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ON THE NATURE OF GLOBALIZATION AND ITS MEASUREMENT. SOME NOTES ON THE *A.T. KEARNEY/FOREIGN POLICY MAGAZINE GLOBALIZATION INDEX* AND THE *CSGR GLOBALISATION INDEX*.

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1. Introduction

Globalization is one of the most important processes involving contemporary humanity, and, significantly, for at least fifteen years it has been one of the phenomena most thoroughly studied by the social sciences. Not surprisingly, therefore, in an attempt to acquire an ever greater quantity of information about the phenomenon, various researchers have sought to devise instruments with which to measure it. This, however, is a difficult operation, for at least two reasons.

The first is that globalization is an extremely complex and multiform phenomenon which affects almost every dimension of social life. Although initially – with the exception of certain pioneering works (Nettl and Robertson 1968) – the process was investigated mainly by economists,[1] being consequently considered an exclusively or almost exclusively economic phenomenon, in immediately subsequent years it attracted the attention of scholars working in other disciplines – political science and, in particular, sociology (Axford 1995, Robertson 1992, Held 1995, Waters 1995, Featherstone 1990). Today, thanks to the efforts of these and many other researchers, there is substantial consensus that globalization has at least three fundamental dimensions (which can be broken down into a variety of sub-dimensions): economic, political, and cultural.[2] And these are dimensions which are very difficult to subject to a single instrument of measurement.

The second reason why a satisfactory measure of globalization is so difficult to construct is that despite the large body of scientific output on the matter (or indeed precisely because of it), still not forthcoming is a widely recognized and accepted definition of what

[1] Following a celebrated article by T. Levitt (1983).

[2] Besides this mainstream view, it is still widely believed that the economic aspects of globalization constitute its most advanced dimension and therefore drive the process. To be pointed out, however, is the decidedly contrary opinion of M. Waters that it is instead the cultural dimension of globalization which is its engine: "*material exchanges localize; political exchanges internationalize; and symbolic exchanges globalize*. It follows that the globalization of human society is contingent on the extent to which cultural arrangements are effective relative to economic and political arrangements. We can expect the economy and the polity to be globalized to the extent that they are culturalized, that is, to the extent that the exchanges that take place within them are accomplished symbolically. We would also expect that the degree of globalization is greater in the cultural arena than either of the other two" (1995: 9-10; emphasis in the original).

globalization actually is. Apart from certain elements on which there is a general tendency to agree, the various approaches adopted are still profoundly heterogeneous. This is apparent (and understandable) if we consider scholars working in different disciplines, but it is equally so internally to individual disciplinary fields. In this regard I cite some examples taken from Giaccardi and Magatti (2003: 35-7; emphasis in the original).

> There are those who say that globalization coincides with the birth of a great *global market*. The free circulation of goods and people will not only extend higher levels of well-being to all mankind but will also constitute the founding institution of the new world (Ohmae 1990). […] There are those who instead say that globalization is leading to the construction of a *new empire*, the rise of an (American-European) power centre which will extend its dominion around the globe following the demise of its only antagonist, the Soviet Union (Chomsky 1998; Hardt and Negri 2000). […] There are those who say that globalization will inevitably provoke a *clash of civilizations*, where by 'civilization' is meant a mixture of economic interests, religious identities and political institutions (Huntington 1996). […] There are those that say that globalization will produce new *postnational states* (Habermas 1998), that is, new forms of political organization which will relinquish their ethnic foundations and instead rely on the capacity of democratic models to manage multiculturalism. […] There are those who say that the *crisis of the nation-states is only temporary* and that we can expect their resurgence, perhaps with a redistribution of their power and spheres of influence (Gamble 2000). […] There are those who instead say that globalization – by weakening the nation-states – will restore dignity and *salience to the local dimension* (Le Gales 2003). […] Finally, there are those who say globalization will conclude the modern age, with its ordering pretensions, and that we shall finally enter a fragmented world of *cultural creolization* (Hannerz 1998; Featherstone *et al.* 1995).

This paper is aimed at conducting a critical survey of the instruments developed to measure a complex phenomenon like globalization, with a particular emphasis on the problems, drawbacks and challenges encountered by those who may decide to perform such measurement.

In particular, the paper first briefly outlines the standard procedure that must be followed when constructing an instrument to quantify a complex social phenomenon, and the problems that arise when doing so. Then listed are the theoretically desirable features of an instrument of this kind. After these introductory sections, a description is given of two of the most significant instruments developed for the purpose of measuring globalization: the *A.T. Kearney/Foreign Policy Magazine Globalization Index* and the *CSGR Globalisation Index*. The features of these two indices are illustrated and compared, and so too are the results that they yield.

The final part of the paper makes some critical remarks concerning these two instruments. A first series of observations are strictly technical in nature and centre on the structure of the instrument and the characteristics of the database used. A second series of

remarks more closely concern the nature itself of globalization, which may not be grasped by instruments which use 'traditional' methodologies.

2. The measurement of complex social phenomena

A complex social phenomenon can only be measured indirectly. Two options are theoretically possible. The first is to identify a single indicator[3] which possesses characteristics such that on its own it represents the entire phenomenon subject to analysis. By way of example, a complex phenomenon like development is very often measured using exclusively per capita GDP as the indicator. This solution has been frequently criticised, and it appears to be entirely impracticable in the case of globalization, given the extraordinary multidimensionality of the phenomenon. The second option is vice versa to identify a more or less large number of different indicators and aggregate them into an overall index which furnishes a synthetic measure of the phenomenon studied. This latter is the approach adopted by the authors of the two measures of globalization analysed in this paper.

But how is an index constructed? The first operation to perform, given the concept that one wishes to measure, is to identify its various dimensions; or better, given that complete coverage of such dimensions is often impossible, to select those dimensions which seem most important in light of the perspective adopted by the researcher, and the purposes which s/he intends to pursue with the measure. Moreover, the researcher must take account of *how many* factors s/he believes the index can handle.

