



# A Critical Review on Synthetic Globalization Indexes

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## ABSTRACT

Globalization is not a new phenomenon. Rather, our world has experienced it since many years ago. This broad concept casually used to describe a variety of phenomena that reflect increased economic, social and political interdependence of countries. As many developing countries have participating to globalized world recently, the concerns about globalization and its impacts on different aspect of life is increased. Looking at the way globalization affects us, there is a need to measure globalization not only to know the effects of it, but also to manage it. Our study reviews the recent globalization synthetic indexes, their indicators and methods. In addition, we propose some criteria to compare the indexes. We conclude that selection of a good globalization index heavily depends on the objectives and sample of the study. The results of this study provide a guideline for researchers to select best index for their studies or develop new and better measurement.

**Key words:** Risk Health Behaviors, Gender, Ethnic Status, Marital Status, Students.

## INTRODUCTION

Globalization, as integration of economies and societies around the world, is a complex process that affects different aspects of our lives (Baldwin & Forslid, 2000; Bhandari & Heshmati, 2005; Collins & Williamson, 1999; Obstfeld & Taylor, 1997). Despite the increasing awareness on globalization, it is interesting to note that there is no any universally accepted definition. Researchers define globalization from different points of view such as increase in integration of markets and diffusion of technology and idea (Friedman, 2000); reducing the role of geographical constraints on social and cultural arrangements (Waters, 1995); Eliminating the ability of the nation to establish and implement their own policies (Thacker, 2008); increase in the importance of transnational corporations (Beck, 2000); changing in the political, social, economic and political foundations of countries (Mittleman, 2000). Thus, arriving at a universally acceptable definition of globalization is a difficult task due to the absent of the clear-cut theory. In the new wave of globalization (1980-present), the large numbers of countries, especially developing nations, are speeding up their openness. It is obvious that the concern about the impact of globalization on issues such as economic growth, poverty, inequality, cultural dominance, and environment have been

increasing. These debates emphasize on the importance of measuring globalization. In fact, to know these effects, constructing an index that captures all aspects of globalization is necessary. Without doing so, it is impossible to know the benefits or cost of globalization and how to manage it. To measure globalization, the broad and precise definition is needed. Based on the different definition of globalization, researchers have tried to construct an index. There is variety of globalization measurement and no standard rule for measuring it. This is because of two reasons; the first reason is that globalization is a highly complex and multifaceted process. Finding an index, that capture all aspects of it, is very difficult. The second one is that globalization is a wide concept, with no single definition. In fact, what is globalization actually is, mention as an open question. As a result, finding a standard measure is a hard task (Caselli & Gemelli, 2008). Even though, researchers have constructed various indexes to measure globalization, there is not any standard index to measure this broad concept. This paper is aimed to provide an updated overview of the recent developments in globalization measurement and to underline the main issues that remain to be solved. This is fundamental for the econometric researcher who wants to investigate effects of globalization or to develop new and better measurement. The remainder of this paper is structured

as follows. In the first section, synthetic globalization measurements are introduced. Then, we present some criteria for synthetic indexes to compare indexes. It follows by description of critical point about indexes. Finally, the last section concludes our paper.

### SYNTHETIC GLOBALIZATION MEASUREMENT

The measurement of globalization is not an easy task, given that there is lacks of uniform and generally acceptable definition of globalization. There is variety of globalization measurement and no standard rule for measuring it. Many attempts have been done to measure globalization. Recently, researchers have tried to capture all dimensions of globalization in one index. They have selected the variables and indicators according to what they believe globalization is. In the following, these indexes are illustrated (Figure1).

