1995-2005	70	22	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗
G index	2001	185	6	✓	✓	✓	✓	✗	✓	✗	✗	✗	✗

Source: made by authors under Samimi, P., Choo Lim, G., Aziz Buang, A. (2012).

Part of the criteria are divided into economic (production level, foreign investments and its limitations), social (culture, information and contact) and political dimensions. Under the inclusion of these dimensions, KOF index is the most accurate. One of the ways to assess the index of globalisation is to find out for what number of countries and for which time period it was calculated. Under this criterion, KOF index is the most accurate. However, it is to be noted that this index cannot be assessed positively, if we are talking about an existence of insignificant value, geographical control or environmental valuation.

Authors attempt to include all the globalisation dimensions into the synthetic index of globalisation; however, inaccuracies are not eliminated. According to Caselli and Gemelli (2008), it is really difficult to construct a large number of variables and indicators as the need for the reception of more information increases and therefore the number of countries that have enough such data decreases. Lockwood (2001) represents one more problem which is the insignificance of variables. For example, call rate of CSGR index has 0.004 values in the subcategory of ideas that covers two thirds of the social category and 1/1000 in the overall value of globalisation index. The third disadvantage is that only KOF index does not include sale and capital restriction. In order to assess economic globalisation, it is significantly relevant to calculate trade flows and restrictions of a country. It is also worth noticing that there are only several indexes, which evaluate geographical state of a country. Another aspect

is the lack of methodological explanations and incomplete its presentation (for example, as in the case of G index).

The assessments of different components of globalisation can be based on the analysis of globalisation measurement and tendencies. Pursuant to these aspects, it is possible to identify key factors that make negative influence on economic development and provide an opportunity to cope with the challenges of globalisation.

4. Comparison of KOF, CSGR and Global index

This chapter introduces three indexes: KOF, CSGR and Global index. All these indexes comprise of variables that are divided into main groups: economic, social, cultural and political.

KOF index was proposed by the Swiss University of Economics. It is based on calculation principles provided by Dreheriu in 2002. These principles are constantly modified. In 2009, the index was complemented and its calculation method changed. The index includes three groups of variables: economic, social and political.

Center for the Study of Globalisation and Regionalisation has provided the CSGR index. CSGR index is unique as it includes geographic and demographic peculiarities of countries by determining final results of the index.

Global Index was calculated for 116 countries from 1970 to 2002. This index distinguishes cultural variables which mean the development of rationality and versatility. The figure below provides diagrams with the percentage of the indicators of economic, social/cultural and political dimensions in each of the indexes: KOF, CSGR and Global Index (Figure 2).

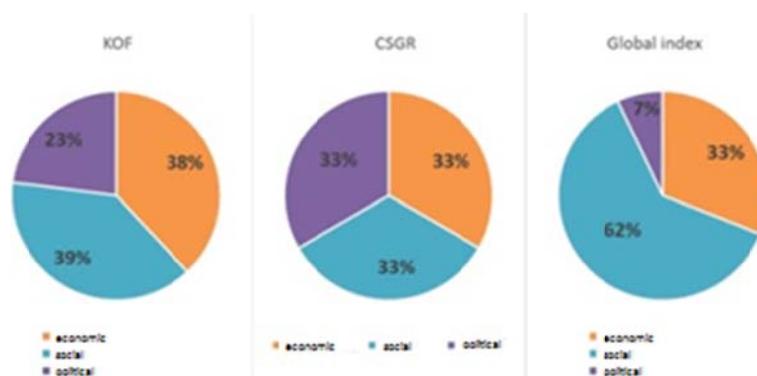


Figure 2. The value of the indicators of globalisation indexes

Source: developed by the authors.

The Table 6 shows that KOF index gives maximum value to social indicators (39%), a little less to economic (38%) and minimum value to political indicators (23%). Global Index is distinguished by the fact that major part of the indicators are of socio-cultural field (31+31%=62%), economic field has one third of all the value (31%), and political indicators have only 7% of the value. Despite the fact that economic, social and political components of the CSGR index are equally important, for the formation of sub-indexes different values are chosen. The variables and values of each of the indexes are provided in the table below.

