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The Brazilian Model for Free Access to Scientific Publications

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The Brazilian Model for Free Access¹

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Although Brazil lacks a cohesive national policy for free access to scientific publications, local initiatives by universities, funding agencies and state and federal government make up the framework for a full policy for free access. The paper aims at putting together the pieces and presenting a general picture of what such policy might be: free access to all Brazilian theses and dissertations through digital repositories; institutional protection for the copying of books for academic purposes; fomenting publicly funded peer-reviewed non author fee free access journals; qualitative (instead of quantitative/ impact based) evaluation for scientists publishing in free access journals. The paper also points to the deficiencies of existing policies and reflects about the limitations of national policies for free access journals in the context of globalized science.

Introduction

Brazilian public interest policies regarding intellectual property have been widely claimed as *avant garde*. Brazil has leading policies for the adoption of free software in the public sector³ and for the promotion of free software in general⁴, policies for promoting free culture⁵, and also for securing free access to scientific literature. It has also led (with countries such as Argentina and South Africa) reform in international forums such as the World Intellectual Property Organization (WIPO) for protecting the public interest⁶. However, these different initiatives, even when adopted in one given sphere of government (e. g. federal government) lack coherence and broad planning and are usually isolated initiatives of local policy makers. This article aims at putting together the pieces relating to the policies for the access to scientific knowledge, outlining what a coherent global policy might look like.

E-Theses

In April 2006, CAPES, the institution responsible for governing postgraduate education in Brazil, issued regulation 13 establishing that all institutions with postgraduation courses must have either an institutional repository with all theses and dissertations produced or

- 1 Although the international academic community has standardized the term "open access", Brazilian policy makers usually call it "free access". This term option reproduces the debate between the *Open Source Initiative* and the *Free Software Foundation* regarding software - one pragmatically defending the technical superiority of open source and the other emphasizing the moral superiority of free collaboration.
- 2 Escola de Artes, Ciências e Humanidades, Universidade de São Paulo. I would like to thank Alcimar Queiroz, Eduardo Barbosa and professors Jorge Machado and Gisele Craveiro for putting together some of the data presented here which will be published later in a full report about "Access to Scientific Knowledge in Brazil". I would like also to thank Natascha Schumann, Hélio Kuramoto and Marco Antonio Rodrigues for providing information about the e-theses policies in Germany and Brazil.
- 3 Although a presidential decree of October 29, 2003 instituted technical committees for the adoption of free software in federal government, only a few ministries (such as the Ministry of Culture and the Ministry of Defense) and a few public institutions (such as the information processing company *Serpro* and the agrotechnology company *Embrapa*) have wider programs for the adoption of free software.
- 4 The largest one is the *Computador para todos* which provides special financing for low cost computers sold with free software. Since this policy was issued in September 2005, over 265,000 computers were sold under *Computador para todos* (Abinee/ IT Data 2006) adding up to the 1,500,000 computers sold with free software (18% of all computers sold in 2006 - probably includes servers). The program's results are considered unsatisfactory though. Brazilian government expected to sell over 1 million computers and a survey has shown that 73% of consumers have changed the operational system to *Windows* after sale (Abes/ Ipsos 2006).
- 5 The *Pontos de Cultura* is a program establishing culture centers where artists and community can create and digitally record and edit music, literature and video and release them with free licenses such as the *Creative Commons'* licenses. As of April 2007, there are over 490 *Pontos de Cultura* throughout Brazil.
- 6 Brazil is leading with Argentina, South Africa and other countries "friends of development" a reform of the World Intellectual Property Organization mandate by reassuring its commitment to development issues, the use of exceptions in intellectual property law for the public interest and the defense of the public domain.

