



# **Excellence or quality? Impact of the current competition regime on science and scientific publishing in Latin America and its implications for development**

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## **Abstract**

The current competition regime that characterizes international science is often presented as a quest for excellence. It diversely affects research in Latin America and research in the Organization for Economic Co-operation and Development (OECD) countries. This article asks how this competition regime may orient the direction of research in Latin America, and to whose advantage. It is argued that, by relating excellence to quality differently, a research policy that seeks to improve the level of science in Latin America while preserving the possibility of solving problems relevant to the region can be designed. Competition, it is also argued, certainly has its place in science, but not as a general management tool, especially if the goal is to improve overall quality of science in Latin America. Scientific competition is largely managed through journals and their reputation. Therefore, designing a science policy for Latin America (and for any 'peripheral' region of the world) requires paying special attention to the

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mechanisms underpinning the production, circulation and consumption of scientific journals. So-called 'international' or 'core' journals are of particular interest as local, national, or even regional journals must struggle to find their place in this peculiar publishing eco-system.

**Keywords**

Excellence, Latin America, open access journals, quality and research evaluation, research policy, scientific competition, scientific recognition

**Introduction: The current system of competition in science**

In the last four decades, the evaluation of scientific research has undergone deep transformations. Essentially, a number of citation-based quantitative indicators emerged in the wake of a new bibliographic tool – the Science Citation Index (SCI) – invented by Eugene Garfield. Initially designed to evaluate journals, these indicators rapidly became a reference that neither librarians, nor laboratory directors, could ignore. Librarians internalized the idea of 'core journals', and, basing themselves on rankings derived from SCI, they all began to subscribe to the same titles, thus unwittingly creating an inelastic market for these journals (Guédon, 2001). Business people like Robert Maxwell quickly grasped the commercial opportunities and began to raise subscription prices: the 'serial pricing crisis' was born. Publishers could also compete on the basis of a simple parameter: the impact factor. Predictably, some publishers also learned how to manipulate the impact factors (Falagas and Alexiou, 2008). Laboratory directors loved the new, quantitative, indicators: they looked objective and thus could help spell judgments without appeal. They began to extend the application of these new indicators to individuals: if these citation-based tools could help determine the 'best' journals, it followed – so went the hasty reasoning – that authors in those journals were also among the best. Researchers could be graded like students. And journals could be used as logos for authors. Later, scientometric indicators were extended to institutions and even to whole countries.

Originally, the application of citation-based indicators was designed to delineate the circulation of theories, concepts, methods and tools, to analyze the networking connections among scientists and to measure the impact of published articles. Designed to understand the communication networks of science, and to help interdisciplinary heuristics, they were not meant to measure quality. But numbers invite comparisons and even competition: instead of evaluating whether a piece of work satisfies a certain threshold of scientific know-how or not, rankings were introduced, ostensibly to identify the best rather than the good. Excellence – a slippery term in any case (Readings, 1996) – was being silently substituted for quality. Nowadays, the whole of science is dominated by a relentless quest for excellence, i.e. a generalized race that seeks to identify the best scientists by counting citations in a particular way or another. Mistakenly presented as a synonym for quality, the quest for excellence dominates the scientific enterprise through and through (Guédon, 2011).

Several questions arise here. Imagine a country deciding to improve the level of its citizens by promoting physical activities. Imagine further that only intense competition is used to achieve this goal: the process relentlessly selects (including promoting and financing) the best, but it leaves the overwhelming majority behind. Such a policy will undoubtedly improve a country's standing in the Olympics, but the general health level of the population will not significantly improve. In fact, it may even decrease because most people, quickly left out of the competitive process, would lose all incentive to exercise.

Science works mainly with a very long tail of 'good' scientists. As work-horses of the labs, they produce the results and the observations that can then be synthesized by the best among them. They are the foot soldiers of, in Kuhn's words, 'normal science'. And science needs them. With the competition regime generated by citation-based indicators, the number of prize-winning scientists may increase, but the general quality of entire scientific communities may stagnate, or even decrease (loss of vocations, loss of interest, etc.). Such a competition regime also works against creativity and originality (so crucial for genuine scientific progress): when competing with each other, most scientists will prudently select currently fashionable themes and ideas in the hope of publishing more easily. Finally, those who compete without owning what it takes to win may even seek unacceptable shortcuts: currently, cheating and plagiarizing are on the rise and a recent study disquietingly suggests that the higher the impact factor of a journal, the larger the number of tainted articles that have to be withdrawn (Brembs and Munafò, 2013; Fang et al., 2012).<sup>1</sup>

In Latin America and other peripheral regions of the world, the presence of this competition regime is strongly felt. How does it affect research in the region? Whom does it advantage? Also, if a research policy aims at improving the general quality of science in Latin America, how should it be designed? Where and how should competition be used to extract the best performance from the very best without negatively affecting the behavior of the long scientific tail, so very important to science?

Our thesis is that the present competition regime as it affects Latin American research does not do much to enhance the general quality of research in the region, and it may even decrease it, even as the number of 'gold-medal' scientists may rise to some extent.

The present competition regime is managed mainly through journals, their prestige, visibility and authority. This fact is often overlooked because the rankings of journals are taken to be objective facts and not peculiar forms of metrics.<sup>2</sup> Crafting a science policy for Latin America (or for any 'peripheral' region of the world) must, therefore, pay a good deal of attention to the mechanisms underpinning the production of these journals: who controls them? To what end? Journals play a leading role in creating symbolic value, but how does it relate to the revenue-making motive of most publishers? Also, what scientific questions are being slighted or even ignored with the present system of journal competition? Is it possible that, as result of this regime, scientists from the 'periphery' actually contribute more to problems affecting mostly rich countries (a kind of foreign aid in reverse) rather than their own? Is it also the case in the social sciences with their own distinctive evolutionary paths (Vessuri, 1997)?

