

Chapter 21

International Integration and Societal Progress: A Critical Review of Globalisation Indicators

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Abstract

This paper presents a critical survey of different proposals to measure globalisation, from the perspective of a more general view of the relationship between international integration and societal progress.

A higher degree of international integration can be seen in itself as an indicator of societal progress, inasmuch as it reveals that human societies more and more acknowledge their common destiny. In addition, international integration fosters the provision of essential ingredients of societal progress, such as trans-national public goods and economic growth.

The available composite indicators of globalisation, although going beyond the limits of a purely economic definition of international integration, fail to perform adequately their task for a variety of conceptual and methodological reasons.

A promising alternative is based on the recognition that the scope of international integration is not necessarily global, as cross-border interactions among human societies are often limited in their geographic reach. A new generation of statistical indicators is therefore being developed, in order to clearly distinguish between regional and global integration.

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Introduction

The quality of social life depends on a wide range of environmental, cultural, economic and political factors, whose measurement represents a fundamental challenge for understanding their role and for devising proper policies. The task is made even more complex by the process of international integration, which raises the degree of interdependence among human societies across the globe, so that it is increasingly meaningless to approach the study of any community without explicitly considering its linkages with the rest of the world. ‘Globalisation’ is the word most widely used to describe this process, even if the scope of international integration is not necessarily global.

The purpose of this short paper is to critically review different proposals to construct globalisation indicators, from the perspective of a more general view of the relationship between international integration and societal progress. Special attention will be given to the underlying conceptual frameworks and to the question whether indicators are built on broader or narrower concepts of international integration (society versus economy, regional versus global integration, etc.), and to the coherence between the measurement needs, on the one hand, and the selection of the variables and indicators, on the other. A thorough discussion of the different technical solutions adopted in the construction of the different composite globalisation indicators is outside the scope of this paper.¹

After critically revising the existing supply of globalisation indicators, we address the nexus between international integration and societal progress in last two sections concludes.

Genealogy of Globalisation Indicators

The Kearney/FP globalisation index (Kearney/FP-GI) is generally considered as the first proposal to construct a composite multi-dimensional globalisation index, supported by a database (Kearney 2001-2006). The index covers the economic, technological, political and personal aspects of globalisation, taking inspiration from the approach used to build the Human Development Index (UNDP 1998).

The economic dimension of this and other globalisation indicators benefited from previous work on international openness and competitiveness, including: the World Economic Forum’s indicator of competitiveness, since 1979 (Lopes-Claros *et al.* 2006), Gwartney and Lawson’s work on economic freedom, since 1996 (1996, 2006), and the World Market Research Center globalisation index (G-index) (Randolph 2001). More recently the OECD has taken the lead as a facilitator of new work on economic globalisation indicators, which has materialised in a Handbook (OECD 2005a) and a set of indicators (OECD 2005b), but has not involved the construction of a composite index of globalisation.²

Several proposals followed the Kearney/FP-GI, all trying to improve it on some aspect(s). Lockwood and Redoano (2005), consistent with Lockwood’s critique of the Kearney/FP-GI (Lockwood 2001, 2004), designed the CSGR globalisation index (CSGR-GI). Whereas they partly present a different set of variables, the index mainly differs from the Kearney/FP-GI on the operational aspects (adjustment, normalisation, and weighting

of specific sub-indicators). Martens and Zywiets (2004, 2006), based on Zywiets (2003), proposed a Modified Globalisation Index (MGI). The authors take the Kearney/FP-GI also as their point of reference but start from a broader definition of globalisation, including environmental and military dimensions, and consequently, reduce the weight of the economic dimension. In addition, some technical improvements to the construction of the indicator are introduced. Heshmati's indicator (Kearney/FP/H) (Heshmati 2006), does not alter anything to the choice of variables and structure of the Kearney/FP-GI but a sophisticated statistical weighting procedure is added.