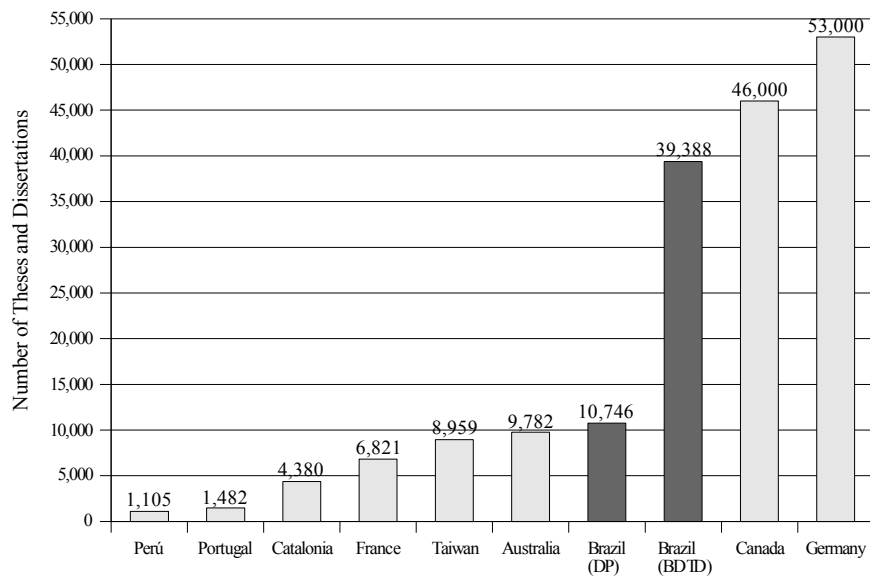
publish its theses and dissertations in a national repository by December 2006. Article 5 of the CAPES regulation stated that "the public funding of a work, whether through a scholarship or other kind of support obliges the receiver of a master or doctoral degree to present its work to the society who funded it" [Ministério da Educação 2006]. Public investment for the production of a typical doctoral thesis at one of the state universities of São Paulo (which are responsible for almost half of the scientific production in Brazil) has an estimated cost of at least US\$ 75,000 [Ortellado and Machado 2006].

CAPES regulation also states:

- That every author of a thesis or dissertation in Brazil from March 2006 must publish it in an institutional digital repository, unless it contains an industrial secret or there is an ethical motive for secrecy;
- Postgraduation programs will be evaluated not only by the quantity and quality of their production but also by the accessibility of their theses and dissertations through their digital repository (including the easiness for downloading them).

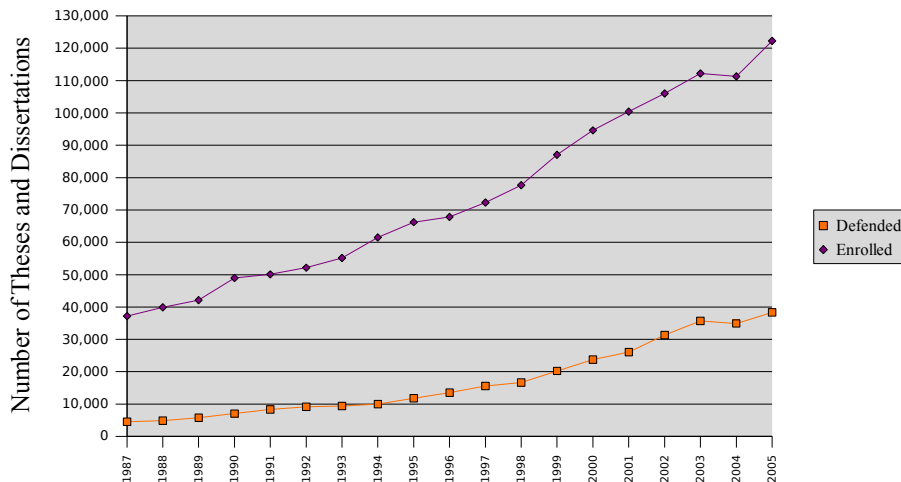
According to CAPES, over 50,000 theses and dissertations were produced in Brazil in 2006. Although regulation 13 applies only to newly defended theses and dissertations (after March 2006), some institutions are adding older theses to their repositories or integrating older repositories to the new ones. CAPES itself makes available abstracts for over 175,000 older theses. Figures for the repositories show that most of the 50,000 theses and dissertations defended in 2006 had not been uploaded as of April 2007. This probably has to do with technical difficulties faced by the universities but also with the fact that two different institutions are now dealing with the e-theses policy: the IBICT (Brazilian Institute for Information in Science and Technology), an institution within the Ministry of Science and Technology and the Ministry of Education through its *Domínio Público* portal. The IBICT has a portal integrating the different local institutional repositories in a National Digital Library of Theses and Dissertations (also providing metadata to the global Networked Digital Library of Theses and Dissertations) and the Ministry of Education portal is now receiving all the theses from the universities which do not have their own repositories.

Graphic 1: Selected National/ Regional Scope E-Theses Repositories



Graphic 1⁷ shows the number of thesis in the now dual repository system of Brazil as compared to other countries and regions' repositories. Together they are among the largest national repositories and data about the growth of postgraduate studies in Brazil (Graphic 2) indicates that Brazil's policy will soon be the leading initiative for the free access of e-theses. With the issuance of regulation 13 by Brazil's CAPES and the later German law of June 29, 2006 mandating universities to electronically deposit theses and dissertations in the *Deutsche Nationalbibliothek* (German National Library), national governments worldwide have now precedents for the establishment of national level mandates for e-theses⁸.