In Latin America and beyond, academic journals, especially in the social sciences, are published by university presses or associations. The geographical reach of these journals

is often limited to national and even local readerships. A problematic financial context has made it difficult to professionalize journal management:<sup>3</sup> there is no money to pay for editing, and finding objective referees is not obvious. Improving the quality of these journals has proved difficult, and even more so improving their standing in the prevalent eco-system of journals.

All researchers, everywhere, would agree that publishing is related to visibility and prestige. However, prestige generally trumps visibility and even quality. Being widely known is what really characterizes the evaluation process. In practice, this means that work submitted by an 'obscure' author starts with a visibility and prestige deficit. Publishing a good work from 'unknown' – i.e. unfamiliar – authors based in 'exotic' institutions will not bring prestige to the targeted journal. As the competition for space is always fierce, a 'good' article from the South may well be passed over in favor of another 'good' article coming from a better-known university, especially if authored by an author with some obvious symbolic capital of his/her own. And even if, by chance, the author from the South manages to publish in a prestigious journal in the North, such as Dr Sambhu Nath De did in *Nature* in 1959, this still does not ensure recognition (De, 1959). Changing a paradigm as Dr De managed to do is always difficult; doing it from Calcutta or any other similar location appears so unlikely as to be equated with impossible.<sup>4</sup>

## Accessing the global scientific commons

Obviously, scientific research in the non-OECD world generally suffers from a lack of visibility and prestige. This situation does not simply reflect a lack of quality; rather, it is a symptom of a poorly internationalized knowledge system that relies upon a peculiar definition of what an 'international journal' is. In practice, international journals are the ones selected by specific databases such as SCI's heir, the Web of Science (WoS), or SCOPUS. These databases perpetuate the notion of 'core journals' that the SCI brought forth in the 1960s, and they rely on ranking systems based on citation counting. In the South, policies seeking to internationalize local research do so under the yoke of this peculiar science communication regime: they often seek to promote publishing in 'international' journals. In response, local researchers tend to focus on research areas privileged by rich countries. Of course, quality will be the necessary condition for insertion in an international journal, but that is not enough: appropriate issues and topics will also be needed. To revert to Dr De, his interest in cholera could be expected in Calcutta, but in Paris and London, in the late 1950s, cholera had the trappings of either a nineteenth-century disease, or a disease in far away lands. For researchers from the South, participating in the grand conversation of science really corresponds to finding ways to be admitted into the scientific conversation presently active in the OECD countries.<sup>5</sup>

Thus, rich and poor countries sport distinctly different relationships to knowledge production, and this difference precisely lies in the relationship of researchers with scientific journals. In the South, grave concerns are expressed about the lack of equity apparently tied to the present regime of scientific communication. Numerous studies and reports have repeatedly shown that access to international communication channels is fundamental to the fulfillment of participation and development goals. However, because of the way in which 'international' is defined here, the only route to 'participation' – i.e.

to publication, recognition and visibility – involves being accepted by journals, indexing services and databases that have been identified as ‘international’. As a result, we see a number of journals mimicking journals already indexed in the SCI; we also see journals organized mainly to reach a significant impact factor (IF), i.e. that manage to be cited by other journals of the ‘core’ set. In other words, to be seen really means being seen by the right crowd, i.e. the ‘core’ set of journals. This crowd claims to incarnate not only the best, but also the significant part of world science; so being seen in it appears equivalent to joining ‘world science’. In reality, this is only OECD science parading as ‘international’, but actually organized as an elite club where entrance is closely monitored and controlled. Moreover, the self-selecting system that underpins the building of a ‘core’ set of journals has never been transparent, objective, or neutral. While quality is always foregrounded when such discussions manage to emerge, its definition is circular since it ultimately rests on being cited by articles located within the ‘core set’. As the inclusion/exclusion procedures are managed, often in a quite opaque manner, by companies such as Thomson-Reuters for the Web of Science, and Reed-Elsevier for SCOPUS, it is easy to see that the obstacles to admission are both many and difficult to identify.

Southern perspectives on research visibility/invisibility strongly hold onto a central principle: ‘the right to share and participate’ in (truly) international science (as distinguished from the meaning of ‘international’ analyzed above). Participation is often achieved through international collaboration. In this regard, Wagner (2008) argues that in the current global science researchers are individually free to join teams or institutions to tackle common problems, regardless of where they are geographically based. Wagner argues that global science is growing not because nations are promoting it, but rather because it serves the individual needs of researchers. In her view, each scientist is a ‘free agent’, i.e. a kind of intellectual entrepreneur seeking to enhance his/her reputation or to gain access to resources regardless of the interests of his/her nation of origin, and perhaps even at its expense. In the case of the social sciences, a growing number of authors also behave in this fashion, for example by seeking to publish, often as co-authors, in ‘international’ journals. However, the evaluation of social sciences has not worked well with the citation metrics commonly used in the natural sciences, and this has partially shielded these disciplines from such trends: first, citation cultures of the social sciences differ markedly from those in the natural sciences; also, these metrics neglect monographs despite their obvious importance in the social sciences. Finally, social sciences tend to be strongly rooted in their local setting, including language: the progression of English is much less pronounced in the social sciences than in the natural sciences. But in case this gives the impression that we imply that it has worked well in the natural sciences, let it be clear that we recognize the ample literature on this topic showing that it has not worked well for them either (for a recent reference see the San Francisco Declaration, 2012).