As far as the different dimensions of international integration are concerned, Dreher's globalisation index (DGI) is a more significant departure from the Kearney/FP-GI than the previous ones (Dreher 2005). Dreher expands the variables concerning personal contact and information flows, includes a cultural convergence variable, and re-introduces economic policy measures, which had been used before the Kearney/FP-GI to assess the degree of international economic integration.

Finally, an alternative for the traditional approaches to the measurement of the economic dimension of globalisation is represented by the recent work of Riezman, Whalley and Zhang (2004), who construct different measures of globalisation by comparing actual data to a counterfactual full integration equilibrium. Although pointing to a promising new strategy of research, they admittedly fail to obtain robust and reliable ordinal measures of globalisation, even if their indicators offer some information about the relative ranking of countries. A further problem of their approach is their reliance upon simple general equilibrium models based on the assumption of perfect competition, which do not appear apt to represent the actual features of global markets, characterised by various degrees of monopoly power.

Conceptual Frameworks

As there is no unique definition for globalisation the conceptual frameworks behind the globalisation indicators are diverse.³ Until the late 1990s globalisation was still often considered as a synonym of 'global economic integration'. In his review article, for example, Brahmhatt (1998, p.2) proposes as a definition of globalisation: "the increasing freedom and ability of individuals and firms to undertake voluntary economic transactions with residents of other countries, a process entailing a growing contestability of national markets by foreign suppliers". The definition used by the World Markets Research Center, developers of the G-index refers to "the ever closer knitting together of a one-world economy" (Randolph 2001, p.5). More recently, the OECD in its Handbook also still affirmed that "[g]lobalization refers above all to a dynamic and multidimensional process of economic integration whereby national resources become more and more internationally mobile while national economies become increasingly interdependent" (OECD 2005a, p.11).

However, inspired by the conceptual work of Held *et al.* (1999), Scholte (2000) and several others, a shift towards a multi-dimensional concept of globalisation has been observed. The Kearney/FP index, for example, measures the globalisation of a country in four dimensions (components): (i) the degree of integration of its economy in the world economy, (ii) the internationalisation of the personal contacts of its citizens, (iii) the use of internet technology, and (iv) the extent of its international political engagement. Martens and Zywiets (2004, 2006) add two additional dimensions in their MGI: (i) the involvement of a country's military-industrial complex with the rest of the world, and (ii)

the intensity of globalisation in the ecological domain. The spread of ideas, information, images, and people have been grouped together by Keohane and Nye (2000, p.4) and labeled ‘social globalisation’, as contrasted with ‘economic’ and ‘political’ globalisation.

Martens and Zywiets define globalisation then as: “the intensification of cross-national cultural, economic, political, social and technological interactions that lead to the establishment of transnational structures and the global integration of cultural, economic, environmental, political and social processes on global, supranational, national, regional and local levels” (Rennen & Martens 2003).

Dreher (2005) builds on the definitions proposed by Clark (2000, p.86) and Norris (2000, p.155) and refers to a process of “creating networks of connections among actors at multi-continental distances, mediated through a variety of flows including people, information and ideas, capital, and goods”, a process “that erodes national boundaries, integrates national economies, cultures, technologies and governance, and produces complex relations of mutual interdependence”.

Table 21.1 shows which dimensions have been used in the construction of the different globalisation indicators, and how the variables are distributed across dimensions.

Table 21.1 Globalisation Indicators - Number of Variables and Dimensions

Globalisation index	Number of variables	Number of categories	Dimensions
G-Index (Randolph 2001)	6	2	‘old’ economy (3 variables), ‘new’ economy (3)
Kearney/FP-GI (2001)	11	4	globalisation in goods and services (2), financial globalisation (3), globalisation of personal contact (3), internet connectivity (3)
Kearney/FP-GI (2003)	13	4	economic integration (4), personal contact (3), technology (3), political engagement (3)
Kearney/FP-GI (2004)	14	4	economic integration (4), personal contact (3), technological connectivity (3), political engagement (4)
Kearney/FP-GI (2005, 2006)	12	4	economic integration (2), personal contact (3), technological connectivity (3), political engagement (4)
CSGR-GI (Lockwood & Redoano 2005)	16	3	economic globalisation (4), social globalisation (9), political globalisation (3)
MGI (Martens & Zywiets 2004, 2006)	11	7	global trade (1), global finance (2), global politics (2), organised violence (1), people on the move (2), technology (2), environment (1)
DGI (Dreher 2005)	23	3	economic integration (8), political engagement (3), social globalisation (12)
Kearney/FP/H (Heshmati 2006)	13	4	economic integration (4), personal contacts (3), technology (3), political engagement (3)