Once the researcher has identified the fundamental dimensions – which may then be broken down into sub-dimensions – s/he must identify suitable indicators for each of them. In this regard, some authors have pointed out that it is usually easier to identify the dimensions of a concept than the relative indicators, because when the latter are being selected, the constraints and practical requirements imposed by empirical inquiry inevitably arise (McGranahan 1971: 66).[4]

When the indicators have been selected, the next and controversial step is to decide the weight to attribute to each of them when constructing the overall index. Once again, the decision should be taken on the basis of theoretical considerations, and bearing the research objectives in mind. Nevertheless, the choice is always arbitrary. To be stressed is that when

[3] By 'indicator' is meant a specific, empirically measurable, concept able to furnish information about a more general concept which is not empirically measurable (Corbetta 1999: 115).

[4] When selection is made of the indicators for each of the dimensions identified, a balance must be struck between two criteria: (a) optimal representativeness with respect to the dimension considered; (b) availability, quality, timeliness, and cost of the corresponding information.

an index is being constructed, this arbitrariness arises at various levels: in definition of the concept to be analysed; in the choice of the dimensions to consider, and of the relative indicators; in determination of the weights; and, as we shall see, in the choice of techniques to normalize and aggregate the variables on the basis of which the index is calculated. It is important never to conceal the existence of this arbitrariness – for instance by employing particularly complex mathematical formulas – and never to present the index proposed as being endowed with objective validity (Drewnowski 1970: 21-3).

Finally, the value of each of the variables must be expressed in a form homogeneous with those of the others, so that they can be aggregated into the overall index, or into the sub-indices, which in their turn are integrated. In particular, if the values of the indicators are expressed in cardinal or quasi-cardinal form, they must be *normalized*, that is, related to a common scale of reference, for example 0-1 or 0-100. In other words, the values of the indicators must be transformed into *index numbers*. For this purpose a maximum value and a minimum number corresponding to the extremes of the normalized scale must be identified for each variable. Sometimes this maximum and/or minimum are intrinsically given – for example, the literacy rate cannot be less than 0% or more than 100% – but in other cases they must be determined by the researcher, who for that matter may also decide to use thresholds other than 'natural' ones if s/he believes that the latter are not congruent with his/her purposes. Determination of these maximum and minimum values therefore introduces a further arbitrariness into construction of the index.

The values of each factor must therefore be transposed onto the normalized scale. This operation may be performed by complying rigidly with the criterion of proportionality between the 'natural' scale and the normalized one, or alternative options may be chosen (for example, the use of logarithmic scales) if they are deemed better suited to the objectives for which the index is being constructed. And this once again is an arbitrary choice.

Once the various indicators have been normalized, it is finally possible to get the overall value of the index, which can be obtained by summing the indicators or by calculating an average (arithmetic mean, geometric mean, median, etc.).

As said, just described is the case comprising indices with cardinal or quasi-cardinal indicators. However, the indicators may also be expressed by dichotomous variables (presence/absence). In this case, indices can be constructed by summing – and once again the weight assigned to each factor will be decisive – or typological indices can be created. Again, one may have nominal variables, and in this case too typological indices must be used. Particular solutions may then be devised for the ordinal indicators, for example by transforming them into quasi-cardinal or dichotomous variables.

Finally, it is possible to envisage indices which combine indicators of diverse nature. In this case, the aggregation technique must be selected case by case according to the types of indicator employed.

3. The features that a measure of a complex social phenomenon should possess

This section describes the main features that a researcher should consider and seek to achieve when constructing an index to measure a complex social phenomenon – and in particular when constructing an index of globalization. As stressed in the previous section, this construction will inevitably be based on arbitrary choices which can never be objectively justified.[5]

Firstly, an instrument of measurement must be *valid*: that is, it must accurately and specifically measure the concept that it has been designed to measure. In particular, it should be as *complete* as possible, in the sense that it considers all the main dimensions of the phenomenon examined, while also giving them *right coverage*: each of the phenomenon's elements must be represented in proportion to its importance within the phenomenon.

The measurement must be repeatable after an interval of time, and it must be able to record any variations in the phenomenon precisely and promptly. It must, that is, be *sensitive*. This feature is especially important when analysing globalization, given the rapidity with which the phenomenon evolves.

The measurement instrument must also be *reliable*: if its use is repeated, the results must be consistent. Above all, it must yield the same results when used by different subjects. In this regard, given the arbitrary nature of the choices that lead to the instrument's creation, the *criteria and procedures on which construction of the indices has been based* must be *clearly specified and made public*. The value of a globalization measure – to remain on topic – can never be demonstrated on the basis of objective criteria; its value can only result from scrutiny by the scientific community, and this scrutiny can only be possible if the nature and structure of the index is as 'transparent' as possible.

[5] Without specifications for each of the points that follow, these are the texts to which I have referred to identify the desirable features of an index constructed to measure a complex social phenomenon: UNDP (2000), Scamuzzi (1996), Graziosi (1979), Cipolla (1987), United Nations (1989), Morris (1979), Scidà (1997), Alberti *et al.* (1995), Drewnowski (1970), Cartwright (2000), Church and McHarry (1994).

The instrument, in its mode of use and results obtained, must be adequate to its purpose. That is, it must be *efficacious*. And it must also be *efficient*, in the sense that there must be a good ratio between the costs of using the instrument and the benefits obtained.

The measurement instrument must also be able to furnish the information required in *timely* manner: there must be a minimum gap between the moment when the information becomes available and the moment to which it refers. For this to be possible, the instrument must be *easy to handle* and must not require excessively complex calculations or other operations. It is also important that the measure is based on *easily accessible* and *good quality* data.

If an index of globalization is to gain broad recognition, it must – as a whole and in its individual parts – be *relevant*, *meaningful* and *easily understandable* for experts, but not only these, given that the concept of globalization is used well beyond the strictly academic community. Finally, a measurement instrument should furnish results that are *clear, easily interpretable* and *unambiguous*.