Latin American efforts to achieve greater international scientific collaboration have been succinctly analyzed by Russell et al. (2008) in the case of Mexican research. This study shows that Mexican papers with international collaborations tend to appear in non-Latin American journals indexed in the Web of Science rather than in Latin American (or regional) journals. This result indirectly comforts Wagner’s thesis: Mexicans may not consciously prefer working with international collaborators, and they may not prefer to

publish in journals located outside Latin America, but when they collaborate internationally, they generally appear in journals with international exposure, and they probably enjoy this collaborative advantage. Obviously, papers that result from international collaborations enjoy greater impact (as measured by the number of citations they receive from the core journals) because they themselves tend to appear in core journals. Also, while Latin American co-authors tend to receive fewer citations than their North Atlantic collaborators, they nevertheless enjoy a higher level of visibility than if they published alone. Indeed, in an earlier paper, Russell had concluded that 'international co-authorship for developing countries is one of the indicators ... of incorporation into international scientific networks necessary for the advancement of science and technology in these countries' (1995: 59). However, the losers in this perspective stand to be the 'peripheral' journals (meaning the publications of developing countries): it amounts to depriving them of the Latin American authors best placed to bolster their international impact.

The aspiration to publish in English, obviously part of the collaboration strategy, also seeks greater diffusion, penetration and acceptance of the results. Of course, these goals are monitored through citation metrics. When results are published in national journals, particularly when they are published in the local language, they risk being ignored simply because they are not as accessible to the international scientific communities (Packer and Meneghini, 2007).

Wagner's reasoning ultimately rests on the belief that researchers should behave as individual intellectual entrepreneurs in the context of the newly globalized market of facts, concepts and theories that characterizes the new 'invisible college' of science. However, real, active researchers do not fit very well with this image of individual, free, agents. The reality is that the pace and direction of the invisible college's growth obey distinct corporate and geopolitical interests in the global regime and do not simply express the allegedly benign consequences of emergent networks. Arguments pitting the common good against the 'possessive individual' (Macpherson, 1962) also apply to the channeling of scientific information, its collection and preservation: while scientific communication is increasingly coordinated at the global level, it does not mean that the figure of the entrepreneurial individual is the best or only possible solution, especially if it leads simply to reinforcing the stronger parts of the global network at the expense of the weaker parts, as Wagner concedes.

## **Open access and research evaluation in Latin America**

The long-lasting debate over scientific quality and the right to development in the South hinges on what is meant by quality. Quality evaluation alternatives do exist, but have yet to be seriously applied. In the North, these evaluation alternatives have remained largely theoretical. Glaring absurdities in present evaluation processes, based as they are on impact factors, have been repeatedly and cogently criticized, but they are still widely accepted and used in career evaluation procedures. Scientific quality has been linked to journal rankings, a move that has effectively left evaluation in the hands of an international oligarchy made up of publishers and large scientific societies. The tools used to rank journals are in the hands of private companies: Thomson-Reuters owns the Web of Science, Reed-Elsevier owns SCOPUS and Google owns Google Scholar.

This peculiar way of defining quality tends to make it blind to development issues: rankings, after all, are used to identify champions; the rest is simply forgotten and neglected. It has nothing to say against development, but as it transforms the quality issue into a competition for best rankings, it introduces competition as *the* management tool in the worldwide research system, and it also defines the rules of the competition. Impact factors also help manage the commercial competition of publishing houses, which may explain why impact factors are so diligently protected by a belt of theoretical studies published in academic journals such as *Scientometrics*. The immense majority of these studies limit the scope of their research to what can be found in the Science Citation Index, SCOPUS and Google Scholar, with, sometimes, the additional help of Ulrich's.

Thus emerges a peculiar landscape of publishing resting on one basic thesis: the number of scientific journals in the world is supposed to range from 12,000 titles to about 28,000 titles at most (Mabe, 2003). These are the journals that are supposed to really count; the rest are quietly exiled into insignificant obscurity. Limiting the number of journals in this fashion achieves two objectives: it creates a particular form of scarcity, obviously good for economic ventures, and it claims that the overwhelming proportion of science that really counts lies exclusively in these journals. Of course, the majority of the selected titles emerge from OECD countries. Collectively, through their editorial policies, they decide what questions are important, and thus create a kind of collective, flexible, largely unplanned, yet narrowly controlled, form of science policy for the world. It is this collective device that, incidentally, largely accounts for curious knowledge gaps such as neglected diseases.

The efficiency of the whole operation rests on the silent exclusion of large numbers of journals, many coming from developing countries. The silence of exclusions contrasts with the publicity surrounding 'core science' in the early years of the SCI (Guédon, 2001), but it has condemned countless numbers of journals to invisibility and it also accounts for the phenomenon of 'lost science' in the world. Not surprisingly, and in reaction to silence, the South leads: groups of scientists presently experiment with different alternatives, seeking to reach a sufficiently large scale to force attention everywhere.

Within the perspective just adumbrated, the broad embrace of open access (OA) in Latin America is important. It is entirely consistent with the transformations of higher education in recent decades, and particularly with the changing role of research in Latin American universities. Research was institutionalized in the early second half of the twentieth century, actually well before anyone spoke about OA. Institutionalized research in Latin America gradually emerged as an activity of national interest; it also grew in complexity and eventually OA was integrated within the Latin American conversation.