Graphic 2: Theses and Dissertations in Brazil



Access to Scientific Books

Apart from the funding of university libraries, the main focus of a policy for the access to scientific books is guaranteeing the exemptions in copyright law for free academic use. Brazil's new 1998 copyright law reformed a 1973 law who had a clearly defined copyright exemption for one copy of any work as long as not for profit. This exception was deliberately conceived for university students who could not afford to buy all the required books. The exemption was redefined in the 1998 law as follows:

*Article 46: The following shall not constitute violation of copyright:
 (...) II. the reproduction in one copy of short extracts from a work for the private use of the copier; provided that it is done by him and without gainful intent*

The ambiguous wording of the article gave rise to several judicial disputes in the years following 1998. How much was a "short extract"? Who was the copier who could make private use of a copy without gainful intent? Was it a client of a copy shop or was it someone operating directly a copy machine without "gainful intent"? Editorial industry usually understood that a "short extract" was really short (one page) and that the copy had to be made by the end user of the copy. Students and university faculty usually understood that a "short extract" was about one chapter of a book and that asking for a copy in a copy shop equaled being the copier.

⁷ Includes the following repositories: Cyberthesis Perú; Portugal's Deposit of Dissertation and Theses; Catalonia's Tesis Doctorals en Xarxa; France's Theses On Line; Taiwan's Electronic Theses and Dissertation System; Australian Digital Theses Program; Brazil's Public Domain; Brazil's Digital Library of Theses and Dissertations; Theses Canada; Germany's National Library.

⁸ Difficulty in gathering consistent comparative data about the repositories demonstrates the need for the international adoption of standardized metadata such as Virginia Tech's Electronic Theses and Dissertation Metadata Standard (ETD-MS) and the Open Archives Initiative's Protocol for Metadata Harvesting (OAI-PMH).

In 2004, the *Brazilian Association of Reprographic Rights* (a coalition of Brazilian publishing houses) started a campaign against the copy of books in universities and took action against copy shops, shutting them down. As a reaction to those measures, the University of São Paulo university council issued a resolution allowing the copy of extracts of a book (such as a chapter) and the reproduction of whole works which were not available in the market (such as out of print and imported books). The argument for this second measure was that works which were out of print or were not published in Brazil had no significant local commercial value and so the whole copy was not damaging the holder of the copyright. Student groups argued that a considerable percentage of books required for courses were out of print for many years⁹.

Several universities adopted internal norms inspired by the University of São Paulo resolution and a legal battle started and is still going on. The measures taken by the universities guaranteed that students and faculty kept classes and learning, but the publishing industry is pressuring the government through a report issued by the United States.

The Special 301 Report is a report produced by the United States Trade Representative (USTR) under section 301 of the 1974 Trade Act which allows the U.S. to impose sanctions against countries violating United States' trade rights. The judgement of whether there is a violation of U.S. trade rights is unilateral. Countries listed in the priority watch list of the Special 301 Report may be sanctioned by being excluded of the Generalized System of Preference. The Generalized System of Preference is a U.S. program providing preferential duty-free entry to goods produced by developing countries.

The report is based on information provided by the industry. The *International Intellectual Property Alliance* (IIPA), a coalition of private U.S. industries with interests in intellectual property, issues its own annual report with recommendations for the USTR. In the 2007 IIPA report Brazil is recommended to be in the watch list (although it is presently – as of April 2007 - in the "priority watch" list) and the following is said about the University of São Paulo resolution allowing the copy of books:

Among the most disturbing developments in 2006 was the issuance and implementation of Resolution No. 5213/2005, an administrative rule by the State of São Paulo University (USP). This rule allows (1) reprographic copying of portions of books by commercial, for profit copy centers; and (2) copying of foreign works (or perhaps all works not in Portuguese) that are "not available in the Brazilian market" without a license. (...) This ruling presents several problems under international norms and must be revoked. For-profit entities should not be given carte blanche to copy works outside the normal bounds of international fair use. (...) State and national authorities (including the Ministry of Education) should step in to revoke this rule, or at a minimum revise it to comport with Brazil's international obligations under TRIPs and Berne. [International Intellectual Property Alliance 2007]

It is yet to be seen how Brazilian government will react to a similar text in the official USTR report to be published in late April 2007. Last year Brazilian government stood for its policy for generic drugs when it was criticized in the 2006 Special 301 Report. It may do the same for its universities.