4. The *A.T. Kearney/Foreign Policy Magazine Globalization Index*

Now discussed are two of the most significant measures of globalization proposed to date, beginning with the *A.T. Kearney/Foreign Policy Magazine Globalization Index*. Over the years, this is an instrument undergone various modifications in the number and nature of the indicators used, and the procedures for calculating the index itself. Described here is the latest version of the index, published in 2005 and using data relative to the year 2003 (Foreign Policy 2005).

The *A.T. Kearney/Foreign Policy Magazine Globalization Index* considers four fundamental dimensions of globalization:[6] *economic integration*, *technological connectivity*, *personal contact*, *political engagement*. Corresponding to each of these dimensions are two or more variables, for a total of twelve (there were 14 in the 2004 version and 13 in the 2003 version); each variable in its turn corresponds to one or more indicators. Each variable is normalized on the scale 0-1, where corresponding to 1 is the highest value recorded among all countries for that variable in the year in question,[7] while all the other values are

[6] The authors of the index acknowledge that these dimensions capture only some aspects of globalization, and that it would be appropriate to include cultural exchanges as well. This is not done, however, because of the lack of reliable data on this dimension (Foreign Policy 2003: 63).

[7] That is, the maximum value on the basis of which the normalization is performed varies from year to year for each variable. Previously, only one maximum value (and the minimum value, now not considered) was used for normalization and corresponded to the highest (and the lowest) of all those recorded for the variable since 1998.

considered proportionally in fractions of 1. However, this normalization technique (which requires identification for each variable of a maximum value which varies from year to year) has the drawback that analysis of the variation over time of the index for a particular country has little significance. To deal with this problem, the normalized values are multiplied by a 'scale factor' which is set equal to 100 for each value referring to 1998 and varies proportionally to the increase or decrease in the maximum value of each variable relative to each year.[8]

Once the index numbers for each variable have been determined, the problem arises of their aggregation into the overall globalization index, and in particular the problem of the weight which should be attributed to each of the variables considered. The solution adopted for the *A.T. Kearney/Foreign Policy Magazine Globalization Index* is to assign the weights on the basis of theoretical considerations on the importance of each of the dimensions (and sub-dimensions) of the globalization process initially identified. This choice is obviously arbitrary and is therefore susceptible to criticism. Nevertheless, as said, there are no objectively valid criteria that can be applied, and the arbitrariness is inevitable. Table 1 gives the complete list of the variables comprised in the *A.T. Kearney/Foreign Policy Magazine Globalization Index*, together with the weight for each of them and the weight consequently attributed to each of the four fundamental dimensions of the index. To be emphasised is the preponderant value assumed by economic variables in the overall index on account of the weights assigned to them. These variables determine 50% of the value of the overall index, and this may impair its multidimensionality.

When the weights have been assigned, the value of the overall index is given by the sum of the index numbers relative to each variable multiplied by its respective weight.

In its 2005 version – the data for which, as said, refer to 2003 – the *A.T. Kearney/Foreign Policy Magazine Globalization Index* is calculated for 62 countries, corresponding to 85% of the world's population.

[8] The problem is that, for each variable, the maximum value from year to year may refer to different countries. Yet information on how this 'scale factor' is calculated have not been published. Is a reference country taken as the benchmark, or is recalculation made of all the 'scale factors' on the basis of the country which, at that particular moment in time, records the highest value for that particular variable? Also to be pointed out is that, because this procedure is subsequent to normalization on the scale 0-1, it may unduly increase the effective weights in the overall index of the factors for which substantial growth has been recorded in recent years, for example those relative to the technological dimension. Indeed, the United States is given high rankings by the *A.T. Kearney/Foreign Policy Magazine Globalization Index* precisely because of its good performance on the technological dimension (year of reference 2003), although the latter nominally accounts for just 10% of the overall value of the index.

Table 1 – Dimensions, variables, indicators and weights in the *A.T. Kearney/Foreign Policy Magazine Globalization Index*

Dimensions	Variables	Indicators	Weight of the variables	Weight of the dimensions
Economic integration	Trade	Imports and exports, divided by the country's GDP	2	5
	Foreign Direct Investment	FDI inflows and outflows, divided by the country's GDP	3	
Personal contact	Telephone	Minutes of inward and outward international telephone traffic, divided by the country's population	1	3
	Travel	Inward and outward visitors, divided by the country's population,	1	
	Remittances and personal transfers	Cross-border remittances and personal transfers (including worker remittances, compensation to employees, and other person-to-person and nongovernmental transfers), divided by the country's GDP	1	
Technological connectivity	Internet users	Number of Internet users, divided by the country's population	1/3	1
	Internet hosts	Number of Internet hosts, divided by the country's population	1/3	
	Secure servers	Number of secure servers through which encrypted transactions are carried out, divided by the country's population	1/3	
Political engagement	Memberships in international organizations	Memberships in a variety of representative international organizations (absolute number)	1/4	1
	Contributions to U.N. peacekeeping missions	Weighted average of financial contribution divided by the country's GDP, and the country's personnel contribution divided by the country's population	1/4	
	Ratification of multilateral treaties	Ratification of selected multilateral treaties (absolute number)	1/4	
	Governmental transfers	Amounts of governmental transfer payments and receipts, divided by the country's GDP	1/4	

5. The *CSGR Globalisation Index*

The second instrument considered is the *CSGR Globalisation Index* developed by Ben Lockwood and Michela Redoano (2005) at the Centre for the Study of Globalisation and Regionalisation of the University of Warwick (UK).

The *CSGR Globalisation Index* considers three fundamental dimensions of globalization: *economic globalisation*, *social globalisation* (divided into two sub-dimensions: *people* and *ideas*), and *political globalisation*. Corresponding to each of these dimensions is a minimum of three and a maximum of nine variables, for a total of 16. Corresponding to each variable are one or more indicators.