Initially, national research systems relied on so-called 'gold standards', particularly SCI, now known as WoS. The exclusive use of SCI indicators to measure research quality is a trait of both Latin American national science councils and Latin American universities. Alas, this confidence on American and European measures ensured that only a small number of scholars were recognized; it also left the region with no roadmap to scientific development. Increasingly, foreign and mostly English-language journals were equated with 'real' scholarship, thus effectively marginalizing Latin American publications into insignificance. The same criteria ultimately came to be used to evaluate all researchers across all fields in all regions of the world. The fact that SCI and

SCOPUS never provided an equal or even equitable coverage of disciplines and regions remained largely unstated. The result was that developing countries could never achieve a sufficient degree of publishing autonomy to define national research priorities and questions.

Building national scientific communities as an instrument of modernization and national development has been a constant theme in Latin America, but the implementation of citation-based evaluation policies has tended to work against development. Excellence came to dominate policy; working as it does through international competition, it inexorably led to adopting the 'international' research agenda and indefinitely postponing scientific attention to local problems. Being excellent has meant competing successfully with the best scientists of the North on their terms, as if the North covered all the possible angles of scientific research, including those of interest to countries in the South (Guédon, 2011; Vessuri, 2004). The situation was further complicated by the adoption of the new evaluation tools by the national science councils and the universities at the very moment when radical, digital-era, changes in scholarly communication were picking up speed everywhere. In short, the evaluation procedures that had been implemented in the North with print journals began to take effect in Latin America on the eve of the digital upheaval.

Finding ways to internationalize Latin American research has been a concern and even an obsession since the 1980s. However, working with old equipment and library collections that are both incomplete and dated put researchers at a drastic disadvantage. By 2002, the results were disappointing: the participation of Latin American authors to international science was still at or below 3% (RICyT, 2002). But again this result was culled from international databases without much attention paid to their selection and exclusion procedures. Instead, it was taken at face value and this triggered the need to explain such poor results. Investing too little in R&D was often used as an explanation. While this is probably part of the answer, faulting Latin American scientists for not participating in 'mainstream science' made these scientists look as if only they were accountable for a situation where other factors are clearly at work: in particular, the quasi-total exclusion of Latin American journals from international databases should not have been ignored.

At this juncture, it would have been useful to point to the kind of quality research done and published in Latin America that did not look interesting to 'mainstream' peer reviewers, either because the topic was unfamiliar, or the names of the authors and/or the research institutions were not known. Instead, the same argument was stubbornly repeated: research is quality research if, and only if it is integrated in mainstream science. Ironically, of course, being published in a 'core journal' offers no absolute guarantee of quality, and not being published in such journals does not automatically point toward mediocrity. Plenty of quality research carried out in Latin America is never submitted to core journals for reasons that will not be explored here.

The issue of low impact regularly recurs as well, but this is an obvious, almost tautological, point: if Latin American journals are not integrated in the 'mainstream' bibliographic or citation-tracking tools, they will obviously remain largely invisible, and not only in OECD countries, but everywhere else as well. Latin American research could not project itself through Latin American bibliographies. Only recently have



Internet portals begun to correct this situation. Institutional repositories are networking, for example in 'La Referencia' project, while portals now cover all types of research sites, from single institutions sporting their own journals to national and even international collections. In short, Latin America is gradually building its own system of journals and repositories to ensure the worldwide projection of its research results, as well as its preservation. What remains to be done is making sure that an impressive amount of research results will also be recognized all over the world for what they are really worth, and not for what some indices such as WoS and SCOPUS think they are worth. Once the quality issue is essentially solved through adequate editorial means, the recognition issue becomes paramount. How do you make sure that your good work will not be treated with benign neglect and patronizing attitudes? This leads to examining the very instruments that build recognition.

The growth of OA in Latin America parallels the growth of research results in the region. This is because OA has been increasingly incorporated into the publishing practices of researchers in research-intensive universities. With digitization and networks, many new journals have been created in an electronic format; to increase their visibility, they have adopted OA strategies. In turn, this trend has fostered the development of large, non-commercial databases. Such OA publishing portals help professionalize the production of journals, another important element in the building up of their reputation. Some open source software solutions, in particular the Open Journal Systems (OJS), have played a truly crucial role in this regard. Ostensibly, OJS favors an 'international' form for a journal, but it does so without affecting the content or the editorial orientation of a particular journal; it merely facilitates the implementation of systematic quality control, in particular peer review, but editorial policy remains in local hands.

The inclusion of regional initiatives such as SciELO and Redalyc in the evaluation system of universities and national R&D systems obviously helped to give weight to OA in the region. In fact, Latin America is using the OA publishing model to a far greater extent than any other region in the world. Also, because the sense of public mission remains strong among Latin American universities, the effectiveness of open access for knowledge sharing was heard loud and clear. Common sense also shows that OA improves the presence and impact of Latin American research publications. These current initiatives demonstrate that the region contributes more and more to the global knowledge exchange while positioning research literature as a public good (Alperín et al., 2009). And Latin America is doing all this on its own terms.

