

## Brazilian Academic Profession: some recent trends<sup>+</sup>

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The 2006 census of Brazilian Higher Education shows a highly disperse and diversified system. There are 2,270 institutions, of which only 178 are considered Universities<sup>1</sup>. The public sector is small, with only 10.9% of all institutions, some under the Federal government (4,6%), others under state (provincial) governments (3.6%), and a few under local municipalities (2.6%). Federal and state institutions tend to be larger and better institutionalized than the private ones: they represent 51.7% of all Brazilian universities and respond for most of the country's graduate education (81.3% of the enrollment at this level).

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<sup>1</sup> To be recognized as universities, higher education institutions in Brazil need to fulfill some requirements that includes at least a third of their academic staff with at least a master degree and full time contracts, besides the provision of some graduate education degree programs, and to teach in the health, technical and social sciences. There is no legal difference in the degrees provided for university and non-university institutions, but universities have more autonomy to open new course programs and to decide the number of vacancies they offer each year.

Municipal institutions, however, are similar to the private ones at the lower end: they are small colleges, and the teaching staff is not very well qualified and do not

The private sector is huge: it includes 2,022 institutions and answers for 74.1% of all undergraduate enrollments. Most private institutions - 95.7% - are small, family-owned colleges scattered all throughout the country, and enroll 43% of all undergraduate students in the country. The remaining 4.3 % are large institutions, enrolling 31.1% of the undergraduate students. Most private sector institutions (78.3%) are for-profit, and, as such have no tax benefits, and are not required to provide institutional scholarships or philanthropic services. The remaining 21.7% are formally classified as philanthropic institutions. Most private universities belong to this group. However, there are gigantic universities in the for-profit sub-sector, and small colleges among the philanthropic institutions.

Table 1, provides some relevant figures of the Brazilian higher education system for 2006. There were 4.7 million undergraduate and 132.5 thousand graduate students in master's and doctorate programs. There were 316.9 thousand teaching posts, a third of which full-time<sup>2</sup>. In federal institutions, 83.4% of the academic staff have full-time contracts; in state institutions, 73.1%. The pattern for university and non-university institutions is the same in these sectors. In municipal institutions, however, only 19% of the academic positions are full-time.

Only 16% of the academic posts in private institutions are full-time, with differences among for-profit and non-for profit, university and non-university institutions. The figures are 11% for non-university, for-profit; 29.7% for universities, for profit; 12.7% for philanthropic non-universities; and 23.2% for philanthropic universities.

Table 1 also shows that 22.3% of all academic positions in Brazilian Higher Education are filled by professionals holding doctorates. Academics with such profile are to be found mostly in the public sector, and, inside it, in federal and state owned universities. In fact, while the public sector offer only 33.7% of all

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<sup>2</sup> In the 2003 survey, 90% of the academics that declared holding full-time contracts also declared to work with only one HE institution. This figure has been confirmed by the 2007 survey. Academics with full-time contracts also declare that the income derived by this academic position represents on average 80% of their total monthly income. In the public sector, full-time contract requires a small teaching load, between 12 to 16 hours per week. In the private sector, full-time contracts usually require a teaching load of 20 to 30 hours per week.

academic positions, 63.4% of all Brazilian academics holding a doctorate work in a public institution. In the private sector it is the opposite: 66.2% of all academic posts, but only 35.8% of the academics holding a Ph.D.