Table 7. The comparison of the economic globalisation indicators of indexes

KOF		CSGR		Global Index	
Economic globalisation					
(Economic flows)	50%			(Economic processes)	50%
Trade	21%	Trade	42%	Trade	24%
Direct foreign investment, funds	27%	Direct foreign investment	9%	Direct investment	29%
Investment portfolios	24%	Investment portfolios	22%	Investment portfolios	16%
Allowances for foreign residents	27%	Allowances for foreign residents	27%	Allowances for foreign residents	31%
(Limitations of economic processes)	50%			(Limitations of economic processes)	50%
Hidden import restrictions	24%			Hidden import restrictions	23%
Average tariff value	28%			Average tariff value	28%
International trade taxes	26%			International trade taxes	26%
Capital restrictions	23%			Capital restrictions	23%

Source: determined by the authors according to sources – KOF (2014); University of Warwick (2005); M. Raab, Marcel; M. Ruland; B. Schonberger; H. Blossfeld; D. Hofacker; S. Buchholz (2010).

The *Table 7* shows that CSGR index has the minimum number of the indicators of economic dimension. CSGR trade has 42% of the value, whereas KOF and Global Index have 8.5% and 12% respectively. Therefore, KOF and Global Index distinguish the variables of economic flows and the limitations of economic processes by providing both groups of indicators the same value.

Table 8. The comparison of the social globalisation indicators of indexes

KOF		CSGR		Global Index	
Social globalisation					
(Personal contacts)	34%	(Globalisation of people)	33%	(Personal contacts)	50%
Number of foreign residents	20%	Number of foreign residents	26%	Number of foreign residents	22%
Transactions	3%	Inflow of foreign residents	63%	Outgoing calls	29%
International correspondence	26%	Money transactions of the employed	8%	Transactions	33%
International tourism	26%	International tourism	3%	International tourism	16%
Phone calls	26%				
(Information flows)	34%	(Globalisation of ideas)	67%	(Information flows)	50%
Internet users	36%	Outgoing international calls	1%	Number of internet networks	12%
Television	36%	Internet users	30%	Internet users	12%
Sale of newspapers and periodical publications	28%	Films	6%	Cable television	7%
(cultural convergence)	32%	Book trade	58%	Daily newspapers	9%

RECENT ISSUES IN ECONOMIC DEVELOPMENT

Number of McDonald's restaurants	39%	Correspondence	5%	Radio	13%
Number of IKEA shops	39%			Trade in foreign books	18%
Sale of books	24%			Foreign newspapers and journals	18%
				Stationary and mobile telephony	11%

Source: determined by the authors according to sources – KOF (2014); University of Warwick (2005); M. Raab, Marcel; M. Ruland; B. Schonberger; H. Blossfeld; D. Hofacker; S. Buchholz (2010).

Table 8 provides the indicators of social dimension. CSGR index distinguishes the globalisation of people and ideas. The latter one gains the major part of value, which is equal to 67%. KOF and GlobalIndex includes two similar groups what are related to both personal contacts and information flows. Indicators of personal contacts show direct relations among individuals living in different countries, whereas information flows measure the sharing of ideas and symbols. However, KOF identifies one more aspect of cultural convergence, to which GlobalIndex paid particular attention by establishing a separate group of indicators (Table 10). KOF agrees with the opinion that cultural globalisation first and foremost means the domination of American products, so their calculations include the number of IKEA shops and McDonald's restaurants in a country (as these brands are usually considered as the synonyms of globalisation).

Table 9. The comparison of the political globalisation indicators of indexes

KOF		CSGR		Global Index	
Political globalisation					
The number of embassies set in the country	25%	The number of embassies set in the country	38%	The number of embassies set in the country	36%
Membership in international organisations	28%	Membership in international organisations	36%	Membership in international organisations	36%
Participation in UN mission	22%	Participation in UN mission	26%	Participation in UN mission	29%
International agreements	25%				

Source: determined by the authors according to online sources – KOF (2014); University of Warwick (2005); M. Raab, Marcel; M. Ruland; B. Schonberger; H. Blossfeld; D. Hofacker; S. Buchholz (2010).