Latin American researchers have long clamored for greater access to scientific information and greater visibility. Not surprisingly, they quickly recognized the possibilities opened up by Internet for Latin American journals, and that included OA (Declaración de Salvador, 2005). Nowadays, OA initiatives have been adopted by most research universities and national science evaluation systems in Latin America (Encuentro, 2012), and they have begun to alter the way local research is perceived. The share of OA publications in all indexed journals for Latin America is high and even journals that were well established and respected made their e-versions openly available very rapidly. Journals from Latin America experience the fastest growth in the Directory of Open Access Journals (DOAJ) (Brage, 2011).<sup>6</sup> Through greater exposure and through easier means of

comparison, OA has also helped to strengthen the quality of many Latin American journals. It has also generated a vigorous discussion about the use of databases such as SCI and SCOPUS as a measure of scientific output. This said, journals indexed in SCI remain the most highly rewarded media for disseminating research, but a different future can be imagined.

## **International academic publishing indexes and databases, and regional responses from Latin America**

Scientific publications, pulled as they are between national and international objectives, have always faced the issue of language use. In the natural and physical sciences, English is the *lingua franca* of the world; it also plays a growing role in the social sciences and the humanities, but other languages maintain strong positions in those disciplines. Seen from the perspective of a global market, English acts very much like Latin at the beginning of print: it provides a larger audience for the literati. However, proficiency in English is not evenly distributed and this creates another barrier for scientists and scholars from countries that are not using English as their national language.

The design of international databases includes a number of technical, economic and linguistic choices. However, the pretension to represent the world of science faithfully and reliably tends to leave these choices in the background. For example, Thomson-Reuters' WoS covers over 46 million records across all fields, but they are marked by linguistic bias.<sup>7</sup> The underlying assumption, of course, is again that the WoS covers all the important journals in the scholarly universe and that the rest does not matter. However, the presence of 'international' databases invites international comparisons, and the WoS is commonly used in this fashion. The WoS data, biased as it is, is then used to support a number of dubious statistical operations: selecting the 'better' journals (i.e. with the greatest impact factors), comparing sets of journals by countries, comparing the impact factors of journals in a variety of scientific disciplines, as if all disciplines should cite in the same way; comparing university productivity, etc. Skepticism about such methods is too rarely expressed in these studies, even though the body of literature criticizing these approaches is constantly growing. The belief in 'core science', either as essence or adequate representation of world science remains high, particularly among publishers, because it provides a clear way to manage their 'business'. Yet, this belief, based on a false notion of scientific 'internationalization', endures because, in the last few decades, it has managed to garner an air of authority and because it provides a simplistic, but easy-to-use, evaluation procedure.

Since the late 1990s, 30 or more journal digital collections have emerged in Latin America, reflecting the desire to give greater visibility to the region's scientific production. The great majority of these collections have been financially supported by institutions of higher education precisely for this reason. Even before the Budapest Open Access Initiative (BOAI) of 2002, the region was already exploring the possibility of building national collections of full-text electronic journals in open access. According to Latindex data, one out of five Ibero-American journals is currently available in electronic format and they are becoming ever more accessible through institutional web sites or regional collections.

Latindex was the earliest of those initiatives; it provided much needed information about the Ibero-American and Caribbean academic journals (Guédon, 2011).<sup>8</sup> It has played and continues to play a pioneering role as a reference system that has been essential for journal aggregators or the growth of virtual libraries. The information contained in its databases and the advice it has constantly given libraries and aggregators have been fundamentally important. The Latindex directory of journals has offered a better understanding of the thematic landscape of Ibero-American journals: almost half of its listed journals cover social sciences, with medical science journals in second place. Also, within the region, it has contributed to the design and adoption of editorial norms and their promotion through workshops, etc. among journal editors.<sup>9</sup>

SciELO and Redalyc are two important digital library projects that originated in Latin America, and now reaching beyond it. They differ significantly in the ways they were conceived, and they also work differently. SciELO was created in Brazil in 1998 as a 'virtual library', and at first, it specialized in biomedical journals. Later, SciELO extended to all disciplines and became a publishing platform for over a thousand journals, with centers in other countries of the region. From the very beginning, SciELO's ambition went beyond giving access to Latin American journals to provide metrics, in particular citation impact, independently of SCI. It currently holds over 9.3 million citations. In 2002 Redalyc (the Network of Scientific Journals of Latin America and the Caribbean, Spain and Portugal) came into being, first as a network of editors of social science journals interested in sharing experiences. The creation of a central website followed, and finally a portal of journals with full texts was organized. Its original concentration on the social sciences later broadened to all disciplines. While SciELO was selective from the very beginning, with inclusion criteria inspired by those of ISI, Redalyc began with the aim of exhaustively covering social science journals. However, as Redalyc gained familiarity with SciELO's methodology, it tightened its selection criteria, first by using those of Latindex, later by developing its own (Aguado-López, 2011).

In the last few years, the two projects have tended to converge. Even though their quality criteria still differ, both organizations fully support OA. SciELO's goal is to raise the IF of journals to at least the holy grail of 1.0, for it believes in journal rankings and intends to participate in this race. But, at the same time, it seeks to redefine some of the competition rules to give itself a chance of winning once in a while. However, this strategy has led to a predictable consequence: impact factors are really publisher toys, and they are monitored by them much more closely than by researchers, funding agencies, or managers of research. Not surprisingly, SciELO's efforts are being noticed by large commercial publishers who, apparently, give signs that they might poach journals that begin to look profitable. By playing the excellence game in the same playground as large commercial publishers, SciELO increasingly finds itself threatened by direct competition. This trend could signal the beginning of a pernicious process: one could imagine that Latin American countries, with great expense and effort, would work toward improving their journals, only to discover that successful journals get captured by large commercial publishers. Rich publishers have the means to convince an editor to defect. Already, 30 years ago, a takeover of *Interciencia* was attempted.<sup>10</sup> This also reminds us that a misplaced obsession with flawed conceptions of 'international' or 'mainstream' science has been in place for decades.