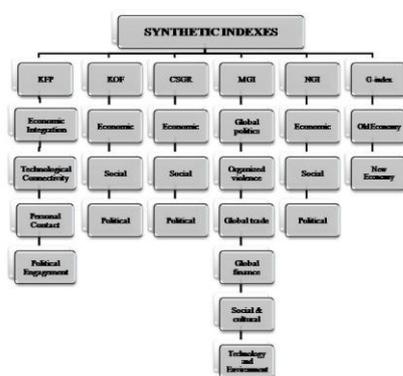


Figure 1: Categorization of synthetic globalization indexes

#### A.T. KEARNEY/FOREIGN POLICY GLOBALIZATION (KFP)

Kearney (2002, 2003) is the first attempt to introduce a multiple measurement for globalization. This index measures not only economic integration but also technological connectivity, personal contact, political engagement. This globalization Index is calculated only for 62 countries (see more in (Caselli & Gemelli, 2008)). To build the index, like Human Development Index of UNDP, in the first stage the relevant variables have been selected by careful assessment. Then, by consideration of data availability, a proper measurement for each variable has chosen. These variables are measured in different units that should be normalized. KFP use panel normalization to normalize the individual variables. A finally, a weighted sum of the normalized variables is calculated which gives a numerical score for each country in each year to determine country rankings. Weights are assigned based on construction belief. Variables are weighted double or single relative to others. The reason for a priori weights is that they have some normative significance. Some researchers believed that this approach is not reasonable (Andersen, Herbertsson, & Str, 2003; B. Lockwood, 2001). This index does not adjust the variables for geographical dimension. Therefore, the ranking of countries depends not only on their geographical characteristics but also on their policy stance towards globalization.

#### KOF<sup>1</sup>

This index was introduced by Axel Dreher and updated in (Dreher, Gaston, & Martens, 2008). Based on this index, globalization defines as a process that erodes national borders, integrates of economies, politics, technologies, and cultural and facilities flows of people, goods, capitals and ideas. KOF index covers the economic, social and political dimensions of globalization (Dabour, 2000; Dreher, 2006; Dreher et al., 2008; Rao, Tamazian, & Vadlamannati, 2011). The principle components analysis is used to calculate the weight for variables. This index does not adjust for geographic characteristics of countries.

#### THE CSGR<sup>2</sup> GLOBALIZATION INDEX

The Index measures the economic, social and political dimensions of globalization for the period of 1982 to 2004 for 62 countries. The index is claimed to be complementary to KFP, as it use optimal statistical weighting known as principal component weighting and controlling for fixed country geographical characteristics. The procedure of constructing index is same as KFP (Caselli, 2006; Caselli & Gemelli, 2008; Joyce, 2006; Ben Lockwood & Redoano, 2005).

#### MAASTRICHT GLOBALIZATION INDEX (MGI)

The MGI index uses seven group of variables include global politics, organized violence, global trade and finance, social and cultural, technology and environment to cover all dimensions of globalization. This index is calculated only for 2000 and 2008 (Dreher et al., 2008; Martens, Dreher, & Gaston, 2008). This index is the only one that capture environmental dimension of globalization. MGI also includes geographical characteristics of countries in adjustment of countries.

#### NEW GLOBALIZATION INDEX (NGI)

Vujakovic in 2009 has developed an index with five new variables to measure globalization. These variables are trade-mark applications by non-residents, portfolio investment stock, patent applications by non-residents, and environmental agreements (Vujakovic, 2010). Based on this index, globalization defines as a process that increases interaction and interdependence between economies, societies and nations beyond large distances. He has used a parameter to control geographical distances between countries. For constructing the globalization dimensions and variable weights, the principal component analysis is used. Dimensions and weights constructed in such manner reflect the statistical characteristics of the dataset.

#### GLOBALIZATION INDEX (G -INDEX)

G-index has been introduced by Randolph, 2001 to measure the depth, breadth and richness of the interdependence between the national and the global

1- German acronym for 'Konjunkturforschungsstelle'(Economic Research Center)

2- Center for the study of globalization and regionalization

economy. The major weigh of variables belongs to economic dimension of globalization. The main shortcoming of this index is partially publishing of the data (Randolph, 2001).

**EVALUATION OF SYNTHETIC INDEXES**

To facilitate comparison between different synthetic indexes, a comprehensive set of criteria is considered. Table 1 is based on these criteria that are important in the construction of an index. Such criteria could help in evaluating the existing globalization indexes, serve as the abilities to be considered in implementing new indexes, or facilitate selection of best index for studying globalization. As illustrated in this table, we are able to compare synthetic

index with respect to some criteria. If an index supports each of these criteria (except negligible weight to indicators), it is more accurate than the approach which does not. This table can help researchers to choose the best index for their studies based on their globalization definition and objective of studies. In addition, it leads those researchers that have aimed to improve the current globalization indexes, by determining its weaknesses and strengths. In addition, it can concluded from the table that KOF is the best index for measuring globalization based on some feature of it. The first one is that it measures the level of trade and all types of foreign capital as well as restriction on them.