The value of each of the variables is normalized on a scale from 0 to 1, where 1 is the maximum value recorded by the variable in the period 1971-2001, and 0 is the minimum value recorded in the same period.[9] These minimum and maximum values are the same for all the years considered by the index (panel normalization).[10]

When all the variables have been normalized and before an overall measure can be obtained, the awkward problem arises of the weight to assign to each of the variables. The solution adopted by the authors of the *CSGR Globalisation Index* is purely statistical in nature. It is based on the principal component weighting method, a technique which retains as much information as possible about each country during aggregation.[11] This solution has the same validity as that adopted by the authors of the *A.T. Kearney/Foreign Policy Magazine Globalization Index*, who, as we have seen, assigned weights according to strictly theoretical considerations. In both cases, the choice is entirely arbitrary (nor could it be otherwise), and one should not commit the error of believing that the method used in the case of the *CSGR Globalisation Index* is more objective because it is based on a statistical procedure. Also to be noted is that, given the method of determination selected, every updating of the database necessarily requires revision of the weights assigned to each variable in the *CSGR Globalisation Index*, and this increases the complexity of the instrument.

It should be added that the variables relative to the economic dimension are subjected to further refinement. The basic idea is that the amount of economic flows (of goods and

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[9] Using the well-known formula: normalized value = (observed value – minimum value)/(maximum value – minimum value).

[10] As the authors themselves acknowledge, "panel normalisation has both advantages and disadvantages. The advantage is that with panel-normalised data, we can make meaningful comparison over time for a given country or indeed between countries. A disadvantage, discussed in detail in Lockwood (2004), is that when additional years of data are added to the database, the maximum or minimum value of a variable may change, and those variables affected then have to be re-normalised".

[11] For technical details on this procedure see Lockwood – Redoano (2005).

money) across the borders of a country depend not only on its degree of trade openness (and therefore, in the authors' view, on its degree of globalization) but also on certain characteristics of the country. Very small and/or underpopulated countries are more obliged to trade. For this reason, the four economic variables considered by the *CSGR Globalisation Index* are transformed into a new variable given by the difference between the value actually observed and that predicable by a least squares regression which takes account of certain characteristics – non-economic – capable of influencing a country's openness to trade. These characteristics are population (year of reference: 1998), surface area, and a dummy variable recording whether or not the country is landlocked.[12]

When all the variables have been normalized (and when the economic ones have been refined as just described), they are aggregated into partial indices relative to each dimension by means of an arithmetic mean which takes account of the weights assigned. The three partial indices are then aggregated into the overall index by means of a simple arithmetic mean.[13] Table 2 lists the variables and respective indicators used to construct the *CSGR Globalisation Index*, together with the respective weights divided for each of the dimensions considered.

The authors of the *CSGR Globalisation Index* have created a database to collect the information, on all the countries in the world, required to construct the index from 1982 to 2001. For obvious reasons to do with the impossibility of obtaining data, this database is largely incomplete.[14] With reference to the final year considered, namely 2001, the overall globalization index has been calculated for 96 countries. The *CSGR Globalisation Index* therefore covers a larger number of countries than the *A.T. Kearney/Foreign Policy Magazine Globalization Index*, which, as said, is calculated for only 62 countries. It should be pointed out, however, that the latter covers 12 countries not classified by the *CSGR Globalisation Index*: Austria, Czech Republic, Croatia, Slovenia, Slovakia, Uganda, Taiwan, Botswana, Ukraine, Saudi Arabia, Turkey and Iran.

[12] For technical details on this regression see Lockwood – Redoano (2005).
[13] On this point there is a discrepancy between the information given in the technical notes and the structure of the published database. Aware of this fact, the authors of the index are currently conducting tests to determine the reason for this discrepancy.
[14] When possible, the missing data are estimated by means of a linear interpolation procedure.

Table 2 – Dimensions, variables, indicators and weights in the *CSGR Globalisation Index*

Dimensions	Sub-dimensions	Variables	Indicators	Weight of the variables	Weight of the dimensions
Economic globalisation		Trade	Exports plus imports of goods and services as a proportion of GDP	0.418	1
		Foreign Direct Investment	Inflows plus outflows of FDI as a proportion of GDP	0.092	
		Portfolio investment	Inflows plus outflows of portfolio investments as a proportion of GDP	0.220	
		Income	Employee compensation paid to non-resident workers and investment income from foreign assets owned by domestic residents plus employee compensation paid to resident workers working abroad and investment income from domestic assets owned by foreign residents, as a proportion of GDP	0.270	
Social globalisation	People	Foreign stock	Stock of foreign population as proportion of total population	0.266	1 (0.331 for People; 0.669 for Ideas)
		Foreign Flow	Inflows of foreign population as proportion of total population	0.629	
		Worker remittances	Worker remittances (receipts) as a proportion of GDP	0.079	
		Tourists	Number of tourists (arrivals plus departures) as proportion of total population	0.026	
	Ideas	Phone calls	International outgoing telephone traffic (minutes) per capita	0.004	
		Internet users	Internet users as a percentage of population	0.303	
		Films	Number of films imported and exported	0.061	
		Books and newspaper	Sum of value of books and newspapers imported and exported per capita (US dollars)	0.577	
		Mail	Number of international letters delivered and sent per capita	0.054	
Political globalisation		Embassies	Number of foreign embassies in country	0.378	1
		UN Mission	Number of UN peacekeeping operations in which country participates	0.357	
		Organi-sations	Number of memberships of International organisations	0.266	

6. The *CSGR Globalisation Index* and the *A.T. Kearney/Foreign Policy Magazine Globalization Index*: a comparison

There are close similarities between the two globalization indices described in previous sections but also numerous and significant differences, which give rise, as we shall see, to discrepancies among the results obtained.

As regards the similarities, these are not surprising to find, given that the *CSGR Globalisation Index* originated from criticisms of the *A.T. Kearney/Foreign Policy Magazine Globalization Index* and an attempt by Ben Lockwood (2001) to correct it. Some terminological differences notwithstanding, the main dimensions of the two indices almost perfectly overlap. Both indices have an economic dimension and a political dimension, and, once operationalized, the *social globalisation* of the *CSGR Globalisation Index* is very similar to the *personal contact* and *technological connectivity* set in the *A.T. Kearney/Foreign Policy Magazine Globalization Index*. There are also evident similarities in the variables selected. Fully 8 of the 12 variables used by the *A.T. Kearney/Foreign Policy Magazine Globalization Index* (and indeed 10 of the 14 in the 2004 version and 11 of the 13 in the 2003 version) reappear in identical or almost identical form in the *CSGR Globalisation Index*, although this uses a wider range of variables (16).