Redalyc appears less attractive to competition. Broad, quality coverage remains its main objective. With regard to competition, Redalyc seeks to develop metrics more appropriate to its journals, a large proportion of which are in the social sciences. But in general, one problem stands out: how to raise the quality of Latin American journals without exposing them to the predatory moves of powerful publishing houses. If successful, the maneuver of these companies will cost Latin America dearly: a few Latin American editors and their colleagues would be allowed to join the club of 'core journals', but the effort to create an autonomous Latin American capacity will be regularly stunted. All these efforts could amount to SciELO and Redalyc acting as a kind of ante-chamber for the assimilation of the more promising Latin American journals by the large publishing houses of the North. And the assimilated journals, within a decade, will have lost any distinctive traits that made them useful to Latin America.

At present, Redalyc may find itself in a safer place than SciELO: its strong social sciences and humanities base, largely published in Spanish and Portuguese, shields Redalyc, at least temporarily, from the scrutiny of commercial publishers (but the dark side is that it also signals a certain degree of invisibility on a world scale). Also, the alternative evaluation methods being explored by Redalyc are not monitored as closely, or in the same way, by commercial publishers. However, over the longer term, Redalyc may be just as vulnerable as SciELO to predatory moves from such publishers, especially as attempts to globalize the social sciences along lines explored in the natural sciences begin to pick up speed. Thinking about defensive moves, even in the social sciences, is certainly important for the region.

## **Conclusion**

At the beginning of this article we asked how a research policy could be designed to improve the quality of science in Latin America. Of course, this question obviously intimates that science is good for the region's development. Is it important to strengthen the regional Latin American research space today? Does it make sense within the current frame of globalized competition? It appears to make little sense if we accept the network approach of Wagner or the results of publishing practices in Mexico as described by Russell and her collaborators. In their perspective, scientists are individual and opportunistic intellectual entrepreneurs who 'naturally' join the existing international networks wherever it suits them and whenever the windows of opportunity appear. Of course, such a process, as Wagner admits, tends to favor the strongest, very much as deregulation tends to create ever more unequal wealth distribution. But these considerations are often neglected: the present ideological context guiding much thinking in economics as well as in social theorizing is very close to asserting that these 'natural' forms of collaboration guided by networks have the epistemological force of scientific laws: in short, the invisible hand of markets is supposed to work like Newton's law of universal attraction, and network rules trump any other form of social analysis.

The problem with this kind of reasoning is that no one has demonstrated the epistemological strength of networks; neither is 'possessive individualism' the natural state of human beings. Individual entrepreneurship is certainly visible everywhere, but it does not mean that it is the optimal way to national or regional development. On the contrary,

it very much looks like a process that is sure to attract a significant proportion of Latin American scientists to Northern networks because they appear as more rewarding, more mature, better, etc., but with few advantages for Latin America.

The countries in the region have diverse needs and capacities. A number of initiatives of various kinds have provided the basic platform for OA and a better international positioning of Latin American science both in terms of receiving and producing information. To cover the region's production adequately, it is not enough to have journal aggregators like SciELO or Redalyc; it is also important that academic or university (national or regional) portals flourish. Libraries and other institutional repositories have silently developed and played an important role in ensuring informational literacy in science and technology (Plaz Power and Vessuri, 2009). If one tries to think over the mid- to long-term, and not just in terms of reactive tactics, new ideas have to be developed. Since 2009, Latindex has been building a system to provide a one-stop access reference to Ibero-American e-journals, especially for those organized in thematic, institutional, national or regional collections. It is the Latindex Portal of Portals (PPL in its Spanish acronym) at UNAM. It includes an innovative meta-search engine allowing for simultaneous searches in several collections, thus enriching the perspectives of the user and making searches much more efficient. The success of this service (PPL) will depend on the quality, stability and coverage of the portals (repositories, collections, online libraries) that may develop. The policy that recommends journals to appear in OA portals goes in the right direction. Without doubt, the two most visible Latin American reactions to globalized science are SciELO and Redalyc. They reflect the two visions of science policy adumbrated earlier. On the one hand, SciELO appears to embrace the competitive regime of present, globalized, science. It only seeks to bend its rules sufficiently to ensure some place in the sun for Latin American science. In particular, this has meant turning the impact factor around to transform it from an instrument of domination wielded by Northern publishers into a transformational tool with which to encourage better professional behavior among Latin American editors. The tool itself is slightly amended by using supplementary metrics from SciELO itself, but the globally defined game remains the same. However, SciELO's challenge is to preserve its granular identity at the Latin American level while engaging in the kind of network-driven global competition that actually works against this kind of granularity. The granular existence of SciELO is being surreptitiously targeted by powerful Northern publishers that seek to peel off its financially promising elements one by one. In this regard, SciELO's recent alliance with WoS may have been conceived not only to increase visibility and prestige, as is obviously the case, but also to keep the SciELO journals together, as a group: in this new context, defecting to another publisher, for example, could threaten a journal's position on WoS if its presence there depends on its presence within SciELO (and, presumably, on its financing).<sup>11</sup>

With Redalyc, we can observe an institutional expression of a more classical form of science policy. Centrally organized, the platform's existence also benefits from its strong anchoring in the social sciences and the humanities because these disciplines do not yet toe the line of impact factors obediently. Also, English is not yet the *lingua franca* of these domains. As a result, evaluation tools are more diffuse, less quantitative, more debatable, and all these features, while complicating evaluation, also shield the total

structure from a number of dangers presently affecting SciELO. But the shielding effect, as pointed out earlier, can also correspond to a form of invisibility. If so, it would also mark potential limits to the project if the goal is to become a full and autonomous partner in the 'grand conversation' of science. Moreover, the elements contributing to the shielding are not eternal. The general trends affecting the natural sciences are gradually spreading to the social sciences, and similar consequences could well appear within a generation or so.

