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**MASTER PLANNING IN BRAZILIAN HIGHER EDUCATION:
Expanding the 3-Year Public College System in the State of São Paulo**

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ABSTRACT

Until recently, Higher education (HE) in Brazil had been, identified with colleges and universities running traditional academic undergraduate programs, with expected graduation time of 4 years or more. The universities in the state of São Paulo are at the top of international rankings among Brazilian HEIs, accounting for about half of all indexed research done in Brazil and responsible for 40% of all PhD degrees granted in the country. They have a total enrolment of almost 200,000 students, about 1/3 of those in graduate programs. However, by 2000, with pressure for expansion of the HE system in Brazil and in São Paulo increasing, it became clear that the singular model of the research-oriented HE institution was no longer a viable one to meet enrollment demand and labor needs. In 2001, São Paulo's state government initiated its first attempt at a "Master Plan" focused on how to expand its network of Higher Education institutions. The main target was to achieve a net enrollment rate¹ of 30% for the whole system (private sector included) by 2020, twice the 2005 figure of 15%. At first, plans were made to create a new 2-year college system similar to that of the United States. But that proved infeasible. By 2005 a new plan emerged to expand the existing system of public State Technological Colleges (FATECs) composed of local or regional, colleges which offer 3-year programs, usually related to the economic and development needs of a particular area. Thus far, this program of expansion been a success, while preserving the function of the universities as more selective and research oriented enterprises. A relatively quiet revolution is under way in Brazilian HE, reflecting a global trend in many emerging economy countries where institutional diversification, including the development of a strong system of HEIs offering vocational programs, has played a key role in expanding HE access.

1. Overview and general trends of Brazil's higher education system

Until recently, higher education (HE) in Brazil was identified almost exclusively with colleges and universities running traditional four-year undergraduate degree programs. Following UNESCO's International Standard Classification of Education (ISCED²) terminology, they offered 5A type programs. There have been some isolated efforts to develop and offer 3-year programs, called "technological" programs in Brazil, in dedicated institutions, mostly public, or in some private HEIs (which offered mostly regular 4-year programs). Since their inception in the late 1960s, these institutions offered a variety of vocational education despite the "technological" title: frequently, they were directed at people interested in having a training related to the service sector, like tourism, catering, hotel administration. Others are related to health-related activities. Thus, "technological" programs or colleges, in the Brazilian HE system, should be understood always in that more flexible and wider sense, as vocational programs or colleges. As a reference, these programs fell well into the ISCED 5B category.

Brazil's HE system maintained a clear line separating its public and the private sectors. The former was comprised essentially of large universities, with federal or state affiliation, some of them already established as research institutions, including large graduate schools, others expected, in due time, to reach that status. The private HEIs, on the other hand, and with very few exceptions, were either large universities or smaller colleges without graduate programs or research.

¹ In Brazil, net enrollment rate for HE is computed using the cohort between 18 to 24 years of age as reference. Thus, a NER of 15% means that 15% of those in that group are enrolled in HE.

² International Standard Classification of Education, Unesco, 1997. http://www.uis.unesco.org/TEMPLATE/pdf/isced/ISCED_A.pdf

However, over a 15 period, the HE landscape in Brazil has changed dramatically. Not only has there been a huge increase in the private sector, but also most new providers have been for-profit institutions. Between 1994 and 2008, enrollment grew from 1.7 million to about 5.5 million, a net growth of 210%. Most of this increase was in the private sector, where total growth exceeded 300%. Private sector enrollment went from 58% to more than 75% of the nation's total enrollment. Moreover, at the end of that period, 2/3rds of the students enrolled in private HEIs studied in for-profit institutions, a reversal from the situation 15 years early.

The public sector also experienced a sustained period of growth, but at a much slower pace: enrollment grew by about 100%, from just under 700,000 to almost 1.4 million. Figure 1 shows HE enrollment from 1980 through 2008 and the dramatic shift that occurred in the mid-90s.

Figure 1 – HE enrollment figures for Brazil, 1980-2008. Censo do Ensino Superior 1980-2008, INEP/MEC.

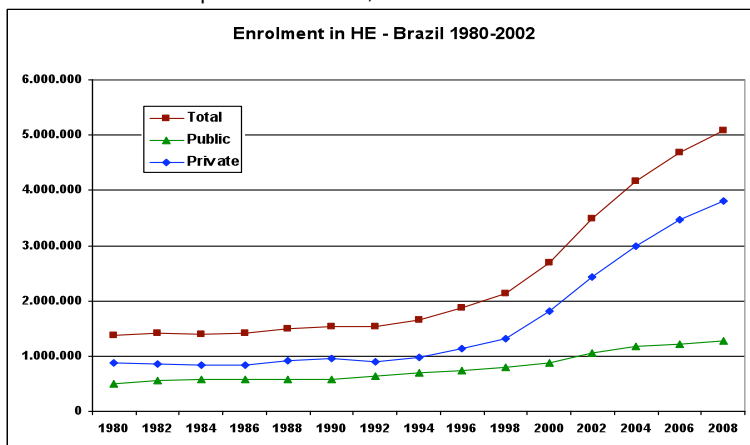


Figure 2 – Enrollment in 3-year vocational programs in Brazil, by sector and total. Resumo Técnico, Censo da Educação Superior 2008, INEP/MEC.