The indicators provided in the table above are included into the assessment of the political globalisation. It can be noted that three indicators fully coincide such as the number of embassies set in the country, the number of international organization and the number of UN operations in which the country takes part. Only KOF has the fourth indicator showing the number of international documents signed.

Table 10. The comparison of the cultural globalisation indicators of indexes

KOF	CSGR	Global Index
	Cultural globalisation	
	(expansion)	50%
	Number of urban population	37%
	Export of high-tech	27%
	Research and development	36%
	(Values and standards)	50%
	Freedom House – index	11%
	Primary education	28%
	Primary education of girls	28%
	Expenditure on education	16%
	Number of McDonald's restaurants	17%

Source: determined by the authors according to online sources – KOF (2014); University of Warwick (2005); M. Raab, Marcel; M. Ruland; B. Schonberger; H. Blossfeld; D. Hofacker; S. Buchholz (2010).

Majority of authors, such as Kluver and Fu (2004) state that culture is the most visible proof of globalisation. It is to be noted that although the importance of culture is high, there is no index which could evaluate the cultural aspect in the best way possible. Kluver and Fu (2004) developed a separate cultural globalisation index. The authors also use the export of books, brochures, newspapers and periodicals as one of the indicators. They apply the particular indicators as other indicators lack systemic data sources. In our case cultural aspect is only distinguished by the GlobalIndex and includes the groups of expansion, values and standards. In order to compare the indexes, it is important to observe the results of the indexes. The table below provides the data of 2002 that can therefore be used for the comparative purposes.

Table 11. Ranking of countries in accordance to different globalisation indexes

KOF	CSGR	Global Index
1. USA	1. Singapore	1. Ireland
2. Sweden	2. Belgium	2. Singapore
3. Canada	3. USA	3. Hong Kong
4. Luxembourg	4. Austria	4. Sweden
5. Austria	5. Canada	5. Belgium
6. The United Kingdom	6. The United Kingdom	6. Switzerland
7. France	7. Sweden	7. Denmark
8. Australia	8. Switzerland	8. Netherlands
9. Switzerland	9. Ireland	9. Finland
10. Ireland	10. France	10. The United Kingdom

Source: made by authors in accordance to sources: <http://globalization.kof.ethz.ch>; <http://www2.warwick.ac.uk/fac/soc/csgr/index/top20/1999/>; Caselli, M. (2012).

The *Table 11* shows that KOF, Global Index and CSGR indexes have four countries in common: Switzerland, Sweden, the United Kingdom and Ireland. Countries, such as Luxembourg (KOF), Australia (KOF), Hong Kong (Global Index) and Finland (Global Index)

in a single index ranking are mentioned only once. The results of CSGR are similar to both KOF (both share the countries such as the United States, Canada, the United Kingdom, Sweden, France, Austria and Ireland) and Global Index (both shows that Belgium, Sweden, Belgium and Singapore are included into ten most globalised countries). Only the assessment of the Global Index indicates that Denmark and Hong Kong also deserve to be at the top ten lists of the most globalised countries.

There are no special statistical analyses performed for the indicators provided. All the data is taken from the UN, World Bank, IMF and various non-governmental organisations. Pursuant to these indicators, globalisation is a constantly changing process that has no absolute reference value. Every time the scoring range is pre-determined (from 0 to 1 CSGR index, from 0 to 10 Global Index, from 1 to 100 KOF index). However, every year the maximum and minimum values can be totally different. Therefore, the indexes express globalisation not as a pursuit of an ideal but rather as a change.

Each and every index is developed based on different theoretical concepts, by determining different components and its value in the final result. It can be noted that the main accent of the CSGR index is sharing ideas; Global Index focuses on the spread of ideas, values and Western cultures and, similarly to KOF, the importance of the political regulation of economic flows. Another difference is components of the economic globalisation; KOF and Global Index include not only actual financial and goods flows but also its limitations (i. e. political measures of flow regulation). CSGR index modifies primary variable values in accordance to different geographic and demographic conditions.