The design of an adequate conceptual framework for the construction of globalisation indicators is thus clearly not an easy task, not the least because the very purpose of the whole effort can vary according to the needs and aims of the researcher or policy-maker. The following points can be taken into account:

First, some reflection is needed on the actors involved in the globalisation process. The builders of globalisation indicators usually do not address explicitly the fact that different actors are taking part in the process: states, regions, individual citizens, organised civil society, companies, etc. although by selecting certain specific indicators

they obviously implicitly privilege the behaviour of certain actors over others. Paying attention to the actors is probably a good shortcut to check that one is not neglecting important aspects of globalisation. Indicators that reflect the activity of global actors could add value to the usual measures based on transactions among national actors. The work done by the OECD on the activities of multinational enterprises (MNE) is an interesting reference point (OECD 2005a, p.75-136).

Second, there is a need to further differentiate concepts; globalisation indicators should be more clearly distinguished from indicators of international economic integration, openness, universalisation, westernisation, etc. (Scholte 2002; Martens & Zywiets 2004). Otherwise, they risk not to add much to existing knowledge and understanding. In practice, conceptual clarity seems to be missing and often globalisation indicators (or one or more of their sub-indicators) rather reflect different (albeit related) phenomena.

Third, one should be aware of the fact that ‘adding dimensions’ to a globalisation indicator, in practice, boils often down to a disaggregation of existing flows and may result in double-counting. For example, if military or cultural dimensions are added via the incorporation of measures of cross-border arms transactions or exchange of cultural products, this implies using some elements of goods and services trade flows. If, in addition, the aggregate variables are also kept (because they supposedly reflect the economic dimension of globalisation), certain flows are counted twice, which questions the validity of the whole weighting procedure. Unless there are good (theoretical, normative) reasons to give a double weight to certain flows, a possible procedure would be to subtract cross-border arms transactions or exchange of cultural products, in these examples, from total trade in goods and services.

Fourth, as Scholte (2002) also points out, ‘globality’ as a state should be distinguished from the ‘globalisation process’.⁴ Indeed, any state is the result of the corresponding process; what makes the difference is the perspective of the observer; when we want to see the process, we have to observe it across time; if we want to see the state, a snapshot at a given instant is required. From a conceptual point of view, the fact that globalisation refers to a long term and complex process, is generally acknowledged. One of the implications thereof for the construction of indicators is that these can theoretically refer to different logical components of this process, such as ‘inputs’ in the process, ‘features’ of the process, or ‘outputs’ (results, effects) of the process. According to Heshmati (2006, p.2), for example, the purpose of the construction of an index of globalisation is “to be able to quantify its sources and impacts”, which would suggest that the purpose is not to measure the characteristics and progress of the process itself. Brahmatt (1998, p.2-3) shares the view that globalisation indicators show both prerequisites and outcomes. Prerequisites or ‘drivers’ of the process include e.g. the progressive reduction in official obstacles to the conduct of cross-border economic transactions and the fall of business transaction costs, whereas the outcomes of the process refer to increased cross-border transactions (international trade, FDI, financial integration, labour migration) or international price convergence. An alternative organisation of the variables (and related indicators) is followed by Held *et al.* (1999) and distinguishes between the extensity, intensity, velocity and impact of global interactions. Some confusion seems to exist concerning these logical categories of variables; apparently various authors use ‘outcome indicators’ (cfr. *supra*) to measure the ‘intensity/extensity’ of the process, and not as synonyms of ‘impact indicators’ in Held’s terminology. One way out could be to define ‘inputs’ in the process following Brahmatt (see above), to define ‘features of the process’, following Held, in terms of the velocity, extensity and intensity of global

interactions, and to define ‘outputs’ of the process as effects of the increased global interactions on variables (growth, employment, income inequality, cultural convergence, ...) different from those directly used in the definition of globalisation in terms of global interactions.