Free Access Journals

Free access to scientific articles can be achieved by two different approaches: green or golden. The green way for free access is self-archiving (uploading a published article in its preprint or postprint form in an Internet archive) [O'Donnell and Okerson 1995]. The golden way for free access is the free access to the journals. The journals are available at the Internet

⁹ Administration students at Fundação Getúlio Vargas argued that 45% of their required books were out of print and Social Sciences students at the University of São Paulo argued that 30% of their books had a similar status. [Grupo de Acesso ao Livro 2005]

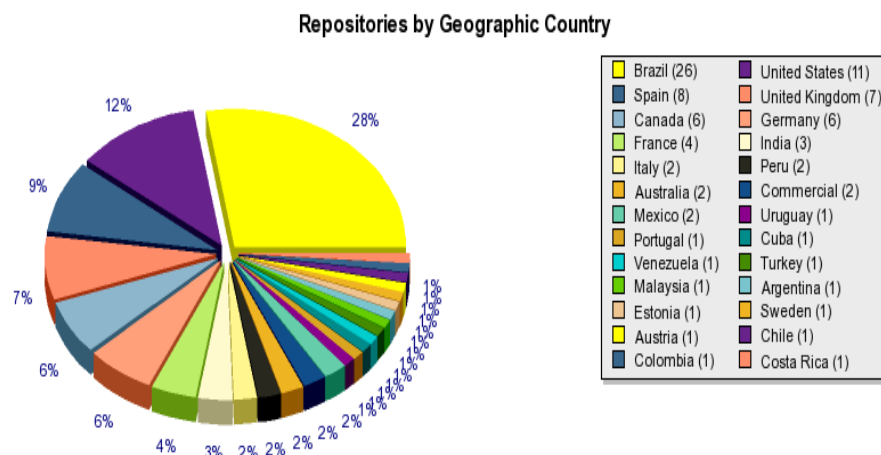
with their full text at no cost for the reader¹⁰. The more well-known way to fund these publications are through the so-called “author pays model” where editorial costs are not covered by the reader but by the authors or – more often – by their employers or funders. The most notorious of such initiatives are the non-profit *Public Library of Science (PLOS)* and the commercial *BioMed Central*.

A study published in 2005 showed, however, that only 47% of free access journals charged author-side fees [Kaufman Wills Group 2005] and most journals relied on governmental or institutional sponsorship. Since 1998, an experience in Brazil is showing how far can a grant based free access publishing model go. The *Scientific Library of Science (SciELO)* started with the objective of improving scientific communication in Brazil and projecting Brazilian scientific production worldwide. It aimed at aggregating the very best of Brazilian scientific journals in a portal and growing from there maintaining the following principles:

- Free access to full text
- All peer-reviewed journals
- Quality selection of journals through the evaluation of a scientific committee

With the success of *SciELO*, growing from 8 journals in 1998 to 176 journals in 2007 and expanding its model to Argentina, Chile, Colombia, Cuba, Spain and Venezuela, Brazilian scientific funding agencies – particularly the two largest, the *National Research Council (CNPq)* and the *State of São Paulo Research Foundation (FAPESP)* – began demanding that newly funded journals either become available in the *SciELO* website or have its content available elsewhere with free access. This is probably the reason why, according to the *Registry of Open Access Repositories* at the University of Southampton, Brazil is the country with the largest number of free access journals (Graphic 3). Paradoxically, this may also be the reason why Brazil neglects a policy for self-archiving (“green road”) – although other peripheral countries like China and India have already well established policies¹¹.

Graphic 3: Distribution of Free Access Journals Repositories



SciELO showed that is possible to make high quality free access journals with solid peer reviewing with a different funding approach than the author pays model. The spread of *SciELO*, however, is very particular of a peripheral country such as Brazil where there is no valuable

10 This is the standard definition proposed by Peter Suber in his 'Open Access Overview'. It emphasizes accessibility in the Internet and not a free copyright license. This may lead, however, to freely publishing works in the Internet with a license that denies further reproducibility.
 11 A list of adopted policies can be found in the website *Registry of Open Access Repository Material Archiving Policies as Recommended by the Berlin Declaration*.

market for publishing commercially scientific journals and most publications depend directly on public funding. This circumstance allowed Brazil to deflect the problems of the traditional model where a private business receives public funding in three parts of its productive chain (the funding of content through public research funding, the funding of peer reviewing through researchers salaries and the funding of the acquisition of journals by libraries) but the content is not freely available to the public [House of Commons 2004]. As it has been already observed, the public money for converting scientific commercial publications to an all-public non-commercial publishing model is already available, the hard question being how to operate such conversion. Perhaps Brazil's experience can provide the empirical (although limited) evidence that a full scientific communication system like that can work.