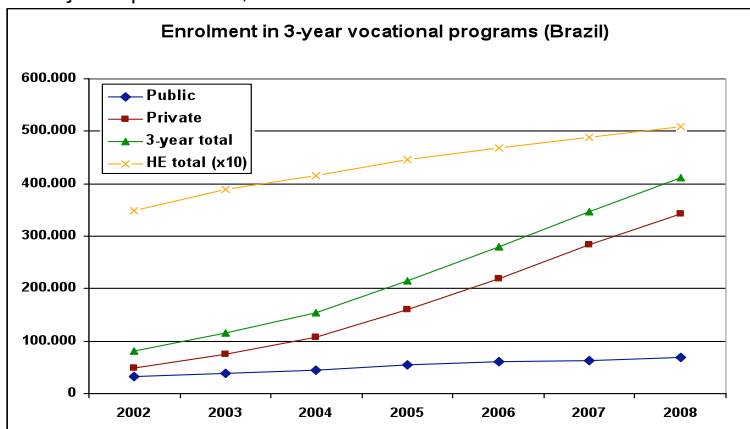


Figure 2 provides enrollment from 2002 to 2008 for 3-year degree programs, with Brazil's total enrollment for higher education celebrated at 10 for actual figure for comparative purposes. Even though a small part of the whole system, growth in 3-year programs has been significant. Similarly to the overall system, the private sector provided for most of that growth. In 2002, only about 81,000 students were enrolled in 3-year programs, with 40% of that total in public institutions. That changed dramatically only three years later, with 214,000 students enrolled and 75% in private HEIs.

In 2008, there were already more than 410,000 students enrolled in these 3-year degree programs, with the private sector accounting for about 83% of total. Compared to what had been happening in some other emergent countries, like South Korea, or even Chile, those figures seem quite small. But the trend seems to be holding up and estimates for 2010 are that more than 500,000 students are now enrolled in 3-year programs, a growth of more than 500% over 2002 figures, and accounting for almost 10% of all HE enrollment in Brazil.

Indicative of growing demand for tertiary education in Brazil, the public sector has also shown a large increase in enrolment in 3-year programs: from about 32,000 students enrolled in 2002 to almost 70,000 in 2008, to at least 90,000 in 2010 (considering data for just federal and São Paulo state institutions) -- close to 200% increase in the last 8 years.

2. The Public Technological College System in São Paulo

A large part of the growth in the public sector enrollment in 3-year programs has occurred in São Paulo, which is the largest Brazilian state in population. In 2010-11, it is estimated that more than 40,000 students will be enrolled in 3-year programs alone. The São Paulo system of public State Technological Colleges (FATECs) is composed of small (typically less than 2,000 students enrolled in each campus), local or regional, colleges, with programs focused on regional economic and development needs.

Figure 3 – State Technological Colleges in São Paulo (FATECS): spots, enrolment and number of campi. (Source: Centro Paula Souza, São Paulo).

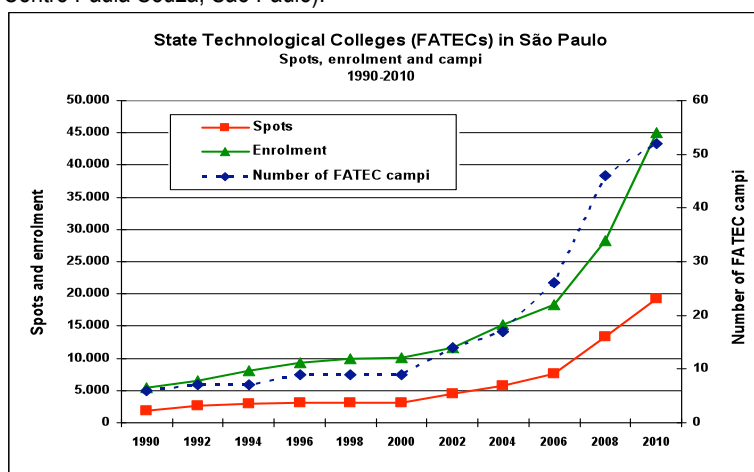


Figure 3 presents the number of spots (places available for freshmen each year), enrollment figures and number of units for this system, from 1990 through 2010. The year 2000 marks the end of a long period of very slow or no growth for the system. Since then, growth has been spectacular. The number of campuses jumped from 9 to 52, spots went from about 3,000 to more than 20,000 for the class that will start 2011. Enrollment has also shown intensive growth, from about 10,000 in 2000 to more than 40,000 already in the January-June semester of 2010. Student demand continues to grow. Application figures for the FATEC system show that, on average, selectivity is similar to that of the federal university system: about 8 people per spot. Some programs show much higher figures. It is projected that by 2012 enrollment in these institutions will top 60,000.