Fifth, and related to the previous point, a better understanding of the different logical components of the globalisation process should make it easier to detect blank spots in the construction of indicators. The current practice, as already mentioned, tends to focus on ‘outcomes’ or ‘extensity/intensity’ indicators (Martens and Zywiec (2004, p.12), and has thus moved away from policy indicators (input indicators) that were covered in the earlier work on economic globalisation (World Economic Forum, Heritage Foundation), with Dreher (2005) as a noticeable exception. Paradoxically, the gains related to incorporating more dimensions in the globalisation indicators, might have come at the cost of coverage in terms of logical categories. The practical difficulty to directly quantify policy measures in non-economic areas partially explains this (Lockwood 2001, p.6). From the perspective of the construction of globalisation indicators two options lay open to bring policy in. The first one is to explicitly include policy variables, as in the earlier economic globalisation indicators, and also in the DGI. These policy variables can refer to trade barriers, FDI policies, competitiveness enhancing policies, connectivity policies, migration policies, etc. Another option is to adjust globalisation measures for structural characteristics in order to filter out net policy effects.⁵ An obvious problem with the first option is to weigh the policy variables with respect to other categories of variables. A problem with the second option is that structure-adjustment is usually not done in a systematic way. In the case of the CSGR-GI, for example, one can ask why structure-adjustment is applied to economic variables and not to other variables (Caselli 2006, p.17). However, in our opinion the most important question is related to the very purpose of the globalisation indicators. In most proposals, the designers do not choose clearly between an indicator showing the de facto degree of globalisation of a country (or a region, a group of citizens, a group of companies, ...), which would not call for structure-adjustment, or an indicator assessing the scope and quality of globalisation policies of a country (or a region, a group of citizens, a group of companies, ...). We would recommend to clearer distinguish between the two concepts, for example, systematically using a pair of indicators: one referring to the de facto degree of globalisation, and one referring to the quality of globalisation policies.

Sixth, when computing composite indices of globalisation, the problem of variable selection is intimately linked to the problem of weighting the different sub-indices. Although we do not address the operational aspects of the construction of composite indicators in detail here, it can be said that no single weighting procedure is a priori superior to any other procedure. Different theoretical and methodological considerations can be put forward to prefer one procedure over another. The choice is not straightforward and an element of arbitrariness will always remain. However, from an empirical point of view, robustness tests of the original Kearney/FP index have shown that changing the normalisation procedure and using statistical weights does only have small effects on country rankings (Lockwood 2001; Martens & Zywiec 2004, 2006). However, structure-adjustment has a major impact (Lockwood 2001, p.12-14). Heshmati (2006) performed a sensitivity analysis of Kearney/FP-GI via Principal Component Analysis. The author also finds that the Kearney/FP-GI performs relatively well and that the value added of statistical weighting is limited. The decisions on the choice of variables and on structure-adjustment appear therefore to be more important than the decisions about weighting procedures.

Finally, all the efforts to include more and better information in globalisation indicators should be balanced against the requirements of parsimony, efficiency and transparency. Analysts like Caselli (2006, p.15-16, 25-26), for example, argue already in favour of including less variables in the construction of globalisation indicators than usually is the case. The Human Development Index is thereby referred to as good practice.

Defining the Scope of International Integration

Starting from the simplifying assumption that measuring globalisation amounts to measuring the degree of international integration, defined as the extent to which the space dimension of a given social process tends not to be restricted by national borders, the precise definition of international integration and related indicators changes according to the perspective of the observer.