Qualitative Evaluation for “Free Access Scientists”

On October 5, 2005 the Deliberative Council of the Brazilian *National Research Council (CNPq)* published a statement in support of the “Berlin Declaration on the Open Access to Knowledge in the Sciences and Humanities”. Furthermore, it stated that CNPq would encourage and support its researchers to publish in free access journals by means of the following measures:

- Granted funds could be used to pay for publishing in free access journals
- Funds for scientific publications would be preferably directed to free access journals
- During evaluations, scientific work should be judged by its intrinsic value regardless of the publication vehicle

The last point seemed deliberately devised to support scientists who stood for free access and did not want to publish in the closed access indexed journals. As most of the free access journals are new and have not yet achieved a high impact factor, publishing in them could jeopardize a career because evaluation is based on quantitative data such as the impact factor of journals. So this measure gave Brazilian scientists who stood for the ideal of free science a fair judgement assessing its production for its intrinsic value and not for the journal's impact factor.

National policies in globalized science

As mentioned above, Brazil lacks a policy for promoting the self-archiving of the articles produced by its scientists and published in traditional closed access journals. Physics scientists, for instance, may publish in Cornell University's *Arxiv* and there are a few local initiatives of setting up repositories but they are rarely institutional and as a whole have no national significance.

The lack of such policy does not impact homogeneously in all science areas. There are two different publishing attitudes among Brazilian scientists: those who mostly publish in international indexed journals, and those who mostly publish in Brazilian journals. The first group is mostly composed of natural scientists and the second group is mostly composed of social scientists. Table 1 shows Brazilian participation in the ISI indexed production and the so-called productivity of researchers in different science areas measured by their annual ISI indexed articles.

TABLE 1

Science Fields (CAPES/ CNPq)	Brazilian articles in the ISI indexed production (%)	Brazilian researchers' 'productivity' (annual ISI indexed articles)
Agrarian Sciences	2,8	0,18
Biological Sciences	1,88	0,31
Health Sciences	1,4	0,16
<u>Exact and Earth Sciences</u>	<u>1,92</u>	<u>0,5</u>
Human Sciences	0,76	0,03
<u>Applied Social Sciences</u>	<u>0,39</u>	<u>0,01</u>
Engineering	1,43	0,1

Source: MCT-ISI, MCT-CNPq/ISI

One can notice a group of science areas made up of the so-called natural sciences (Agrarian, Biological, Health, Exact and Earth Sciences) with a “productivity” of 0,16 to 0,5 indexed articles per researcher per year and another group of social science areas (Human Sciences and Applied Social Sciences) with a “productivity” of 0,01 to 0,03 articles per researcher per year (with Engineering falling in between with a productivity of 0,1 indexed articles per researcher per year). This clear division suggests that language and issue barriers may play a significant role in preventing social scientists from peripheral countries to publish internationally, as international publication in the social sciences demands greater mastering of the English language and its issues tend to be less "universal" than those in the natural sciences.

This can be further analyzed in table 2 which compares the yearly production of articles in the two top departments in Chemistry and Sociology in Brazil¹² in 2006 (both in the University of São Paulo).

¹² As measured by CAPES' evaluation of their faculty and postgraduate research.

TABLE 2

	Physical Chemistry	Sociology
Average yearly production of articles per researcher	12,1	2,1
Average yearly production of book chapters per researcher	0,6	2,5
Proportion of articles published in Brazilian journals	83,8%	16,1%
Proportion of articles in free access journals	39,7%	14,1%
Average cost of article/ book chapter ¹³	US\$ 24,837	US\$ 15,058

Source: CAPES, CNPq, USP

The table shows the different areas' emphasis in book publishing and in journal publishing; in publishing in Brazilian journals and in international journals. It also suggests that the national policies promoting free access to Brazilian journals might have a larger impact for the social sciences but smaller impact for the natural sciences. Preliminary figures indicate that Brazil should establish policies mandating self-archiving – specially in the natural sciences – and that it should have a larger role in promoting free access internationally if it wants its costly natural sciences production to remain available to the Brazilians who funded it.¹⁴

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Registry of Open Access Repository Material Archiving Policies as Recommended by the Berlin Declaration at <<http://www.eprints.org/openaccess/policysignup/>>

¹³ Preliminary data. Does not include individual research grants

¹⁴ This paper incorporates data from an ongoing research about “Access to scientific knowledge in Brazil” funded by the Ford Foundation.

Scientific Library of Science <www.scielo.br>