**Table 1. Brazilian Higher Education System: major figures, 2006**

Ownership	Type	Number of Institutions	Undergraduate Enrollments	Graduate Enrollments	Faculty employed		
					Total	Ph.D.	Full-time
Federal	Universities	53	556,231	NA	52,881	26,243	44,077
	Nonuniv.	52	33,590	NA	5,197	879	4,503
	Total	105	589,821	66,602	58,078	27,122	48,580
State	Universities	34	436,662	NA	37,482	15,951	28,348
	Non Univ.	49	45,094	NA	3,525	476	1,665
	Total	83	481,756	40,417	41,007	16,427	30,013
Local	Universities	5	60,370	NA	3,841	699	1,073
	Nonuniv.	55	77,357	NA	4,073	517	428
	Total	60	137,727	682	7,914	1,216	1,501
All	Universities	92	1,053,263	NA	94,204	42,893	73,498
Public	Non Univ	156	156,041	NA	12,795	1,872	6,596
	Total	248	1,209,304	107,701	106,999	44,765	80,094
For	Universities	24	437,165	NA	17,792	2,691	5,358
Profit	Non Univ.	1,559	1,487,001	NA	100,947	8,442	11,156
	Total	1,583	1,924,166	NA	118,739	11,133	16,214
Philan- tropic	Universities	62	1,019,968	NA	56,485	10,877	13,136
	Non Univ.	377	523,208	NA	34,659	3,904	4,404
	Total	439	1,543,176	NA	91,144	14,718	17,540
All	Universities	86	1,457,133	NA	74,277	13,568	18,494
Private	Non Univ.	1,936	2,010,209	NA	13,5606	12,283	15,260
	Total	2,022	3,467,342	24,780	209,883	25,851	33,754
Total	Universities	178	2,510,396	NA	168,481	56,461	91,992
	Non Univ.	2092	2,166,250	NA	148,401	14,155	21,856
	Total	2,270	4,676,646	132,481	316,882	70,616	113,848

Sources: for the number of institutions, undergraduate enrollments and faculty: Brazilian Ministry of Education, Higher Education Census of 2006. For graduate education: Ministry of Education, CAPES Foundation -<http://www.capes.gov.br/sobre/estatisticas/>

Notes: graduate education includes students enrolled in Master of Science Programs, Professional Master Programs and Doctorate Programs. Source:

NA: Not available

## **Intra-sector institutional differences**

The figures presented above are eloquent in showing the striking differences among institutions that coexist in Brazilian higher education. In fact, Brazilian Higher education is not only diversified but also a sharply stratified, both between and within each sector. In the public sector, the major line of differentiation and hierarchy is the one created by the degree of institutionalization of the graduate education. In late 1960s, when Brazilian government started to support graduate education<sup>3</sup>, only a few public institutions were well positioned to take advantage of the existing incentives. These institutions created a large number of graduate programs, and hired academics with Ph.D. to staff them. The influx of these scholars created a dynamic environment inside these institutions. With a great number of Ph.D. holders, these institutions were also able to capture the investments the Brazilian government was mobilizing for science and technology in the 1970s. Nowadays, these institutions could be called the **Public research universities stratum**: they provide a good working environment, which, in turn, allows them to secure the better-qualified academics and attract public financial support for research. A major feature of these institutions is the great proportion of Ph.D. holders among their faculty. In some of them more than 90% of all academic staff holds Ph.D. These institutions also are distinguished by the efforts committed to the graduate education: in none of them less than 30% of their students are enrolled in graduate programs. In some, this proportion is above 50%. These institutions award most of the Ph.D. degrees granted in the country, and, in them, the academic staff tends to be very influential in matters of institutional governance.

The other public institutions could be placed in another category. Most of them hold the University status but lack conditions for high-level academic work. They have not been able to establish a strong graduate layer and thus have difficulties to attract and retain doctorate holders among their staff. Bureaucracy and teacher unions have greater power than the academic staff, and central administration also tends to have more room for initiatives. Graduate education is a smaller enterprise in these institutions and tends to be confined to the master level. Nonetheless, these institutions play a relevant role not only in undergraduate education, but also as a regional source of skills and knowledge. As thus, they may be called **regional public institutions**.

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<sup>3</sup> For an overview of the Brazilian graduate education see Balbachevsky, 2004.

In the private sector there is also a small segment of institutions committed to graduate education. In late 1960 some Catholic Universities, and more particularly the Pontifical Catholic University of Rio de Janeiro, also took advantage of the government initiatives to support graduate education. Thus they committed efforts to build up a graduate layer, and, with the support of the Federal government, evolved in a pattern very much similar to the one found in the federal sector, with generous full-time contracts and support for academic research and graduate education. In the 1990s, when public subsidies dried out, some of these institutions evolved to an active entrepreneurial orientation, establishing strong links with outside users and clients for their research and development capabilities. They built up a strong periphery of institutes linking the competences at the core of the university's Departments with users outside the academic world<sup>4</sup>. In the last decade some other private institutions (confessional and non confessional ones) also experienced some movement toward a more entrepreneurial orientation – i. e., the awareness and wiliness for actively exploring alternative fund-raising activities, including services, graduate professional education and life-long learning programs (as opposed to a strategy of relying solely in funds raised by tuitions charged on undergraduate students). In common, all these institutions have room for engaging a larger proportion of Ph.D. holders in their staff. For these institutions, academic credentials are regarded as a source of differentiation both at the undergraduate market, attracting students from wealthier families willing to pay for good educational standards, and at the services market, offering well regarded professional training programs, job-oriented graduate education, as well as consultancy and advisory activities. Thus, these orientations and features set apart a small group of private institutions that could be called **Elite private institutions**. They are small in number, but are well known and reputed in the Brazilian higher education's landscape. From the point of view of the upper- middle class families, they represent the only real alternative to the educational services provided by the public sector.