5. Limitations of Conducted Study

The study does not present an optimal method for the evaluating the concept of globalization as this is the aim of the further research. The new method for assessing globalization based on the knowledge that has been accumulated on this subject during analysis conducted in this paper will be developed in the forthcoming paper on globalization assessment. The new method combining the strongest features of analysed globalization indices will be proposed and empirical testing of developed method will be provided.

Conclusions

1. After the survey of globalisation theories and its milestones, three main stages can be identified: the first one is from 1950 where globalisation is considered as a historical development process; the second one is until 1990, where the main attention is paid to economic globalisation; the third is from 2000 to the current days where globalisation is perceived as a process overwhelming all the areas of life. In the case of the third stage the aspect of cultural integration is emphasised. Globalisation is a world-involving process, which covers all our activities. It is an increase of influence of external economic, social and cultural factors engaging all the countries of the process, formation of single international markets without any national barriers and the development of uniform legal conditions applicable for all countries.
2. The elements of globalisation processes are often divided into four dimensions such as economic, technological, social and political. In addition, elements that stimulate and accelerate different areas of globalisation are identified. These are as follows: international organisations, international pacts, transnational associations, international commercial companies and social-political movements. There are four main ideas of globalisation: globalisation of market, globalisation of costs, globalisation of competition and globalisation of government politics. Technologies are often identified and used in

line with globalisation as separate factors. These are normally the main forces of the changes of company strategies.

3. After the analysis of the methodology applied to the globalisation assessment, it can be noted that the indexes of globalisation may be divided into three groups: single indicator, single dimension and multi-dimensional. The most commonly used indexes of single dimension do not show the overall level of globalisation as it is considered as a multi-dimensional process. However, authors agree that there is no universally applicable synthetic index which could measure the degree of globalisation objectively. Synthetic indexes can be used as an addition to the already existing indicators of single dimension.
4. According to different studies and analysis of the possibilities of impact assessment, it has been observed that different authors attempt to evaluate the existing globalisation indexes differently. Some of the most widely used criteria for index assessment are exclusion of the number of analysed countries and specific indicators of dimensions, values of different significance, transparency and reliability of source data. It has been noted that the methodology of the analysed indexes does not separate globalisation from internationalisation and liberalisation.

References

- Batog, B., Batog, J. (2015), Conditional Income Convergence in the European Union: R&D Spending and Export Influence, *Transformations in Business and Economics*, 14 (3C), (36C), pp. 407-419.
- Caselli, M. (2012), *Trying to measure globalization experiences, critical issues and perspectives*, New York: Springer, 139 p., ISBN 978-94-007-2806-6.
- Caselli, M., Gemelli, L. (2008), *Measuring...What? Notes on Some Globalization Indices*, Paper presented at the Regionalisation and the Taming of Globalisation, West Midlands, United Kingdom, Retrieved from:
http://www2.warwick.ac.uk/fac/soc/csgr/events/conferences/2005_conferences/8_annual_conference/caselli.doc.
- Čiegis, R., Gavenauskas, A. (2005), *Darnus vystymasis – poveikis gyvenimo kokybei*, Vadyba – 2005, No. 1(6), pp. 64-70, Retrieved from:
www.ebiblioteka.lt/resursai/Konferencijos/VLVK_051028/4%20sekcija/IV01_Ciegis.pdf.
- Dabour, N. (2000), The Role of Foreign Direct Investment (FDI) in Development and Growth in OIC Member Countries, *Journal of Economic Cooperation*, 21(3), pp. 27-55, Retrieved from: <http://www.library.sesrtic.org/files/article/188.pdf>.
- Dolgov, S. (1998), *Globalizacija jekonomiki: novoe slovo ili novoe javlenie*, Moskva: Jekonomika, 215 s., ISBN 5-282-01926-4.
- Dreher, A. (2006), Does Globalization Affects Growth? Empirical Evidence from a New Index, *Applied Economics*, 6 (38(10)), Retrieved from: http://www.twi-kreuzlingen.ch/uploads/tx_cal/media/TWI-RPS-006-Dreher-2005-04.pdf.
- Dreher, A., Gaston, N., Martens, P. (2008), *Measuring globalisation: Gauging its consequences*, New York: Springer Verlag, 224 p., ISBN 978-0-387-74067-6.
- Filipenko, A. (2010), *Jekonomicheskaja globalizacija: istoki i rezul'taty*, Moskva: Jekonomika, 512 p., ISBN: 978-5-282-03037-2.
- Green, G. P. (2013), *Handbook of Rural Development*, Cheltenham: Edward Edgar Publishing Limited, 358 p., ISBN 978-1-78100-6702.
- Grinin, L. (2005), Globalizacija i nacional'nyj suverenitet, *Istorija i sovremennost'*, Vypusk No. 1/2005, retrieved from: <http://www.socionauki.ru/journal/articles/145683/>.