The first and most common option is to assume the standpoint of a single country or territory with respect to the rest of the world. In this case, measuring international integration amounts to assessing to what extent that particular country is open to relationships with the rest of the world, treated as a single partner country. The typical example, in the economic domain, is the trade-to-GDP ratio, universally considered as the most intuitive measure of international openness.⁶

In this class of indicators, no attention is normally paid to the geographical distribution of foreign relationships. A country with very intense linkages with only one neighbouring partner can in principle be considered as open as another country with moderate linkages with every possible partner.

An alternative approach would be to combine traditional measures of international openness with indicators of geographical diversification of bilateral relationships.⁷ The simplest way to do so is by computing the ratio between the number of actual partners and the total number of potential partners (the total number of countries in the world). However this index would not account for any difference across partners in the intensity of the relationship, so that, for any given level of aggregate foreign openness and number of partners, a country having intense links with only one of them and marginal interactions with the others would be treated in the same way as a country interacting with all of them at the same level of intensity. In order to solve this problem, more precise measures of diversification are available, such as the inverse of the Herfindahl concentration index, sometimes called the 'number of equivalent partners'. The Herfindahl indexes of total exports and imports were included by the OECD in its list of supplemental indicators for measuring the extent of trade globalisation in their Handbook (OECD 2005a, p.185).

Although improving with respect to the previous option, indicators of geographical diversification, even when computed as the inverse of concentration indices, fail to inform properly on the geographical reach of the integration process, because they treat every partner in the same way, independently of its distance, so that a country linked exclusively with a certain group of neighbouring partners would not be distinguished from a country interacting with an equal number of partners scattered all over the world. The severity of this problem is obviously negatively related to the total number of partners, but still it cannot be neglected, also because of its interaction with the problem of concentration, in the sense that bilateral relationships tend to be relatively less intense with distant partners.⁸ A possible solution lies in giving higher weights to more distant

partners when computing the diversification indices, which however raises the problem of finding proper measures of distance.⁹

However, even assuming that all these technical problems can be solved satisfactorily, openness indicators are anyway limited to a national perspective. Indicators at a higher level, regional or global, could only be obtained as appropriate averages of national measures.

A more radically different approach would be to take the perspective of a group of countries, be it a region, or an arbitrarily defined set of countries belonging to different regions. In this case, the central issue becomes that of distinguishing between intra- and extra-group integration, but again, this can be done in two different ways, either by treating both the group and the rest of the world as two single partners, or by exploiting the available information at bilateral level, and building appropriate measures of distance-weighted geographic diversification for intra- and extra-group relationships.

Traditional measures of regional integration tend to follow the first and simplest approach, but the second option is clearly superior, particularly for large regions with many member countries, such as the European Union.

At the world level, an appropriate average of national indicators could be enough to meet the need for a simple measure of globalisation, but additional information about the distribution of the indicators across countries would give important insights.¹⁰ However, as pointed out by Caselli (2006), measures of global integration based exclusively on averages of national indicators fail to capture the specific nature of some aspects of globalisation, which can be defined only at the global level, without any reference to specific locations.¹¹ In other words, certain processes, the classical example being climate change, although being the result of activities with a specific territorial location, do not entail bilateral cross-border interactions, and can be better defined with reference to the entire planet. On the other hand, these intrinsically global processes, although very important, do not seem to represent exhaustively the nature of globalisation. Interactions across national borders are still fundamental not only for pragmatic reasons (data availability), but also in terms of policy relevance, given their role in forging global interdependence. A reference to cross-border interactions seems essential even when the unit of analysis is defined at local level, such as sub-national regions, cities, and individual agents.