The **lowest stratum** congregates the great majority of Brazilian higher education institutions. They are mostly private institutions, or owned by small

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<sup>4</sup> See the case studies of the Catholic University Computer Science sector and the Getúlio Vargas Foundation Economics centers in Schwartzman, Simon, Antonio Junqueira Botelho, Alex da Silva, and Micheline Cristophe. "Brazil." in *University and Development in Latin America: Successful Experiences of Research Centers*, edited by S. Schwartzman. Rotterdam: Sense Publishers (forthcoming).

municipalities. Most are small colleges or isolated professional schools, but the group includes some large, teaching-only institutions that have managed to be accredited at some point as universities, and can have 60 thousand or more students. In common, they all are confined to a kind of commodity-like market of mass undergraduate education, where the price charged for education is the most relevant differential. Lower tuitions are the goal, and saving in expenses in providing the undergraduate programs is the best strategy. They may be called **mass oriented private institutions**.

For these institutions, full-time (or even part-time) contracts and graduate faculty are luxuries they hesitate in incur. When a choice is posed, they usually opt for hiring non-graduate trained instructors in per-hour paid contracts. When they are forced by governmental regulations to hire graduate academics, they prefer master's degree holders, since they have no room for a strategic use of the competences and prestige associated with the Ph.D. degree.

Some of them, mostly universities, do display some research related indicators, since "research - or indicators of research" is a bureaucratic demand from government to all officially recognized universities. Thus all private universities in Brazil have a few number of research groups (or graduate – master's or doctorate - programs), if only for the sake of producing the indicators demanded by the government. But the real difference between these institutions and the elite private stratum is to be found in the strategic place occupied by these research-related activities. In mass oriented institutions, research groups tend to be few, small, chronically undernourished and with few connections with the institution's real life. They are not supposed to grow and to occupy a place of its own inside the institution. They exist only for the sake of the indicators they produce. At private elite institutions, in contrast, research, consultancy and related activities play strategic roles, and the full-time academic staff is stimulated to develop projects and initiatives of different kinds.

Institutions at this lower stratum are not organized in academic departments and have small room for initiatives from the faculty. They are vertically organized, and the smaller organizational unit is the bachelor course program. Each program is supervised by a coordinator, usually a senior teacher, with long years at the institution. His/her authority derives from the trust of the Institution's owner, rather than his/her academic reputation or leadership.

## The 2007 survey on the academic profession in Brazil

The sample design used for the 2007 survey on the academic profession in Brazil, as part of the International Project on the Changing Academic Profession (CAP Project) incorporate the categories just sketched. The universe of the Brazilian Higher Education institutions was sorted out in the four strata identified above: public research universities, public regional institutions, elite private institutions and mass private institutions. The indicators used for classifying each institution were the proportion of Ph.D. holders inside institution's faculty and the proportion of faculty employed in full-time contracts. Thus,

- **Research Public Universities** are public institutions where one finds a high proportion of Ph.D. holders (50% or more) among faculty and also a high proportion of academics with full-time contract (70% or more). It happens that all institutions at this stratum are recognized as Universities.
- **Regional Public institutions** are public institutions that have a high proportion of academics with full-time contract and medium or low proportion of Ph.D. Holders among faculty.
- **Elite private Institutions** are private institutions with a high proportion of Ph.D. holders among faculty and whatever proportion of academics with full-time contracts.
- **Mass Private Institutions:** are private or local owned institutions<sup>5</sup> with low proportion of Ph.D. holders among their faculty and small number of full-time contracts.
- To this number of strata, we added a fifth stratum for scholars from **research institutes**, a small but relevant player in Brazilian academic enterprise.