If Latin American science wants to internationalize on a sound basis, it must cease to misconstrue North Atlantic science as if it were the whole of world science. There are other possible centers of science that would bring a degree of real internationalization to Latin American science without condemning it to revert to submitting to a system that really aims at extracting good brains and good teams from the poor countries to aggregate them to the existing and dominant system. Working, as SciELO has begun to do, with South Africa is a step in the right direction; working with some of the more vulnerable European countries to offer them a situation where they too will not simply be picked off, scientist by scientist, by the richer and more powerful members of the group is another interesting alternative.<sup>12</sup> In short, rather than aggregating oneself to the presently dominant scientific set with the prospect of losing any kind of coherent identity and granularity, it would be more useful to reinforce this granularity, in particular by networking with the research areas of other developing regions. In this context, appealing to the notion of network makes sense because the nodes are of comparable strengths, and by playing together, they will benefit from a network effect that will not be controlled by OECD countries. Ultimately, this new network of regional nodes should be strong enough to face the nodes of the OECD countries, not in a confrontational manner, but rather in a collaborative manner, and with better chances for balanced partnerships.

The evolutionary scenario just adumbrated will not work if the present competitive rules are not subverted and ultimately defused. The new nodes that could and should collaborate, from China to India, with Africa and South East Asia, will play the role of rebalancing world science and its communication system only if quality trumps excellence, if true collaboration comes before all-out competition. This means that the tools to create value must themselves be re-evaluated and rebuilt. In this regard, the social sciences have much to teach the natural sciences: this is also one of the unexpected and fruitful results of the gradual convergence between SciELO and Redalyc.

In this general vision, one element must not be forgotten: open access. Open access is crucial for many reasons, but in following up the particular themes of this article, open access appears as a wonderful tool to favor quality. Why? Simply because it allows a generalized form of scrutiny: anyone can check and recheck what is being proposed in the 'Grand Conversation'. In the free software arena, one would say: 'with enough eyeballs, all bugs are shallow'.<sup>13</sup> The same principle applies to the 'Grand Conversation': its driving force is not so much the rivalry of egos as the quest for quality and the response to needs. The possibility opened by OA for a wide and deep revisiting of all previous forms of scientific work should ultimately shift the very motives for scientific work. In particular, competition, instead of acting as the universal engine of science, could find its place in particular issues where, to use Kuhn's vocabulary once more, paradigm shifts are looming.

Finally, it must be remembered that, while it is true that science that is not visible does not exist, visibility alone is not enough. Effective presence requires being in such a state of visibility that anyone neglecting it will be faulted for carelessness, incompetence or ignorance. Presently thousands of Latin American journals are accessible and, therefore, visible from any computer connected to the Internet. Yet, this is not enough. While much can be done to improve access, it will remain of limited value so long as the rest of the world does not feel it has to look at that research. Conversely, OECD countries have managed to erect their science as if it were the whole of world science, and, as such, indispensable. While much good and even extraordinary science does exist in non-OECD countries, it needs to be integrated at its right place within (real) world science. Regional initiatives such as Latindex, SciELO, Redalyc, and Latin American science in general, have much to contribute in this regard.

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## Notes

1. 'Articles may be retracted when their findings are no longer considered trustworthy due to scientific misconduct or error, they plagiarize previously published work, or they are found to violate ethical guidelines. Using a novel measure that we call the "retraction index," we found that the frequency of retraction varies among journals and shows a strong correlation with the journal impact factor. Although retractions are relatively rare, the retraction process is essential for correcting the literature and maintaining trust in the scientific process' (Fang et al., 2012).
2. Recently the San Francisco Declaration on Research Assessment (2012), an international initiative started by a group of editors and publishers of scholarly journals, made 'a number of recommendations for improving the way in which the quality of research output is evaluated. Outputs other than research articles will grow in importance in assessing research effectiveness in the future, but the peer-reviewed research paper will remain a central research output that informs research assessment. Our recommendations therefore focus primarily on practices relating to research articles published in peer-reviewed journals but can and should be extended by recognizing additional products, such as datasets, as important research outputs. These recommendations are aimed at funding agencies, academic institutions, journals, organizations that supply metrics, and individual researchers.'
3. This is one of the main objectives pursued by organizations such as SciELO, Redalyc and Latindex and the Open Journal System aims at raising the professionalism of individual journals.
4. The slow recognition of Dr De's achievements is lamely characterized by Eugene Garfield as a 'classical case of delayed recognition' (Garfield, 1986). More accurately, this is a classical case of benign neglect.
5. In August 2009, Richard Horton, editor of *The Lancet*, was quoted as follows in the *Times Higher Education*: 'The incentive for me is to cut off completely parts of the world that have the biggest health challenges ... citations create a racist culture in journals' decision-making and embody a system that is only about us (in the developed world)'; available at: [www.timeshighereducation.co.uk/407705.article](http://www.timeshighereducation.co.uk/407705.article)

