

new Organization Act, which was passed by Parliament in July 2002 and is expected to be implemented in October 2003, encompassing regulations for decision-making structures, employment, and academic programs. The New Organization Act of 2002 focuses on institutional autonomy, performance contracts, unified budgets, governing boards, and evaluation.

Universities will become independent of the state ministry and transformed into public corporations. The ministry will step back into a supervisory role, steering universities from a distance through performance contracts. Universities will be able to make the decisions on employment, academic programs, and resource allocation without ministerial approval. Performance contracts will form the major steering tool both between the ministry and the university as well as within the university (between the rector and the institutes or departments). Contracts will be based on performance measures, like number of graduates or research productivity. Part of the budget will be allocated based on performance. Universities will negotiate three-year unified, lump-sum budgets. With this, the universities gain complete autonomy as to which categories the budget will fund (e.g., personnel, equipment, materials, and books).

Governance structure will also change dramatically with the new Organization Act. A new element will be introduced—university boards. These will consist of five to nine outside members, nominated by the ministry and the university senate. They will decide on crucial issues like the rector, the organization plan, the budget, or the employment structure. The rector will take on a senior management function, supported by a team of vice rectors. The senate will lose most of its powers, focusing instead on academic programs.

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**Governance structure will also change dramatically with the new Organization Act.**

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Evaluation will remain a major part of the university, encompassing courses, whole programs, and departments or institutes. Overall, quality control should involve all parts of the institution and should be used for promotions and resource allocation.

Clearly, Austria is in the lead among all German-speaking countries for introducing far-reaching reforms. The challenges are enormous and the contested issues are well known (i.e., democratic governance, financing the initial phases). Aspirations are high but it remains to be seen how universities in Austria will deal with this next, and largest, piece of reform in the long and arduous journey to becoming world-class institutions. ■

## Graduate Training and Employment in Brazil

**Jacques Velloso and Elizabeth Balbachevsky**

*Jacques Velloso is a professor of economics of education, University of Brasilia. Address: SHIN QI-01, conjunto 3, casa 10, Lago Norte, 71505-030 Brasilia, DF, Brazil. Elizabeth Balbachevsky is associate professor at the University of Sao Paulo and senior researcher at the University Center for Higher Education Research. Address: Nucleo de Pesquisa em Ensino Superior/USP, Rua do Anfitheatro 181, Colmeias, favela 9, 05508-060 Sao Paulo, SP, Brazil. E-mail: <balbasky@usp.br>.*

Since the late 1960s, the Brazilian federal government has directed substantial resources toward the newly created graduate level at the most prestigious Brazilian universities. Direct support for high-level graduate programs provided by CAPES and other Brazilian agencies, bypassing the university bureaucracy, has allowed programs to recruit Ph.D. holders educated abroad as faculty members. Contrary to the experience at the undergraduate level, the government and the academic community have made a decisive effort to assure quality at the graduate level. The Fundação Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)—the Ministry of Education agency in charge of graduate education—has created a sophisticated peer review evaluation system that successfully connects performance with support at this level. This evaluation, relying on the contribution of acknowledged academic leaders in all areas of knowledge in the country, has enhanced academic legitimacy; program evaluations in each area currently tend to be widely accepted by the academic community. Such programs have become the main or sole sites for the institutionalization of research in the Brazilian higher education system.

As a result of such efforts, Brazil today has one of the most impressive graduate educational levels among developing countries. In 2000, more than 70,000 students were enrolled at the master's level and 30,000 at the doctoral level.

To understand these figures it is important to see how the Brazilian graduate educational level is organized. In the Brazilian higher education system, master's programs are usually regarded as an intermediate stage in the training for academic life and not, as in the Anglo-Saxon tradition, the terminal stage preparatory to professional life. National agencies that grant fellowships for doctoral study abroad also require completion of a master's degree.