In all strata, institutions were sorted out by size and the larger ones were weighted in order to avoid the over-representation of small institutions in any

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<sup>5</sup> Municipal higher education institutions are officially classified as public, but have no resemblance with other public institutions in Brazil. The most usual origin of such institutions is an agreement between local authorities and a private entrepreneur, where the municipality offers the buildings while the entrepreneur builds up the institution. As such, they do not have access to public funds or other forms of support, and their faculty do not have civil servant status; they are maintained by the tuitions charged to the students. Being small and not well-endowed in academic standards, they operate in the same mass oriented HE market as most of the institutions at the private sector.

stratum. The institutional sample was randomly chosen inside each stratum. For each institution in our sample we had access to all academic staff in lists collected by the Brazilian Ministry of Education. From these lists we sampled 5,000 academics and for each of them, listed all e-mail addresses known, consulting the institutions, the Brazilian Directory of Researchers (Plataforma Lattes), maintained by the Brazilian Council for Research (CNPq – Conselho Nacional de Pesquisa)<sup>6</sup>, of the Ministry of Science and Technology and other private, Internet-based sources like Orkut and MSN services. In spite of all efforts, 298 names were dropped from our list due to problems in locating their e-mail addresses or out-dated information. The remaining 4,702 academics were contacted by e-mail at least in three different occasions and at least once by letter. All doubts expressed by the respondents were addressed by the team of researchers by e-mail. The fieldwork started in October and was finalized by the end of December. At the end, 1,200 academics answered all content of the questionnaire presented to them. Other 300 academics responded only partially the questionnaire and thus were dropped from the sample. Thus the rate of response of the sample is 25.5%, a good rate for international standards. Much more important, the distribution of responses by stratum provided a well balanced sample, even if it slightly over-represents the public sector, as one can see in the table 2.

**Table 2. Brazilian Academic Profession 2007, sample and field research results by stratum**

Stratum	Planned interviews		Achieved interviews	
	Total	Percentage	Total	Percentage
Research Institutes	50	5%	49	4.1%
Public research universities	150	15%	197	16.4%
Regional public institutions	200	20%	296	24.7%
Elite private institutions	150	15%	171	14.3%
Mass private institutions	450	45%	487	40.6%

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<sup>6</sup> The Plataforma Lattes is an on-line directory of researchers' curricula organized by the Brazilian Ministry of Science and Technology. Maintaining an up-to-date curriculum in this Directory is mandatory for any researcher applying for public support at any level for his/her project. It is also mandatory for any academic working in graduate programs, both at public and private sector, since the advisors' curricula constitutes one of the pieces analyzed in the graduate programs' evaluation process.

## The Changing academic profession in Brazil: some preliminary findings

The data collected in 2007 added up with the data from two previous researches on the Brazilian academic profession: the 1992 sample carried out under the Carnegie initiative, and the 2003 sample, supported by the Ford Foundation. All samples follow a similar design: the 1992 and 2003 surveys follow the guidelines proposed by the Carnegie foundation in 1989. They work with three strata: research Universities, regional institutions and mass oriented institutions. At that time, the number of elite private institutions was so small that they were taken together with the public ones at the research universities strata. The 2007 survey incorporated sector information in the sample design, since from late 1980s to now the number of private institutions displaying elite orientation grew up and are more visible now in Brazilian higher education.

### The academic profession in Brazil: a demographic profile

In this section we will explore some relevant information on the main variables regarding the demographic profile of Brazilian academic profession. Table 3 provides the information about the different patterns of recruitment according to types of institution regarding gender.

**Table 3. Gender by institutional context, Brazil, 2007**

		Institutional context					Total
		Public Research Universities	Public Regional	Elite Private	mass private	Research Institutes	
gender	male	58,9%	49,3%	61,4%	50,0%	73,5%	53,9%
	female	41,1%	50,7%	38,6%	50,0%	26,5%	46,1%
Total		197	296	171	484	49	1197