- Held, D., McGrew A., Goldblatt, D., Perraton, J. (2002), *Globaliniai pokyčiai: politika, ekonomika ir kultūra*, Vilnius: Margi raštai, 540 p., ISBN 9986-09-242-6.
- International Monetary Fund (1997), *World economic outlook (International Monetary Fund)*, Washington: The Fund, 131 p., ISSN 0256-6877.
- Joyce, J. (2006), Promises made, promises broken: a model of IMF program implementation, *Journal of Economics & Politics*, 18(3), Oxford: Blackwell, pp. 339-366, ISSN 0954-198.
- Jušcius, V. (2006), *Ekonomikos internacionalizacijos ir globalizacijos poveikis gamybos – paskirstymo – vartojimo santykių raidai*, Habilitacijos procedūrai teikiamų mokslo darbų apžvalga, Kaunas: Technologija, Retrieved from: http://www.smk.lt/uploads/archyvas/mokslines_veikla/konferencijos/070611/V.%20Juscus.pdf.
- Jušcius, V. (2006a), *Globalizacijos proceso kiekybiniai matavimai*, Klaipėdos universitetas, Retrieved from: http://www.smk.lt/uploads/archyvas/mokslines_veikla/konferencijos/070611/V.%20Juscus.pdf.
- Kiausiene, I., Streimikiene, D. (2013), Significance of Institutional Factors for the Implementation of Gender Equality in the Labour Market, *Transformations in Business and Economics*, 7, Vol. 12, No. 3 (30), pp. 61-72.
- Kluser, R., Fu, W. (2004), *The Cultural Globalization Index*, Foreign Policy, Retrieved from: http://www.academia.edu/684142/The_cultural_globalization_index/.
- KOF (2014), *2014 KOF Index of Globalization*, Globalization.kof.ethz, Retrieved from: http://globalization.kof.ethz.ch/media/filer_public/2014/04/15/variables_2014.pdf.
- Kuval'din, V. (2000), Globalizacija – svetloje budushhee chelovechestva? *Nezavisimaja gazeta*, No. 10, 11.10.2000.
- Kuznecov, V. (1998), *Mirovaja jekonomika i mezhdunarodnye otnoshenija*, No. 2, Moskva: Nauka, 128 s., ISN 0131-2227.
- Lockwood, B. (2001), *How robust is the foreign policy/Kearney index of globalisation?* CSGR working paper, 79/01, Retrieved from: <http://core.kmi.open.ac.uk/download/pdf/106055.pdf>
- Lockwood, B., Redoano, M. (2005), *The CSGR Globalisation Index: an Introductory Guide*, Centre for the Study of Globalisation and Regionalisation, Working Paper, 155 p.
- Mackevicius, R., Girdzijauskas, S., Streimikiene, D., Barakauskaite-Jakubauskiene, N. (2012), Logistic aspects of Japan economic development, *Transformation in Business and Economics*, 10 (1), pp. 58-79.
- Martens, P., Dreher, A., Gaston, N. (2008), The Global Village and the social and cultural aspects of globalisation. Bond University, *Working Paper Series*, No. 17, July, Retrieved from: <http://epublications.bond.edu.au/cgi/viewcontent.cgi?article=1016&context=gdc>
- Meyer, John, W., Gili, S. Drori, and Hokyu Hwang (2006), World society and the organizational actor, pp. 25-49, In: G. S. Drori, J. W. Meyer, and H. Hwang (eds.), *Globalization and organization: World society and organizational change*, Oxford: Oxford University Press.
- Milardovic, A., Paukovic, D., Vidovic, D. (2008), *The globalization of politics*, Zagreb: Political Science research centre, 254 p., ISBN 978-953-7022-19-8.
- Mironenko, N. (2012), *Geografija mirovogo hozjajstva*, Moskva: Izdatel'stvo «Trjevjel Media Internjeshnl», 352 s., ISBN 978-5-9903487-1-4.
- Murbarakov, A. (2013), *Global'noe upravlenie: subekty i obekty mirovoj jekonomiki*, Evrazijskij nacional'nyj universitet im. L.N. Gumileva, retrieved from: <http://www.scienceforum.ru/2013/21/1575>.