A proper specification of regional and global integration indicators would be particularly useful to shed light on the empirical basis of the debate about regionalism and multilateralism.¹² At the policy level, with particular reference to the trade domain, there is increasing concern about what is customarily named the ‘proliferation’ of preferential integration agreements. The traditional debate is centred around the alleged negative effects of regional integration on economic welfare and on the functioning of the multilateral trading system. More recently, the ‘new regionalism’ literature has shifted the attention to the issue of the optimal allocation of competences across a multi-level architecture of international relations, where a proper application of the subsidiarity principle clearly reveals that regional integration performs important functions in the production of trans-national public goods (see below, section on “Measuring the Provision of Trans-national Public Goods”). At the same time, concerns are now focussed on the rapid development of bilateral integration agreements, which can create problems not only for the multilateral system, but also for regional integration processes. The debate about these normative issues could receive useful inputs by a correct measurement of the actual intensity of regional vs. global integration processes. It is sometimes argued

that the word ‘globalisation’ is used improperly to describe integration processes which tend to be mostly regional.¹³ It is therefore particularly important to build appropriate measures of the intensity and the extension of international transactions, as suggested above.¹⁴

Linking International Integration to Societal Progress

The debate about globalisation and its effects on human societies is so intense and widespread that it would be almost impossible to summarise its arguments in the limited space of this note. We will here focus on only two of the possible linkages between international integration and societal progress:

In the next section we will consider the way in which the concepts of societal well-being and progress can or should influence the building of international integration indicators. The section “The Globalisation-Societal Progress Nexus: Empirical Evidence” we will briefly discuss some problems related to assessing the empirical evidence about the effects of international integration on societal progress, with particular reference to its economic dimension and more precisely to the linkages between international integration, competition, innovation and growth.

Measuring the Provision of Trans-national Public Goods

The concepts of societal well-being and progress have been developed in order to overcome the well-known limitations of per-capita GDP in measuring adequately a country’s standard of living. So, a wide range of environmental, social, cultural, and political variables has been combined with per-capita GDP in order to build more comprehensive composite indicators of the quality of life at the national level, such as the above quoted Human Development Index.

In principle, any of such indicators could be averaged across countries, so as to obtain global and/or regional measures of societal well-being. These aggregation exercises, although useful, fail to capture properly the specific contribution that international integration in itself can give to societal progress, through its effects on the provision of trans-national public goods.

Societal progress depends strongly on an adequate supply of global public goods (Kaul, Grunberg and Stern 1999), which is currently hampered by the mismatch between the trans-national scope of the problems and the national level of policy-making (jurisdictional gap), by the lack of mechanisms ensuring the involvement of trans-national social organisations in the decision-making process at the supra-national level (participation gap), and by the flaws of the institutional means designed to ensure international co-operation (incentive gap). The economic theory of institutions and fiscal federalism theory can be applied to understand under what circumstances the production of trans-national public goods requires the establishment of specific institutions and at what level (local, national, regional, or global). However, this economic approach must be integrated into a wider political vision of global governance, taking into account the problems of legitimacy, fairness and accountability of international institutions (Higgott 2006).

Since the reach of spill-overs generated by trans-national public goods is often limited to regional groupings of countries, it has been argued that their production should be fostered by regional institutions (Sandler 2004).

From this perspective, building and developing regional institutions can be seen as a direct contribution to societal progress, inasmuch as it ensures an improvement in the availability and quality of regional public goods. Indeed, the establishment of such institutions in itself can be seen as a sign of progress, since it reveals that participating societies are starting to share a common understanding of their regional identity, which is the necessary pre-condition to effectively tackle their joint problems. Any comprehensive indicator of global or regional integration should take this institutional dimension into account, by including measures not only of the number of institutions, but also of their importance in terms of membership, resources, and depth of the integration achieved.

Available indicators of globalisation fail to fully meet this need. Most of them (CSGR-GI, MGI and DGI) include only numerical variables, measuring the extensity of international political integration without any attempt at gauging its intensity, in terms of financial resources or other possible criteria. Only the Kearney/FP-GI combines numerical indicators of institutional integration (memberships in international organisations and ratification of multilateral treaties) with measures of the intensity of ‘political engagement’ (personnel and financial contributions to UN peacekeeping missions and governmental international transfers). However, these four variables are equally weighted, which means that purely numerical extensity indicators are given the same importance as intensity indicators. Moreover, as argued in section “Defining the Scope of International Integration”, globalisation indicators actually measure the degree of international integration at national level, regardless of the geographic reach of foreign interactions. As a consequence, the challenge of distinguishing between global and regional integration remains open, even in the political domain.