Instead, there are significant differences between the two instruments as regards the processing and aggregation of data. The main differences consist (i) in the different weights given to the various dimensions making up the index, and (ii) the differing technique by which weights are assigned to the variables within each dimension. The *CSGR Globalisation Index*, in fact, attributes the same weight to all three of the dimensions identified, while the *A.T. Kearney/Foreign Policy Magazine Globalization Index* gives decidedly greater weight to the economic dimension, to the detriment of the political one. It consequently seems that the *CSGR Globalisation Index* is better able than the *A.T. Kearney/Foreign Policy Magazine Globalization Index* to capture the intrinsic complexity and multidimensionality of globalization processes. As regards the aggregation of the variables within each dimension, the weights to be attributed are decided on the basis of theoretical considerations by the *A.T. Kearney/Foreign Policy Magazine Globalization Index*, and on the basis of statistical procedures by the *CSGR Globalisation Index*. It has already been said that both these solutions are arbitrary, valid, and at the same time criticisable. Finally, in regard to its economic variables, the *CSGR Globalisation Index* introduces a correction factor intended to reduce the impact on the results of the index of certain demographic and morphological features of the countries studied. Put otherwise: in the absence of this factor, smaller countries would tend to be more globalized than larger ones. Although the authors of the *A.T. Kearney/Foreign Policy Magazine Globalization*

Index are aware of this problem, they play down its significance and do not consider it necessary to introduce a corrective. However, a first reading of the results obtained with the instrument seems to support the stance taken by the authors of the *CSGR Globalisation Index*: a large number of smaller and less-population countries occupy the highest places in the classification.[15]

Now compared – albeit, for reasons of space, only partially – are the results obtained using the *CSGR Globalisation Index* and the *A.T. Kearney/Foreign Policy Magazine Globalization Index*. Comparison is not straightforward, however, because the most recent data reported by the *CSGR Globalisation Index* refer to 2001, while those used by the latest version of *A.T. Kearney/Foreign Policy Magazine Globalization Index* refer to 2003. Table 3 sets out the classifications of the 20 most globalized countries according to the *CSGR Globalisation Index* (reference year: 2001), according to the *A.T. Kearney/Foreign Policy Magazine Globalization Index* in its most recent version (reference year: 2003), and according to a previous version of it (reference year: 2001). Also given for each country is its position in the other two classifications considered here.

A first finding is that countries with relatively small populations also occupy the uppermost positions in the *CSGR Globalisation Index*. This means that, despite the correction made while constructing the index, small countries are still those most closely involved in transnational flows.

The second feature to stress is the substantial similarity (with few but significant exceptions) between the classifications obtained using the *CSGR Globalisation Index* and the *A.T. Kearney/Foreign Policy Magazine Globalization Index*. Specifically, of the 20 most globalized countries according to the *CSGR Globalisation Index*, only 3 rank below 20th place in the *A.T. Kearney/Foreign Policy Magazine Globalization Index* for 2001, and 4 in the one for 2003. In all three classifications, moreover, Ireland, Switzerland and Singapore rank highest. Also to be noted is that the most globalized country according to the *CSGR Globalisation Index*, namely Belgium, does not figure among the countries for which scores are available on the *A.T. Kearney/Foreign Policy Magazine Globalization Index*. In its turn, the *CSGR Globalisation Index* does not include some of the countries occupying the top twenty positions in the *A.T. Kearney/Foreign Policy Magazine Globalization Index*, namely Austria, Czech Republic, Croatia and Slovenia.

[15] Also confirming the presence of this dynamic is the fact that the WMRC G-Index – not considered here because it is exclusively concerned with economic aspects of globalization – ranks Liechtenstein as the most globalized country in the world (World Markets Research Centre 2001). Liechtenstein does not appear in the lists of either the CSGR Globalisation Index or the A.T. Kearney/Foreign Policy Magazine Globalization Index.

The only significant discrepancies between the classifications compiled using the two instruments are the cases of Russia, which ranks among the top twenty countries in the *CSGR Globalisation Index* but occupies one of the lowest positions in the *A.T. Kearney/Foreign Policy Magazine Globalization Index*, and of Israel, which conversely has a high level of globalization according to the *A.T. Kearney/Foreign Policy Magazine Globalization Index* but a very low level according to the *CSGR Globalisation Index*.

Table 3 – The 20 most globalized countries according to the *CSGR Globalisation Index* (CSGR) and to the *A.T. Kearney/Foreign Policy Magazine Globalization Index* (KFP)

	CSGR (year of reference: 2001)			KFP (year of reference: 2001)			KFP (year of reference: 2003)		
Rank	Country	KFP 2001	KFP 2003	Country	CSGR 2001	KFP 2003	Country	CSGR 2001	KFP 2001
1	Belgium	n.i.	n.i.	Ireland	2	2	Singapore	4	4
2	Ireland	1	2	Switzerland	3	3	Ireland	2	1
3	Switzerland	2	3	Sweden	8	8	Switzerland	3	2
4	Singapore	3	1	Singapore	4	1	USA	7	11
5	Canada	7	6	Netherlands	12	5	Netherlands	12	5
6	UK	9	12	Denmark	10	7	Canada	5	7
7	USA	11	4	Canada	5	6	Denmark	10	6
8	Sweden	3	8	Austria	n.i.	9	Sweden	8	3
9	France	12	18	UK	6	12	Austria	n.i.	8
10	Denmark	6	7	Finland	13	10	Finland	13	10
11	Germany	17	21	USA	7	4	New Zealand	18	16
12	Netherlands	5	5	France	9	18	UK	6	9
13	Finland	10	10	Norway	14	14	Australia	16	21
14	Norway	13	14	Portugal	22	22	Norway	14	13
15	Italy	24	27	Czech Rep.	n.i.	15	Czech Rep.	n.i.	15
16	Australia	21	13	New Zealand	18	11	Croatia	n.i.	22
17	Malaysia	18	19	Germany	11	21	Israel	49	19
18	New Zealand	16	11	Malaysia	17	19	France	9	12
19	Russian Fed.	45	52	Israel	49	17	Malaysia	17	18
20	Spain	20	26	Spain	20	26	Slovenia	n.i.	25

Overall, the fact that there are no striking differences between the results yielded by the two indices is at least partial proof of their reliability.[16] But it also tells us – and counsels caution when information obtained from indices of this kind is used – that a small difference of position between one country and another is likely to result more from the nature of the instrument than from an actual difference in levels of globalization.