- Pascale, L. (2006), *Humanizing globalization*. The World Trade Organization, Retrieved from: http://www.wto.org/english/news_e/sppl_e/sppl16_e.htm.
- Poverty and Development Division (1999), *Information, technology, globalization and development*, UNESCAP, Retrieved from: <http://www.unescap.org/drrpad/publication/survey1999/svy4a.htm>.
- Raab, M., Ruland, M., Schonberger, B., Blossfeld, H. P., Hofacker, D., Buchholz, S. (2010), *A Sociological Approach to Globalization Measurement*, Retrieved from: <http://www.sagepub.com/dicken6/Additional%20Resources%20for%20International%20Business/Online%20journal%20readings/raab%20et%20al%202008.pdf>
- Rao, B., Tamazian, A., Vadlamannati, K. (2011), Growth effects of a comprehensive measure of globalization with country-specific time series data, *Applied Economics*, 43(5), Abingdon: Routledge pp. 551-568, ISSN 0003-6846.
- Robertson, R. (1987), *Globalization Theory and Civilization Analysis* [interaktyvus], Comparative Civilizations Review No 17, Fall, Retrieved from: <https://journals.lib.byu.edu/spc/index.php/CCR/article/download/12261/12161>.
- Samimi, P., Lim, G. Ch., Buang, A. A. (2011), Globalization Measurement: Notes on Common Globalization Indexes, *Journal of Knowledge Management, Economics and Information Technology*, Issue 7, Retrieved from: http://iph.ras.ru/uplfile/root/biblio/School_young_ph/15_Khan.pdf
- Simpson, J., Weiner, E. (1989), *The Oxford English Dictionary*, Oxford: Clarendon, 21728 p., ISBN 978-0-19-861186-8.
- Therborn, G. (2011), *The World. A Beginner's Guide*, Cambridge: Polity.
- University of Warwick (2005), *Weighting*, Retrieved from: <http://www2.warwick.ac.uk/fac/soc/csgr/index/guide/weighting1/>.
- Vujakovic, P. (2010), How to Measure Globalisation? A New Globalisation Index (NGI), *Atlantic Economic Journal*, 38(2), 237 p., Retrieved from: <http://hdl.handle.net/10.1007/s11293-010-9217-3>.
- Waters, M. (1995), *Globalization*, London: Routledge, 295 p., ISBN 0-415-10576-5.
- World Bank (2013), *Humanizing globalization*, The World Bank Group, Retrieved from: <http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:23272496~pagePK:51123644~piPK:329829~theSitePK:29708,00.html>.
- World Health Organization (2014), *Trade, foreign policy, diplomacy and health*, WHO, Retrieved from: <http://www.who.int/trade/glossary/story043/en/index.html>.
- Zinov'ev, A. (2003), *Ideologija partii budushhego*, Moskva: Jeksmo, 240 s., ISBN 5-699-04731-H.
- Zvirblis, A., Buracas A. (2012), Multiple Criteria Assessment of the Country's Knowledge Economy Determinants, *Transformation in Business and Economics* 11 (3), pp. 124-138.