Source: CAP Survey: Brazil

Notes: Chi-Square: 18.4, df: 4 Asymp. Sig. (2-sided): 0.001

Gender participation in academic profession in Brazil is reasonable well balanced. In our sample, 54% of the respondents are men, and 46% are women. Nevertheless, the proportion of men among faculty is higher in research universities (58.9%), elite private institutions (61.4%) and (73.5%) research institutes. Gender affects career patterns in elite private institutions and in research institutes. In these places, being a man significantly increases the

probability of reaching higher ranks in the career (see table 4, below). The career patterns in both private and public institutions are similar. In public institutions, career starts as a teaching assistant, a position that only requires a bachelor degree. The following position, ‘assistant professor’, requires a master degree, and with the doctorate, the academic is automatically promoted to ‘associate professor’ or “adjunto”. The higher rank is ‘full professorship’. Access to full professorship is usually subject to some negotiations inside the institution, since it is the only rank with restricted number of positions. Careers in the private sector are similar, except that promotion is more difficult than in public sector. Since 1990, the first two ranks, teaching assistant and assistant professor tended to collapse into one in many institutions (For an overview of the career patterns among Brazilian higher education see Balbachevsky, 2008).

**Table 4: Brazil: gender and career by types of institutions**

carreira_escala		gender	Mean	N	Std. Deviation
Public Research Universities	male		1,8609	115	,66077
	fem		1,8395	81	,55805
	Total		1,8520	196	,61897
Public Regional Institutions	male		1,8425	146	,74915
	fem		1,8322	149	,83345
	Total		1,8373	295	,79152
Elite Private Institutions	male		1,5333	105	,99099
	fem		1,4242	66	1,02373
	Total		1,4912	171	1,00216
Mass Private insitutions	male		1,8875	240	1,05886
	fem		1,8963	241	1,02958
	Total		1,8919	481	1,04321
Research Institutes	male		2,4167	36	,55420
	fem		1,7692	13	,92681
	Total		2,2449	49	,72257
Total	male		1,8442	642	,91309
	fem		1,8109	550	,92755
	Total		1,8289	1192	,91955

Source: CAP Brazil, 2007

Notes: Rank scale: 0 = not in the career path; 1= teaching assistant, assistant, assistant professor; 2 = associate professor, adjunto; 3 = full professor.

On average, Brazilian academics are 45 years old (standard deviation of 9.5

years). This figure did not change significantly from 1992 to present. In the Carnegie survey of 1992, the average was 43.1 years (standard deviation of 9.1 years). Academics employed in more competitive environments are slightly older. Thus, the average academics in research universities, elite private institutions and research Institutes are, on average, 47 years old, while those employed at regional institutions and mass private sector are, on average, 42. Again, this is a tendency previously found in 1992 survey.

**Table 5: Father's highest educational level by institutional context**

		Institutional Context					Total
		Public research Universities	Public regional universities	Private Elite institutions	Mass Private	Research Institutes	
father's highest education level	without formal education	6,6% -1,5	10,5% ,8	2,3% -3,4	12,3% 2,9	8,3% -2	9,3%
	primary education	30,5% -1,2	41,4% 3,0	24,6% -2,9	37,4% 1,9	8,3% -3,9	34,2%
	secondary education	25,4% 1,6	22,0% ,4	19,9% -5	18,7% -1,8	29,2% 1,4	21,2%
	higher education	37,6% ,8	26,1% -3,8	53,2% 5,3	31,6% -2,2	54,2% 2,8	35,2%
Total (100%)		197	295	171	487	48	1198

Source: CAP Brazil, 2007

Notes: Pearson Chi-Square: 70,76, 12 df, Asymp. Sig. (2-sided): 0.000.

The numbers below each cell are the standardized adjusted residuals.

Another relevant trait to be found among academics in Brazil is the impressive upward movement most of them experienced in their lives. As one can see in Table 5, above, most Brazilian academics are the first generation in their families to reach academic education. In fact, only 35.2% of our interviewers have fathers with some higher education. For other 21.2%, the father's educational level reported is secondary school while other 34.2% reported only primary education. Finally, 9.3% of our respondents are sons and daughters from families whose fathers have no formal education at all. Again, the distribution of these responses is significantly influenced by the type of institution where the scholar works. In public regional Institutions, the number of interviewers reporting fathers with only primary education was significantly higher (41.4%) while number of those with father with higher education was smaller (26.1%). In private mass institutions, the proportion of those reporting fathers with no formal education increased to 12.3%. On the other hand, elite

private institutions and research Institutes show a more selective pattern of recruitment: in both types of institutions, the frequencies of respondents from families whose fathers have attended higher education increased significantly: 53.2% among academics from private elite Institutions and 54.2% among academics from research institutes. At the same time, in both contexts, the frequency of academics reporting fathers with less than secondary education decreased.