7. Some technical criticisms of the *CSGR Globalisation Index* and the *A.T. Kearney/Foreign Policy Magazine Globalization Index*

In this section I advance some criticisms, mainly technical, which I believe can be brought against the two globalization indices discussed. Some of these criticisms concern both instruments; others are directed at one rather than the other. In a later section I shall instead put forward criticisms of a more substantial nature: in particular, I shall show that both indices are at risk of distorting the essential nature of globalization processes.

To begin with the strictly technical criticisms, I maintain that the main defect of both the *CSGR Globalisation Index* and the *A.T. Kearney/Foreign Policy Magazine Globalization Index* is that they use an excessively large number of variables and indicators. The presence of so many variables in both instruments is due to their attempt to cover all the numerous aspects of the globalization process – an attempt, that is, not to traduce its complexity. It should be pointed out, however, that constructing an index is always an operation of synthesis and simplification which inevitably does violence to the phenomenon studied.

The excessive use of variables by the two indices gives rise to many and different problems. The first of them is that as the indicators increase (i.e. the greater the amount of information required to calculate the value of the index), there is a concomitant decrease in the number of countries for which it is possible to obtain the data needed to determine the value of the index. Not by chance, as already pointed out, the *A.T. Kearney/Foreign Policy Magazine Globalization Index* can be calculated for only 62 countries – although the authors stress that these are the most important ones in demographic and economic terms – and the *CSGR Globalisation Index* for 96. Testifying further to the seriousness of the problem is the fact that both instruments omit not only under-developed countries (for which the difficulty of obtaining reliable statistics is notorious) but also numerous advanced ones, as well as others with large populations (in respect to which information furnished by the index would instead be interesting and significant). For example, the *A.T.*

[16] However, the proof would be much more convincing if these were two instruments with radically different structures.

Kearney/Foreign Policy Magazine Globalization Index does not include Belgium (the country which, as said, the *CSGR Globalisation Index* ranks as the most globalized in the world), Iceland and Algeria; whilst the *CSGR Globalisation Index* omits Austria, Czech Republic, Croatia, Slovenia, Slovakia, Ukraine, Saudi Arabia, Turkey and Iran.

Secondly, the excessive use of variables hampers control on the quality of the information corresponding to them, and therefore diminishes the reliability of the instrument. On the other hand, however, the use of numerous variables reduces the influence exerted by errors in one of the variables on the overall value of the index.

Thirdly, the need to acquire a large amount of disparate information from diverse sources reduces the timeliness of such information. In this regard, to be noted is that the value of the *A.T. Kearney/Foreign Policy Magazine Globalization Index* is available with a two-year delay (the values for 2003 were published in 2005), and that of the *CSGR Globalisation Index* with a fully four-year delay (in 2005 the most recent data available refer to 2001). I regard this as an extremely serious problem, all the more so because it concerns a phenomenon – globalization – among whose fundamental features is the rapidity of the changes that it induces.

Lastly, the excessive use of variables restricts the instrument's comprehensibility – outside the strictly academic or scientific community especially – and thus limits its chances of gaining broad international recognition.

In this regard and to concentrate on the *CSGR Globalisation Index*, I contend that, given the technique of weights assignment chosen, it is difficult to justify the inclusion of some of the variables in the index. In fact, the statistical procedure used entails the attribution of practically negligible weights to some variables (see Table 2). For example, *Phone calls* is given a weight of just 0.004 in the *Ideas* sub-dimension, which represents around two-thirds of the overall value of the *Social globalization* sub-index. Consequently, this variable accounts for approximately one-thousandth of the overall value of the *CSGR Globalisation Index*. Likewise, extremely limited weights are assigned to *Foreign Direct Investment* (which, note, is given much greater weight in the *A.T. Kearney/Foreign Policy Magazine Globalization Index*), *Worker remittances*, *Tourists*, *Films*, and *Mail*. Therefore, should it be wished to maintain the statistical method of weights attribution, these variables can easily be discarded, with only minimum impact on the overall value of the index.

Turning to the *A.T. Kearney/Foreign Policy Magazine Globalization Index*, the scant importance that it gives to the political dimension – which accounts for just one-tenth of the index's overall value – is questionable; and so too is the decision to omit the cultural

dimension entirely. As said, the authors justify this decision by the difficulty of finding appropriate indicators. Yet the *CSGR Globalisation Index* includes indicators of this kind (*Films* and *Books and newspapers*), albeit doing so in perhaps not entirely satisfactory manner.

Again with reference to the all'A.T. Kearney/Foreign Policy Magazine Globalization Index, I reiterate what was pointed out in a previous footnote: the introduction of the 'scale factor' - the purpose of which is to enable diachronic comparison of the results obtained - gives rise to an undue and substantial increase in the weights of some indicators, with a consequent distortion in the index's overall structure.

