

# Індекси глобалізації як засоби її виміру

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Глобалізація є одним із найбільш дискусійних понять сьогодення, незважаючи на той факт, що до сьогодні відсутнє єдине загальновизнане визначення цього багатоаспектного процесу. Також сьогодні однією із актуальних задач є визначення міри глобалізації. Аналізу спроб створення кількісного показника глобалізації і присвячена ця стаття.

У дослідженні використані сім індексів глобалізації, що опубліковані до цього моменту: G-Index (World Markets Research Center, Randolph, 2001); KFP Globalization Index (A.T.Kearny / Foreign Policy, 2001); CSGR (Centre for Study of Globalization and Regionalization at Warwick University, Lockwood, Redoano, 2005); KOF Index of Globalization (ETH Zurich, Dreher, 2006); GlobalIndex (TransEurope research program of the European Science Foundation, Raab, et al., 2008); MGI (International Centre for Integrated assessment and Sustainable development (ICIS) at University Maastricht, Martens, Raza, 2009); NGI (Vujakovic, 2010).

Кожен з опублікованих індексів відрізняється інтерпретацією поняття глобалізації, що зумовлює різноаспектність вибору змінних для аналізу. Також спостерігаються розбіжності у:

- кількості країн, залучених до аналізу;
- у використаному процесі нормалізації;
- у наданні відсоткової цінності кожній із змінних при підрахунку остаточного значення індексу.

При цьому вчені до сих пір не розробили комплексного загальновизнаного методу виміру глобалізації, що і по сьогодні залишається завданням першочергового значення.

# Indices of globalization as instruments for its measurement

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*Globalization, its consequences, and further implications are one of the most discussed topics nowadays and with attempts to define this notion it is measured qualitatively and quantitatively. And taking into account multidimensionality of globalization, its measuring process still appears to be a challenge for scientists. This article aims at the analysis of contemporary ways of measurement of globalization giving comparative analysis of the existing indices of globalization that is preceded by the general principles of index calculation.*

**Key-words** – globalization, globalization indices, dimensions, variables, weights, restrictions.

## I. Introduction

The term “Globalization” is one of the most used terms nowadays, but it is still a developing notion that is difficult to capture. With growing awareness on what globalization is we trace hundreds of opinions and Martens and Raza believe this is “due to the missing consensus on what exactly globalization constitutes as well as the consequent lack of empirical data about its factors, causes and effects”(5).

Originally globalization was considered to be strictly economic phenomenon and this is the reason of the first Indices of Globalization to be focused mostly on economic data. Taking into account constituencies of globalization nowadays generally accepted are three main dimensions of globalization: economic, political and cultural (1). Nevertheless, with these dimensions the full scope of globalization can't be captured, That provokes researches from all over the world for further analysis.

## II. Measurement of Globalization

During recent years number of articles highlighting the guidelines to index calculation appeared. Lockwood and Redoano suggest four steps in index calculation(3): 1-to choose relevant variables, 2-to find quantitative measures for them, 3-to normalize these quantitative measures (as different variables are typically measured in different units and therefore may have very different average numerical values), 4-to calculate an average or weighted average of the normalised variables, which gives a numerical score for each country in each year. And finally, the numerical scores are used to determine country rankings.

A year later an article by Martens, Zywiets representing MGI index appears, where authors represent adjustments for such geographical characteristics as country size(4).

The necessity of adjustments of the variables to be done, mainly, again for the geographical characteristics of

countries is emphasized in Dreher, Gaston, Martens, Van Boxem article (2). Another important issue discussed is the normalization of measures – panel and annual ones. When normalizing data from several years at the same time (panel normalization), the results are well-behaved in terms of sensitivity to extreme values. Still changes in one year could affect the ranking of countries in another year. And as an alternative annual normalization could be used, when the data are normalized for each year.

Special emphasis is also made on the weighting process as till now it wasn't agreed what is the better way of assigning weights, should it be on *ad hoc* basis or if not which of the statistical methods should be used.

### III. Indices of Globalization

The choice of indices for analysis is conditioned to the frequency of using these indices in subsequent reviews and calculation of updated or improved versions of indices and their acceptance in the scientific society. The following indices are under the scope: 1 - G-Index published by World Markets Research Center (Randolph, 2001); 2 - KFP Globalization Index performed in a cooperation between the A.T. Kearney Consulting Group and Foreign Policy Magazine (A.T.Kearny / Foreign Policy, 2001); 3 - CSGR Index performed within the Centre for Study of Globalization and Regionalization at Warwick University (Lockwood, Redoano, 2005); 4 - KOF Index of Globalization by ETH Zurich (Dreher, 2006); 5 - GlobalIndex calculated within the TransEurope research program of the European Science Foundation (Raab, et al., 2008); 6 - MGI International Centre for Integrated assessment and Sustainable development (ICIS) at University Maastricht (Martens, Raza, 2009); 7 - NGI (Vujakovic, 2010).

For such indices as KOF, KFP and MGI few updates were made while recalculating index for next years including changes in the number of variables or deviations of methodology used.

Taking into account the information provided while indices publications the largest number of countries is covered by G-Index of WMRC that includes 185 countries. Nevertheless the reason is mainly economic variables were used, so the data were easily available for larger number of countries.

The number of countries included to the analysis also depends on the time period chosen. Maximum number of years analysed was presented in renewed KOF index of 2010 that traced Globalization from 1970 till 2007 using quite recent data with three year time gap. The biggest time gap is observed while calculating NGI Index that is explained by the desire to access qualified data. And the shortest period analysed is seven years within KFP calculation and with a time gap just two years.

In terms of dimensions analysed indices differ a lot, still as it was mentioned before, researchers agree on there main to be obligatory included. Sometimes same features may be included into indices, but some authors single out a separate dimension, (ex., Cultural dimension in GlobalIndex vs some data on cultural proximity are included into Social dimension of KOF index;

Environment dimension in MGI vs Environment agreements variable is included into Political dimension of NGI).

Taking into account time of the indices published we may trace the evolution, increase or reduction of number of variables within the years. Firstly published KFP index was a step forward in analyzing globalization with its addition of political, social dimensions compared with just economic WMRC G-Index. Only in 2008 within GlobalIndex we have separate dimension of cultural globalization, as before only some cultural variables were included to social dimension. Organized violence dimension appeared in MGI and Environmental issues were analysed only in two last indices – MGI and NGI. From the total number of 39 variables used we may single out only six variables that were used in all the indices calculated: Trade, FDI, Telephone, Internet, Tourism, International Organizations.

An important role is also played by adjustments applied while index calculation. Geographical adjustment was done in MGI. Vujakovic in NGI made adjustment to geographical distances between countries and to the country size.

Furthermore, weighting process also differs depending on the approach applied by researchers. Until now scholars used subjective weighting a priori (WMRC, KFP) or just equal weights as in MGI. Still mostly statistical method like Principal component analysis is applied.

### Conclusion

This article pays attention to the existing ways of measurement of globalization while giving an overview to seven indices of globalization calculated till the present moment. Nevertheless within researches there is still no agreement which method is most comprehensive in terms of dimensions, variables, normalization and weighting procedures to be used that creates a challenge for the all-embracing measurement to be created.

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