In short, one can say that elite and more competitive institutions tend to select their staff among people coming from better-educated families. This is particularly true in the research institutes, where the academic staff tends to be older, predominantly male and from upper-middle class origins, in contrast with the younger, more balanced in gender and the more modest social origins of the academic staff employed at other higher education institutions.

### **Working conditions and academic commitment**

As said above, stable full-time contracts are the rule in the public sector – both in research oriented and public regional institutions. In private elite institutions, 50% of the staff reported full-time contracts, although they reported no stability, since this condition is not envisioned in the labor legislation regulating work contracts in private sector. Faculty from mass private institutions have more precarious academic contracts, with 78% reporting only part time or per-hour paid non-stable contracts. Among scholars from research universities, 82% reported that the University where they were interviewed is his/her only place of work. Among scholars employed by research institutes, 75% gave similar response. Among academics from other public institutions this figure drops to 69% and is 50% among academics from elite private institutions. Among academics employed in mass private institutions, only 34% reported working in just one institution.

Perhaps the most relevant change in the academic labor market in Brazil is the relative importance of the academic degree for access to an academic position. Brazil, like many other emerging countries around the World, has been plagued by shortcomings derived from a small pool of academically competent candidates from which to recruit faculty for its higher education institutions. The number of professionals holding doctorate degrees has been always low. Nevertheless, the last decade witnessed relevant changes in this dimension.

These macro-tendencies were captured by the successive surveys on the Brazilian academic profession. From 1992 until the present, the proportion of

Ph.D. holders increased in all types of institutions. In research oriented and elite private institutions the proportion increased from 63% in 1992 to 90% in 2007; in public regional institutions, from 25% in 1992 to 65% in 2007; in mass private institutions, from 10% in 1992 to 32% in 2007. The data collected by the 2007 survey also shows new dynamics inside academic market in Brazil, as highlighted in table 6.

**Table 6: academic cohort and graduate experience, with ANOVA table**

Time in years elapsed between the first graduate degree and the first academic position. Negative values indicate academic career began prior graduate studies

academic cohort	Mean	N	Std. Deviation
before1990s	-4,5214	420	7,51813
1990s	,2478	452	5,26046
2000s	2,4760	271	4,44289
Total	-,9764	1143	6,66160

**ANOVA Table**

		Sum of Squares	df	Mean Square	F	Sig.
Time in years elapsed between the first graduate degree and the first academic position. Negative values indicate academic career began prior graduate studies * academic cohort	Between Groups	9185,713	2	4592,857	126,188	,000
	Within Groups	41492,649	1140	36,397		
	Total	50678,362	1142			

Source: CAP Brazil, 2007

Splitting the 2007 sample in cohorts considering the year when the respondent reported his/her first academic contract, it is possible to see that those who started their careers before the 1990s achieved the first graduate degree<sup>7</sup>, on average, 4 years **after** his/her first academic appointment. In the 1990s, scholars had achieved their first academic appointment **in the same year** they

<sup>7</sup> This figure takes into account all graduate degrees besides master's and doctorate degree. It also includes a peculiar graduate degree recognized by the Brazilian legislation, known as "specialization". It is a short term for training programs lasting for one year or 350 class-hours, aiming to provide specialized professional training in selected fields and/or skills.

finished their first graduate degree. Finally, academics entering in the academic market in the years 2000s achieved their first post-graduate degree on average 2.5 years **before** their first academic appointment.

The figures reported here show that the academic market in Brazil is increasingly competitive regarding academic credentials. This tendency is observed in all sectors and all kind of institutions. Nevertheless, the academic market in Brazil did not lose its main trait, which is segmentation. As table 7 shows, different types of institutions tend to relay in academic staff with diverse academic profiles. While access to academic positions in research oriented institutions – research universities and research institutes – nowadays requires a doctorate, undergraduate oriented institutions like public regional institutions and mass private institutions are less selective, opening places for scholars with lower academic profile.