Convincing to some extent is the operation performed within the *CSGR Globalisation Index* to correct the economic variables on the basis of certain geo-demographic characteristics of the country considered. Its impact is rather limited, though, in that small countries with small populations – Belgium, Switzerland, Ireland and Singapore (see Table 3) – rank topmost in both the *CSGR Globalisation Index* and the *A.T. Kearney/Foreign Policy Magazine Globalization Index* (which does not make this correction). To be pointed out further is that this correction could also be made on some of the non-economic variables – for instance *Tourists*, *Phone calls*, *Films*, *Books and newspapers*, *Mail* – because, I submit, the same considerations apply to these variables as prompted introduction of the correction factor in the economic variables. At least for some variables, a further possibility, alternative or complementary to the correction factor, would be to distinguish the provenance (and origin) of the international flows considered: for instance, with exclusion of those from adjoining or neighbouring countries. For example, if the large part of the international trade flows that traverse Ireland originate from or are directed towards the United Kingdom, this does not mean that Ireland is highly globalized; vice versa if the flows originate from or are directed towards other countries. This option, however, is impracticable given the complications that it would cause in calculation and data collection.

A final criticism, which specifically concerns the *A.T. Kearney/Foreign Policy Magazine Globalization Index*, is the insufficient clarity of the methodological notes published, and the incomplete accessibility of the database used. Also to be criticised is the fact that the various changes introduced into the instrument's construction have never been openly stated, even less justified. Indeed – and this is a serious methodological error – the reports which comment on the results discuss the variations over time (without the index being recalculated) in the relative positions of countries. Yet it is likely that these variations are (also) due to the different way in which the index is constructed from year to year, and not solely to actual variations in the property considered.

8. Some lessons from a success story

Finding an instrument to measure a phenomenon of such complexity and such significance for humanity is a challenge both fascinating and demanding. There are two main difficulties: first, constructing an instrument adequate to the purpose; second, gaining its international endorsement by the scientific community and the public at large. The second of these difficulties seems more formidable than the first.

I believe that there are similarities between the route followed to date in measuring globalization and the route pursued, in past years, to construct satisfactory measures of development. The latter is a phenomenon which, like globalization, is both complex and important. The difference between them is that in the case of development an instrument of measurement – per capita GDP/GNP – was found very early on and enjoyed great success.[17] However, it was then subject to numerous criticisms,[18] and since the 1960s – although some attempts were made prior to that decade – the need to develop alternatives has grown urgent. To be mentioned in particular are the measures proposed by Bennett (1937), Drewnowski and Scott (1966), Dellacasa (1979), and Morris (1979). None of these attempts gained international acceptance. Why not? In the case of the instruments proposed by Bennett, Drewnowski and Scott, and Dellacasa one of the main reasons was their excessive complexity, in particular their overly large number of indicators, for which data was often difficult to obtain. As a consequence, these instruments could be used for a very small number of countries, and they were cumbersome and untimely. Vice versa, the *Physical Quality of Life Index* proposed by Morris was extremely simple and consisted of only three indicators. It substantial failure was do to the fact that it was not officially used by any of the main international organizations.

Good success has instead been achieved by the Human Development Index (HDI) proposed since 1990 by the UNDP. The HDI has not been able to displace per capita GDP/GNP as the main measure of development. Nevertheless, it is widely recognized internationally, and its value is quoted – together with per capita GDP/GNP – by almost all the statistical reports of the main international organizations.[19]

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[17] I shall not give definitions of GDP and GNP here, assuming that they are sufficiently well known. I merely mention that these two indicators are largely interchangeable in the literature. Scidà (1997) has pointed out that whereas GNP was initially preferred, GDP is now more widely used.

[18] See for example: Scidà (2004), Morris (1979), Drewnowski (1972), Horn (1993), Seers (1972), Streeten (1995), Parfit (1993), Gallino (2000), Sen (1999).

[19] For a detailed examination of the history of development measures and a description of all the instruments mentioned in this section, see Caselli (2001).

What are the reasons for this (at least partial) success? The first is undoubtedly the simplicity of the instrument. The HDI is based on three fundamental dimensions, which are given equal weights, and has a total of just four indicators. Moreover, these indicators are easily understood and widely available, and their importance is generally recognized. The process of aggregating these indicators is likewise extremely simple, the database is made public in its entirety, and the methodological notes are clear and exhaustive. In the latest edition of the Human Development Report published by the UNDP in 2005, the HDI value is available for fully 177 countries and refers to 2003. The HDI too is obviously susceptible to criticisms (not set out here), but to be emphasised is the broad endorsement that it has received. And another reason for its success has indubitably been its adoption by an agency of the United Nations.

What lessons can those endeavouring to construct an index of globalization learn from the HDI? Essentially two. The first is that a measure of this kind must be as simple, concise and as readily understandable as possible. Excessive sophistication in construction is pointless if the instrument thereby created has scant applicability and little acceptance. Moreover, as said, given that construction of an index for a complex phenomenon requires its drastic synthesis and simplification, an excess of refinement in an index's structure has a very limited impact on the results obtained anyway, and on the goodness of fit with the phenomenon. As a consequence, it is largely useless. The second lesson is that it is advisable, indeed necessary, for the authors of an index to get their work known and accepted by at least one prestigious international organization.

9. A more substantial criticism: on the nature of globalization

Besides the above technical criticisms, it seems that the most significant shortcoming of the globalization measures proposed to date is that they traduce the essential nature of globalization. The crucial feature of globalization, the one which distinguishes it from mere internationalization, is the pervasiveness of the phenomenon of deterritorialization (Giaccardi and Magatti 2003, Sassen 2000, Scholte 2000). There was a substantial coincidence in the modern age between the concepts of 'society' and 'nation-state', and the nation-state was the natural container of economic, cultural and political processes. This is no longer the case today (Beck 2000), both because there are processes that traverse national borders (which would simply be internationalization) and because there are processes entirely free of territorial constraints – processes, that is, which may be situated anywhere or, conversely, nowhere (in virtual space for example).