6. DOAJ is the biggest and most reliable directory of OA journals; it is harvested by hundreds of libraries and aggregators making the journals even more visible and the articles more cited. Latin American journals, mainly through Redalyc and SciELO make up almost 20% of the DOAJ total. It is interesting to observe, in this connection, that DOAJ has chosen the most open definition of open access, which are the Budapest Open Access Initiative (BOAI) criteria. More than 40 languages are represented in its database ([www.doaj.org](http://www.doaj.org)).
7. Ortiz (2009) dealing in part with the criteria for the selection of ISI indexed journals, comments on the following requirement: 'English is essential for the headings, summaries and keywords'. References in English were also recommended: 'the bibliography in English continues to be essential'. This preference was clearly manifested in the selection and treatment of the material. Between 1980 and 1998, English-language publications increased in the SCI base from 85% to 96%; other languages – French, Russian, German – all decreased. In 1974, out of a total of more than 4850 Brazilian titles, Brazil had only four journals indexed by ISI, eight in 1977 and 17 in 1999. Of these 17 publications, several were in English.
8. Starting with the initial 2460 titles that corresponded to the journals indexed by the CLASE and PERIODICA databases of the National Autonomous University of Mexico (UNAM), Latindex saw the volume of journals indexed exploding with the integration of the national directories of journals from Argentina, Brazil, Chile, Colombia, Cuba, Spain and Portugal.
9. *In toto*, Latindex has produced three databases. The broadest, least discriminating, one is the Directory where 21,390 journals are registered. The second one is the Catalogue; it includes only the 6655 journals that fulfill Latindex editorial quality criteria; the third database, of Electronic Journals, is made up of 4944 journals that are available electronically in full text and many of which are freely accessible.
10. *Interciencia* was bought by Robert Maxwell's Pergamon Press in the 1970s, but was quickly sold back, not because of quality issues, but because the operation did not turn a profit!
11. It remains to be seen what the effects will be of the recent addition of SciELO database to Thomson Reuters Web of Knowledge; see [thomsonreuters.com/press-releases/072012/](http://thomsonreuters.com/press-releases/072012/)
12. The presence of Portugal and Spain, countries that share the Latin American languages, is a good point in this direction.
13. See: [en.wikipedia.org/wiki/Linus's\\_Law](http://en.wikipedia.org/wiki/Linus's_Law)

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### Résumé

L'actuel régime de concurrence qui caractérise la recherche scientifique internationale est souvent présenté comme une quête d'excellence. Cette situation affecte différemment la recherche en Amérique Latine et dans les pays de l'Organisation pour la Coopération et le Développement Économique (OCDE). Dans cet article, nous nous demandons dans quelle mesure ce régime de concurrence influence la recherche scientifique en Amérique Latine et quels en sont les bénéficiaires. On peut considérer que la formulation d'une relation différente entre excellence et qualité permettrait de concevoir une politique de recherche qui puisse améliorer le niveau de la science en Amérique Latine tout en préservant la possibilité de répondre de manière appropriée aux problèmes de la région. Certains soutiennent que la concurrence a aussi sa place dans les sciences mais pas comme principal outil de gestion, en particulier si l'objectif est d'améliorer globalement la qualité de la science en Amérique Latine. La concurrence

scientifique est en grande partie basée sur les publications dans les revues scientifiques et sur leur réputation. En conséquence, la conception d'une politique de la recherche scientifique pour l'Amérique Latine exige que l'on prête une attention particulière aux mécanismes sous-jacents à la production, la circulation et la consommation des revues scientifiques. Ce que l'on appelle les revues scientifiques « internationales » ou « importantes » présentent un intérêt particulier alors que les revues locales, nationales ou même régionales peinent à trouver leur place dans cet écosystème de l'édition si particulier.

### **Mot-clés**

Concurrence scientifique, reconnaissance scientifique, politique de recherche, évaluation de la qualité et de la recherche, revues d'accès libre, Amérique Latine

### **Resumen**

El actual régimen de competencia que caracteriza a la ciencia internacional se presenta a menudo como una búsqueda de la excelencia. Afecta diversamente la investigación en América Latina y la investigación en los países de la Organización para la Cooperación y el Desarrollo Económicos (OCDE). En este trabajo, nos preguntamos cómo este régimen de competencia puede orientar la dirección de la investigación en América Latina, y para beneficio de quién. Se argumenta que, al relacionar excelencia y calidad de manera diferente, puede diseñarse una política de investigación que busque mejorar el nivel de la ciencia en América Latina, preservando al mismo tiempo la posibilidad de resolver los problemas relacionados con la región. La competencia, se argumenta también, sin duda tiene su lugar en la ciencia, pero no como una herramienta de gestión en general, especialmente si el objetivo es mejorar la calidad general de la ciencia en América Latina. La competencia científica se logra en gran medida a través de revistas y su reputación. Por lo tanto, el diseño de una política científica de América Latina (y de todas las regiones “ periféricas “ del mundo) requiere prestar especial atención a los mecanismos que sustentan la producción, circulación y consumo de las revistas científicas. Las llamadas revistas “internacionales” o “centrales” son de particular interés, puesto que las revistas locales, nacionales, e incluso regionales deben luchar para encontrar su lugar en este ecosistema editorial peculiar.

### **Palabras clave**

Competencia científica, reconocimiento científico, política de investigación, calidad y evaluación de la investigación, revistas de acceso abierto, América Latina