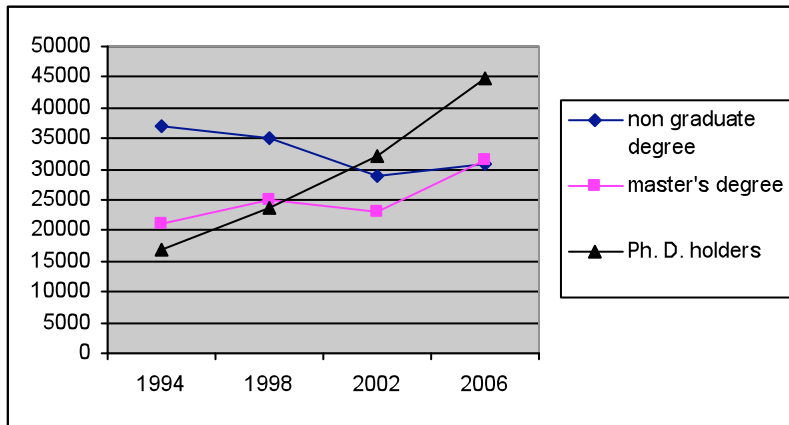
**Table 7. Highest academic degree by type of institution**

		Institutional Context					Total
		Public Research Universities	Public regional universities	Private Elite Institutions	Private Mass institutions	Research Institutes	
highest academic degree	Ph.D.	92,4%	63,5%	72,5%	29,6%	93,9%	57,0%
		11,0	2,6	4,4	-15,9	5,3	
	Master	7,6%	29,7%	22,2%	50,1%	6,1%	32,3%
		-8,1	-1,1	-3,1	10,9	-4,0	
No graduate degree		,0%	6,8%	5,3%	20,3%	,0%	10,7%
		-5,3	-2,5	-2,5	9,0	-2,5	
Total (100%)		197	296	171	487	49	1200

Source: CAP Brazil, 2007

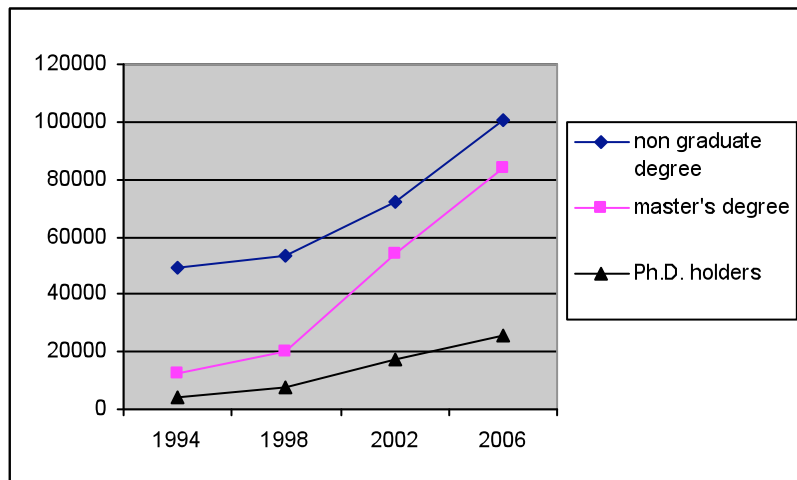
Notes: Pearson Chi-Square: 307,7, d.f: 8, asymp. Sig. (2-sided): 0.000

These observations are corroborated by the tendencies observed in the aggregate official data yearly collected by the Brazilian Ministry of Education by means of the Brazil's census of Higher Education. As one can follow in graphs 1 and 2.



Source: Ministry of Education, INEP, Census of Brazilian Higher Education, 1994 -2006

**Graph 1. Brazil, public sector, number of academic positions by degree**



Source: Ministry of Education, INEP, Census of Brazilian Higher Education, 1994 -2006

**Graph 2. Brazil, private sector, number of academic positions by degree**

Graph 1 shows a relevant and sharp increase in the participation of Ph.D. holders in the public sector as a whole since early 1990s. While the proportion of Masters also increased, the increment, in this case, is much less evident. Graph 2, on the other hand, shows that in private sector as a whole, the more evident increase is the number of academics holding a master degree, even though positions filled by Ph.D. holders also experienced a significant augment.