> Take, for instance, telephone calls, electronic finance and the depletion of stratospheric ozone. Such phenomena cannot be situated at a fixed territorial location. They operate largely without regard of territorial distance. They substantially bypass territorial borders. Thus, technologically speaking, a telephone conversation can occur across an ocean as readily as across a street. Today money deposited with a major bank is mostly stored in 'placeless' cyberspace than in a vault. Ozone depletion exists everywhere on earth at the same time, and its relative distribution across different parts of the world shifts without regard to territorial distances or borders. The geography of these *global* conditions cannot be understood in terms of territoriality alone; they also reside in the world as a single place – that is, in a *transworld* space (Scholte 2000; emphasis in the original).

Given this situation, it is paradoxical and misconceived to insist on studying reality in general, and globalization all the more so, with instruments that take the nation-state as their unit of analysis. It is at most possible to study internationalization in this way, but not globalization. In other words, the globalization measures currently available are vitiated by what has been variously called *methodological nationalism* (Beck 2004), *embedded statism* (Sassen 2000), or *methodological territorialism* (Scholte 2000) – a perspective which distorts the essence of globalization precisely when its study begins, and which yields data that "in the best of cases are irrelevant and in the worse misleading, or even false" (Beck-Gernsheim 2004).

I believe that instruments which adopt the perspective of methodological nationalism fail to grasp particularly important aspects and dynamics of globalization.

The first of these is the qualitative differentiation of spaces within an individual nation-state. Globalization does not make space irrelevant, in fact. Quite the reverse. For example, the fact that capital is today relatively free to move from one place to another induces its owners to be extremely careful when choosing where to invest it, so that they can exploit even the minimum advantage offered by a particular place (Harvey 1990). Often associated with deterritorialization is a reterritorialization which displays new and sometimes surprising dynamics. Several commentators have pointed out that globalization heightens the importance of urban centres – the so-called 'global cities' – which perform a crucial role in the global economy, political system and culture because they attract many of the flows – of tangible goods, money, people, and ideas – which today traverse the planet (Eade 1997; King 1990; Sassen 1991). In this regard, it should be feasible to construct indices which measure the degree of globalization of cities rather than nation-states.

Besides differentiating the spaces internal to individual states, globalization also differentiates among people. Although the contemporary age has made evading the restraints of space and place technically possible, not everyone is able to do so. Indeed, the possibility is open to only a small minority of the world's population. Bauman (1998) emphasises that now arising on a planetary scale is a new form of social stratification which

divides the globalized upper classes from the localized lower classes. Even in the most advanced countries, young professionals who speak foreign languages, are frequent fliers, have friends and acquaintances around the globe, and make skilfully use of the computer and modern communication technologies live alongside (but hardly ever in contact with) factory workers approaching retirement, who speak mainly dialect, cannot use a computer, and rarely leave the town in which they live and work. In this regard, it should be feasible to develop instruments which measure the incidence of globalization among individuals.

Finally to be stressed is that besides factors that diversify spaces and individual experiences, globalization is also distinguished – and this I believe is the feature that most sharply differentiates it from internalization – by the presence of 'indivisible' factors which involve all the inhabitants of the earth, regardless of their spatial location and social circumstances (Caselli 2004). These factors are, for example, the sustainability and exploitation of natural resources, or the threat raised by the existence of nuclear weapons. Mankind's technical ability to destroy life itself on our planet in just a few seconds – in the case of a large-scale nuclear war – is a phenomenon that marks a radical break with the past and transcends any cleavage that may traverse the planet. I would point out that, not coincidentally, a major stimulus for reflection on globalization was the Chernobyl disaster, which proved incontrovertibly that nuclear fears were not mere academic hypotheses, while it also – extremely importantly – made a mockery of the boundaries drawn by politics and history, above all the notorious 'Iron Curtain', demonstrating that it is by now impossible to conceive of closed 'worlds'. The linkage between the nuclear threat and the problem of sustainability/unsustainability is the concept of *risk*. If overall globalization processes generate profoundly ambivalent dynamics, while simultaneously give rise to unity and rupture, there are those who argue – the main reference cannot but be to Beck and his celebrated *Risk Society* (1986) – that risk is the most unifying and levelling factor in contemporary human experience. Measurement of this last aspect of globalization is therefore difficult, if not impossible, given that risk is differentiated on neither a personal basis nor a territorial one: accordingly, the only conceivable unit of analysis is the planet (or humanity) in its entirety.

Globalization thus confronts the social sciences with a fascinating and complex methodological challenge. Whilst it is clear that methodological nationalism is increasingly unsatisfactory, or even misleading, less clear is what can take its place.

10. Conclusions: a brief but crucial question

What judgement can be passed on the globalization indices described here, and more generally on all the instruments developed to measure the phenomenon? I would emphasise that the answer to this question necessarily depends on the reply given to another brief but crucial question: why measure globalization?

Granted that globalization is a phenomenon of such complexity that it cannot be captured in its entirety by any single instrument, and given that at theoretical level there are contrasting opinions on the nature and essential features of the process, the problem is not so much verifying the goodness of a globalization index in absolute terms as determining its greater or lesser ability to fulfil particular knowledge objectives. In fact, for the reasons just given, any instrument devised to measure the globalization process can only be partial, and it can only grasp some aspects of the process more than others. It will have some strengths but also some weaknesses; and it will gain the consensus of only a part (more or less large) of the scientific community.

Also to be stressed is that all instruments designed to measure complex social phenomena are necessarily arbitrary constructs. Their value cannot be demonstrated irrefutably, but only argued before the scientific community. Given their nature, these instruments are always susceptible to criticism. But such criticism may prove very useful not only for refining the instruments themselves but also for demonstrating their limits and range of application.

Moreover, we cannot ignore the fact that the debate on the most appropriate ways to measure globalization may make a significant contribution to broader reflection on the nature itself of the process.

I conclude by saying that both the *A.T. Kearney/Foreign Policy Magazine Globalization Index* and the *CSGR Globalisation Index* are – apart, perhaps from their need of some technical 'fine tuning' – useful tools with which to grasp certain dynamics of globalization and the intensity, and in part the structure, of the principal flows of goods and information that traverse the planet. It should be borne in mind, however, that they grasp only a particular – and perhaps not the most important – aspect of globalization. They do not account for the phenomenon in its entirety.

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