Little systematic information is available on jobs held by Brazilian master's and doctoral degree holders. This information gap is being bridged in part by a series of studies by a Brazilian research network. These research projects address the relevant questions for policymaking and for the design of courses of study: what are the

patterns concerning the entry of Brazilian graduates onto the job market? How much of an impact does graduate training have on the current jobs held by them?

Two previous surveys looked at the jobs obtained by graduates of master's and doctoral programs at major Brazilian universities who obtained their degrees since 1990, in nine areas: business or public administration, chemistry, electrical engineering, and physics (first survey); agronomy, biochemistry, civil engineering, internal medicine, and sociology (second survey). A research project presently under way is examining master's and doctoral degree holders in economics, dentistry, geology, mechanical engineering, law, and psychology. Field work was carried out by a network of researchers located at federal universities and at the State University of São Paulo, under the coordination of the Center for Studies on Higher Education (NESUB), located in the country's capital. Comparative standards for the fieldwork and analysis were assured by continuous discussions among researchers; data processing was done at the NESUB.

#### *Some Findings*

Graduate students in Brazil begin their studies rather late in life, as compared to the situation in developed nations. A previous study, based on a sample of students enrolled in all master's and doctoral programs in the country, revealed that in the mid-1990s the average age for beginning a graduate program was 30 years for master's students and 35 years for doctoral students, with considerable variation by area.

During the past decade, and particularly in its latter half, the CAPES Foundation implemented policies designed to reduce the duration of time-to-degree in master's and doctoral programs. New upper limits for the fellowships granted by these agencies were established—two years at the master's level and four years at the doctoral level. These changes followed a general policy trend since the late 1980s toward greater productivity of graduate programs.

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***For doctoral degree holders, employment in the academy is the destiny of more than 75 percent, with only one exception.***

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While information is available, data on earlier trends are sparse, which makes it difficult to appraise past policies. The data gathered by two follow-up studies suggest that, at the master's level, policies on time to degree have generally been successful. A comparison of graduates in the cohorts that obtained their degrees before 1994 and those that graduated since 1995 show

around a 10 percent decrease in time—a noticeable change.

Up until now, both Brazilian master's and doctoral programs have remained largely academically oriented courses. Most of their alumni tend to find employment at universities and at public research institutes. Noticeable differences exist between master's and doctoral degree programs. Master's degree holders in more professionally oriented fields—such as engineering, medicine, and business—easily find employment outside academia. In business, the total percentage of master's degree holders employed outside the academy was 54 percent, in medicine 53 percent, in electrical engineering 50.2 percent, and in civil engineering 35.2 percent, while in agronomy it was 29.6 percent. Master's degree holders in more basic fields are mostly working in the academy. This is the case in physics, where 89.9 percent were either completing their doctorates or working in the academy. In chemistry, the figure is 79.3 percent, in biochemistry 70.1 percent, and in sociology 76.0 percent. Nevertheless, even here an important change has occurred: while most of the older master's degree holders are employed at Brazilian public universities, the younger ones have found positions at private institutions as well, which formerly displayed no interest in employing this kind of professional.

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***Brazilian master's and doctoral programs have remained academically oriented.***

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For doctoral degree holders, employment in the academy is the destiny of more than 75 percent, with only one exception. Surprisingly, only in sociology does one find a large number of professionals with doctorates working outside academia: here, academic institutions employs only 57.9 percent of faculty members are professionals from outside academia. Outside the academy, in Brazil nongovernmental organizations appear to be the most common destination of doctoral degree holders in sociology.

These findings on master's and doctoral degree holders point to a number of important changes that are taking place in Brazilian graduate education. While Brazilian academic and governmental agencies tend to view the master's program as an intermediate step toward the doctorate, this is not how the students perceive it. For a significant portion of them, the master's degree is a terminal stage in preparation for the job market outside the academy. How academics, government, and higher education institutions deal with this novel situation is an important question to be answered by future research. ■