Table1. Existing globalization indexes and criteria for good composite indexes

Index	Criteria												
	Years	Number of Countries	Number of Indicators	Economic globalization				Social Globalization		Political Dimension	Negligible Weight to Indicators	Geographical adjustment	Environment
				Actual Flow		Actual Flow of Trade	Restriction on Trade and Capital	Culture	Information and contact				
				Foreign Capital	FDI								
KFP	1971-2005	62	12	x	✓	✓	x	x	✓	✓	x	x	
KOF	1970-2008	158	25	✓	✓	✓	✓	✓	✓	✓	x	x	
CSGR	1982-2004	62	16	✓	✓	✓	x	x	✓	✓	✓	x	
MGI	2000-2008	117	11	✓	✓	✓	x	x	x	Same weight	✓	✓	
NGI	1995-2005	70	22	✓	✓	✓	x	✓	x	x	✓	x	
G-index	2001	185	6	✓	✓	✓	x	x	x	x	x	x	

Source: Author calculation

The second one is that it measures social and political dimension of globalization more comprehensive than other indexes. The last one is that it calculated for large number of countries and longer period. However, it is worth mentioning here that KOF is not suitable for all globalization studies. The objective of a study is an important factor that should be accounted when selecting globalization indexes.

**CRITICAL VIEW ON GLOBALIZATION INDEXES**

In this section, the main shortcoming of synthetic indexes will be discussed. In this type of index, researchers have tried to consider all dimensions of globalization. Despite of the extensiveness of these indexes, some problems still exist and they need to be addressed. The first on is using extremely large number of variables and indicators in constructing them. The excessive use of variables and indicators gives rise to many and different problems, such as necessity of a greater amount of data that decrease the number of countries that have this amount of data (Caselli & Gemelli, 2008).The second one is the weights that imputed to some variables are negligible. For example, the scant value of Phone calls in CSGR index that account for 0.004 in the Ideas sub-dimension, two-thirds of the overall value of the Social globalization sub-index and one-thousandth of the index's overall value of index (B. Lockwood, 2001). The third shortcoming is that these indexes do not consider any measurement of restriction on trade and capital except KOF index. To measure the economic globalization of a country both actual flow and restriction should be consider. The forth is related to the adjustment for geographical structure of

countries in some of these indexes like KOF and KFP. This adjustment improve the precisely of indexes that the level of their globalized do not affected by countries characteristics. Finally, some of these indexes do not publish the methodological notes clearly, and an access to the data of these indexes is difficult to gain. This kind of disadvantage is eminent in the index such as the G-index.

**CONCLUSIONS**

The two main reasons make globalization difficult, first there is not any universally accepted definition for globalization and second, globalization has different aspects that make it difficult to consider all in just one index (Martens et al., 2008). In order to explore the effects of globalization, it is necessary to construct a new tool. Finding an instrument to measure a phenomenon of such complexity and such significance for humanity is a challenge both fascinating and demanding. Nevertheless, many researchers try to tackle these difficulties and create various ways to measure it. As mentioned, to construct one index, the variables and indicators have been selected based on how the constructors define globalization. There are some differences in the measurement, weighting, and normalization rules used to construct these indexes. In this paper, after considering the importance of measuring globalization, we presented the indicators and method of synthetic globalization indexes. We also proposed a set of criteria which are mainly used in evaluating synthetic globalization indexes. Such criteria could help in evaluating the existing globalization indexes, serve as the abilities to be considered in implementing new

indexes, or facilitate selection of best index for studying globalization. Finally, the problems of current measurement of globalization are discussed. Our surveys provide an insight on globalization index, by providing a classification of available indexes. This is done so that it can help researchers to select the best index for their studies or develop new and better measurement. We cannot conclude that which index is better than the other. In fact, the findings of our study have indicated that there is no single superior index that is suitable for all cases. The proposed list of criteria serves as a guide line for researchers to select the best index for their studies. Based on these criteria, this paper recommended KOF as the best index that measures more comprehensively all dimensions of globalization than other indexes. Nevertheless,

the selection of the globalization index for a study depends very much on the objective of that study, data availability and characteristics of countries under consideration. It seems that it is necessary for both qualitative and quantitative researchers to study globalization and hence, develop an accurate index for it. This index is useful in comparing and contrasting the existing indexes so that a more precise measurement of globalization can be attained. This index should be simple, precise and easy to understand.

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