An alternative way to take global (and regional) public goods into account would be by looking at the consumption/use of these goods, instead of looking at their financing. An example of how this can be done is provided by the MGI, which includes a measure of the environmental impact of trade flows, based on the balance between their ‘ecological footprint’ and bio-capacity. One could think of similar measures related to other trans-national public goods, such as peace, economic stability, etc.

The Globalisation-Societal Progress Nexus: Empirical Evidence

Turning now to the empirical evidence, even if no firm conclusion has yet been reached, it seems fair to say that most studies tend to show a positive effect of international integration on societal well-being.

For example, Dreher (2005), using his composite globalisation indicator, finds strong evidence of a positive effect of international integration on growth. Less convincingly, Kearney/FP use simple correlation coefficients to claim that there are positive effects of globalisation on environmental performance (2003) (although not maintained in 2006), life expectancy, women’s well-being (2004), and freedom (2005). Negative correlations are found between globalisation and corruption (2005). There is no attempt at controlling for the risk of spurious correlation.

In the economic domain, although controversies about the trade and growth nexus are still very intense, there is a large consensus over the idea that growth tends to be more rapid in open than in inward-looking countries. Measuring the dynamic effects of international integration, that go beyond its once-for-all impact on the allocation of productive resources, is therefore one of the most important challenges to be met, in order to gauge its contribution to societal progress. At the same time, it is a very difficult task,

given the complexity of the growth phenomenon and the difficulty of tracing it back to each of its underlying factors.

International integration is expected to foster growth by promoting investment in physical, human, and knowledge capital. This is both a consequence of its positive static impact on production efficiency, and of its direct spur to investment return. The more intense competition generated by international integration translates into a selection effect, picking up the most productive and innovative enterprises.

Accounting for the dynamic effects of international integration does not amount only to providing evidence about the final result of this complex chain of interactions, that could be done simply by comparing growth rates of per-capita GDP. It also calls for finding adequate indicators of all the intermediate steps, that could be used as inputs in a properly specified econometric exercise. For example, it is necessary to devise reliable measures of the degree of competition, in order to check to what extent the removal of trade and investment barriers actually weakens monopoly power in imperfectly competitive markets. Another important aspect to be considered is the process of innovation, and more generally knowledge creation and diffusion, which is crucial to the understanding of growth, but elusive of any simple quantitative indicator.

These problems become even more severe and important when trying to distinguish between the effects of global and regional international integration. In the traditional literature about trade creation and diversion, the static welfare effects of integration offer a relatively easy criterion to compare preferential and multilateral liberalisation strategies. This comparison becomes more difficult in the most recent studies of regional integration, where the emphasis is put on its growth effects. It is normally very problematic to ascertain if preferential trade liberalisation is able to foster growth more or less than integration into the multilateral trading system. Proper indicators of the dynamic effects of global and regional integration could be very useful to address these problems.

The same applies to other aspects of societal well-being, such as equality of income distribution, health, environment, education, culture, and social cohesion, for which problems related to selecting the most appropriate theoretical models and statistical techniques to detect possible effects of international integration are augmented by the limitations of available data and indicators.

In all dimensions of international integration there is a strong need for new and better quality data, as well as for more precise statistical indicators, distinguishing clearly between regional and global interdependence.

Conclusions

The measurement of international integration, in all its aspects, is increasingly important to a complete understanding of societal well-being and its dynamics. A higher degree of international integration can be seen in itself as an indicator of societal progress, inasmuch as it reveals that human societies more and more acknowledge their common destiny. In addition, international integration fosters the provision of essential ingredients of societal progress, such as trans-national public goods and economic growth.

These issues are often approached in the context of the debate about globalisation. In this paper, we have tried to show that the available composite indicators of globalisation, although going beyond the limits of a purely economic definition of international

integration, fail to perform adequately their task for a variety of conceptual and methodological reasons.