Together, these tendencies create sharp contrasts inside the academic market in Brazil. In our sample, 42% of the scholars that achieved a Ph.D. degree were unable to secure stable, full-time contracts. Without full-time contracts, Ph.D.

holders also tend to have diminished opportunities for access to public funds for research. Thus, while reporting strong interest and commitment to research, a significant number of Brazilian scholars with Ph. D. degrees also reported having no access to external research funding (40%). Considering that most of these scholars attended tuition-free doctorate programs offered by the best research oriented public universities, most of them supported by publicly funded fellowships, the above figure suggests a significant waste of scarce public money.

In contrast, 30% of the academics with only master or lower degrees reported stable, full-time contracts in public institutions. While lacking basic academic resources to reach a full-fledged role as independent scholars, these professionals have access to good job conditions provided by the standard terms of contract offered by the public sector. They have small teaching load, stability, and wide room for self-regulated working time. It comes not as a surprise that most of the academic staff with master degree or lower (60%) employed with full-time contracts at public institutions in our sample also declare that they have another job outside their main academic appointment.

### **International dimension of the Brazilian academic life**

Brazilian Higher education is a highly closed market: 98% of all scholars in our sample are Brazilian-born citizens. 85% of Brazilian doctors have achieved their Ph.D. in Brazil: 80% in public research universities, 88% in public regional institutions, and 90% in mass private institutions. This is reflected in the low percentage of Brazilian academics that, in the last three years, have given classes in other language than Portuguese (6%).

However, contacts and interaction with the external world increased very significantly in the last two decades. In 1992, only 9.2% of the Brazilian sample reported any collaboration with foreign colleagues. In 2007, this figure was 22%. As it were to be expected, the volume of international collaboration increases in more research-oriented environments, as one can see in table 8.

In fact, among scholars in research public universities, the proportion of scholars reporting collaboration with colleagues abroad is 37.6% and, at the research Institutes, it reaches 65.3%, while in private mass institutions this figure drops to only 9%.

**Table 8. International collaboration by institutional context**

		INSTITUTIONAL CONTEXT					Total
		Public Research Universities	Public Regional institutions	Private Elite	Private mass education	Research Institutes	
International research collaboration (last 3 years)	yes	37,6%	22,0%	27,5%	9,0%	65,3%	21,8%
	no	5,8	,1	1,9	-8,9	7,5	78,2%
Total (100%)		197	296	171	487	49	1200

Source: Brazil CAP survey, 2007

Notes: Pearson Chi-Square 132.77, d.f.: 4, Asymp. Sig. (2-sided): 0.000

Another relevant change in this dimension is related with the proportion of Brazilian scholars publishing their works abroad. In 1992, only 17% of the Brazilian academics reported having published abroad in the three years prior being interviewed. In 2007, this figure increases to 30%, as shown in table 9.

**Table 9. Proportion of the academic work who published abroad by type of institution**

		Institutional context					Total
		Public Research Universities	Public Regional Universities	Private Elite Institutions	Private mass institutions	Research institutes	
Proportion of work published abroad	some	61,4%	27,7%	36,3%	12,1%	83,7%	30,4%
	none	10,3	-1,2	1,8	-11,4	8,3	69,6%
Total		197	296	171	487	49	1200

Source: Brazil CAP survey, 2007.

Notes: Pearson Chi-Square: 236.0 df. 4, Asymp. Sig. (2-sided): 0.000

These figures are consistent with the international data from the Science Citation Index, which registers sharp increases in the participation of Brazilian researchers in internationally indexed publications since the late 1990s. So, even with Brazilian academic market being markedly closed to international flows of academic migration, and with Brazilian graduate education lagging behind in the internationalization, the intensity of international exposure of the Brazilian academic community have has increased remarkably in the last decade. Still, this data gives no clues about the quality and impact of this increased participation and international networking of Brazilian academic community.

## Conclusions

The last 15 years has witnessed important changes in the Brazilian academic market. Some relevant traits highlighted in this analysis are the following:

- Regarding the relationship between graduate education and academic recruitment, one can say that it matured, in the sense that now graduate studies are, for many academics, perceived as a pre-requisite for being accepted as academic staff.
- Nevertheless, there is a remarkable incongruence between the stronger exigencies and the working conditions faced by academics. A relevant proportion of Ph.D. holders reported poor conditions of employment and thus enjoys a restricted access to support for research.
- In spite of stronger links with the international academic community, the academic market is still closed and inner-oriented. It recruits mostly Brazilian academics and is mainly oriented toward Brazilian students.

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