A promising alternative is based on the recognition that the scope of international integration is not necessarily global, as cross-border interactions among human societies are often limited in their geographic reach. A new generation of statistical indicators is therefore being developed, in order to clearly distinguish between regional and global integration. Nevertheless, many challenges remain open. The transmission channels from international integration to societal progress are complex and still not fully understood, even in the economic domain, as it is clearly shown by the debate about the growth effects of international trade. Many fundamental concepts, such as competition and innovation, defy precise definition and measurement. Even more importantly, the need of taking all the multidimensional aspects of societal progress into a comprehensive and simple indicator of international integration is still to be met.

Notes

- 1 See, for example, Nardo et al. (2005) for an excellent general treatment of these operational issues.
- 2 The OECD indicators aim at measuring the magnitude and intensity of economic globalisation, in four areas: international trade, foreign direct investment (FDI), the activity of multinational firms, and the production and international diffusion of technology.
- 3 There is now already a rich literature on globalisation. It is beyond the scope of this article to review the evolution of the concept of globalisation in depth. We refer to Scholte (2002) for an excellent overview. He convincingly argues for an understanding of globalisation “as the spread of transplanetary – and in recent times more particularly supraterritorial – connections between people [...] globalisation involves reductions in barriers to transworld contacts. People become more able –physically, legally, culturally, and psychologically – to engage with each other in ‘one world’ [...] globalisation refers to a shift in the nature of social space”. The author further questions the ‘methodological territorialism’ which is still dominating the social sciences (and hence the construction of globalisation indicators). See also, Caselli (2006).
- 4 In the literature about regional integration, which will be considered below, a similar point has been raised by De Lombaerde and Van Langenhove (2006).
- 5 ‘Structure-adjustment’ refers to the adjustment of outcome measures for structural characteristics, regressing the measures on a set of structural variables and using the residuals to construct the index, so that they better reflect the effect of policies on a country’s integration in the world economy. Lockwood (2001:6-9), for example, applied Pritchett’s approach (1996) to adjust the Kearney/FP variables. The cost to pay is a considerable loss of transparency, readability and user-friendliness of the index. One should also be aware of the fact that after such adjustment the indicator might reflect less what could be called *de facto* globalisation. For example, Martens and Zywiets (2006) filter out the effect of countries being landlocked, but one could ask whether relatively low levels of international integration and connectedness is not exactly what one would like the globalisation indicator to reveal for landlocked countries.
- 6 It should be reminded that, for a variety of reasons, trade openness indicators tend to be negatively correlated with country size, so that the resulting ranking is not reliable.
- 7 The recently flourishing literature about extensive and intensive margins of trade refers to a similar problem, i.e. the decomposition of world trade growth into the increase in the number of bilateral relationships (extensive margins) and the growth in the volume of trade per relationship (intensive margins). See Helpman, Melitz and Rubinstein, 2007.

- 8 In the case of trade, this observation is nicely captured by gravity models of bilateral flows.
- 9 A more pragmatic solution would consist of measuring the relative importance of ‘extra-regional’ interactions (trade, FDI, migration, tourism, etc.) as a proxy for ‘global’ interactions, rather than using the usual ‘international’ interactions, provided that one is able to define the relevant ‘region’. However, as will be argued below, extra-regional integration measures do not solve the problem, even leaving aside the issue of defining the region, because the ‘extra-regional world’ is still seen as a unique partner, independently of the country distribution of transactions.
- 10 The recent literature on socio-economic networks can be very useful to this purpose. See, for example, Rauch (1999, 2001) and Kali and Reyes (2007).
- 11 See also, Scholte’s (2002) critique of ‘methodological territorialism’.
- 12 See, for example, Woolcock (2006) and Fiorentino et al. (2007).
- 13 In the case of multinational enterprises, see Rugman and Verbeke (2004) and Rugman (2005).
- 14 See, for example, the work that has been undertaken by UNU-CRIS on regionalization indicators in the context of the Regional Integration Knowledge System (RIKS) (www.cris.unu.edu).

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