Following international trends, employment and salaries of FATEC graduates are relatively high compared to those students with just a high-school degree.³ A recent survey of graduates showed that more than 90% of those graduated are employed one year after graduation (higher than the 80% average for OECD countries), and the average salary is about 5 minimum wage units, which would translate into about \$1,700 PPP. That is much higher than the average employed Brazilian earns (approximately \$700 PPP), and is equivalent to at least 75% of what a typical college graduate with a 4-year degree earns at the same career stage, the same as the average for OECD countries. For some programs, like Construction, Mechanical Systems or Information Systems, 97% of graduates are employed within one year of graduation.

Academically, programs at each campus are designed with the perspective of attending work force demands from local and regional industry, business and service sectors. For example, in Marília, a city of population of about 300,000 in the southwest region of the state with a strong food industry sector, a FATEC was established with programs that provide degrees related to its dominant economic sectors, and beyond the usual administration, information systems and a few others that are common to all FATEC campuses). All newer campuses follow that policy of developing programs with strong ties to local and regional economic activities.

With this level of success, it is not surprising that local politicians and mayors are eager to have a FATEC in their region/city, since they have a very effective impact on the educational and economic life of their communities and indicates that the present expansion process is not a short-lived. The FATEC system is totally financed by the state,

³ Education at a Glance 2006 and 2007, OECD, Paris.

with some municipalities helping their start by providing, mostly, real-estate property for their facilities. In the 2006-2010 period, investments on the system have increased 6-fold, from US\$40 million to US\$240 million, while funding for the universities have been kept at a constant (adjusted for inflation) level of about US2.5 billion (all converted at current exchange rate, 2010).

By 2012, the São Paulo's FATEC system will have almost as many students enrolled in its 3-year programs as the whole Brazilian public system had in 2007. Why and how that came to be is the subject of the next section, since it is related to SP having adopted, increasingly, the practice of developing mid- and long-term planning strategies regarding development of its public HE system.

3. “Master Planning” in the state of São Paulo

Since the early 1900s, the state of São Paulo has an innovator in the development of its HE system when compared to other states in Brazil. In the early 1930s, the state decided to start a university system modeled on the ideals of Humboldt University, shifting emphasis from the traditional professional schools (Medicine, Law, Engineering, which already had state HEIs offering degrees) to one that also included basic sciences and humanities. The University of São Paulo (Universidade de São Paulo - USP) is considered the first true university to be established in Brazil. Founded in 1934 with a strong academic profile, it recruited many foreign professors and scholars such as Claude Levy-Strauss to help develop the new institution. .

In the 1960s, a second state university was created, the University of Campinas (Universidade Estadual de Campinas - Unicamp) with a similar academic orientation, and emphasizing research and graduate teaching. A third university, the State University “Julio de Mesquita Filho” (Universidades Estadual Paulista “Julio de Mesquita Filho” - Unesp) was organized during the 1970s. Formed by merging a group of local and regional institutions, Unesp now has programs in 23 municipalities. It has a slightly different profile, with some units being more teaching intensive and less graduate-research activity.

Today, these three state universities are at the top of international rankings among Brazilian HEIs, being the source of about half of all indexed research done in Brazil and responsible for 40% of all PhD degrees granted in the country. They have a total enrolment of almost 200,000 students, about 1/3 of those in graduate programs.

Despite their success, by 2000, it became clear that the model of institution used in the establishment of the São Paulo universities, that of the research-oriented HE institution, with strong graduate programs in all areas, was no longer a viable one for further enrollment expansion. Demand for higher education rapidly grew, with pressure for expansion being driven by the steady increases in the number of secondary school graduates.

In 2001, the State University Rectors' Council (CRUESP), developed the first study where the expansion of the public HE system in São Paulo was considered as a whole, forming a “Master Plan” similar to what was developed in California in 1960, only with objectives that catered to the needs of Brazil. CRUESP is an official board that rules common issues, including salary values, for universities policies in São Paulo. Three major recommendations were presented in the subsequent CRUESP report:

1. Expansion of enrollment at the three state universities by 27%.
2. Development of 2-year vocational programs and new institutions similar to those offered by the Community Colleges systems in the US.
3. Expansion of the FATEC system.

At that point, it was not clear to the group that made the proposal how the FATEC system would expand, if through expansion of the vocation 3-year programs it already offered or through this new model of 2-year certificates, more like a preliminary step towards a full-fledged 4-year college degree.

Among the proposals, the first one was fulfilled within the expected timeframe. By 2006, the universities expanded by the 27% in enrollment. But the 2-year programs were never put in place, either by universities or by the FATEC system.

Returning to Figure 3, between 2001 and 2006 the number of FATEC campuses and admission spots more than doubled, and all the new programs and units were developed in the 3-year vocational/professional model already in place prior to the CRUESP report. One reason was that 3-year vocational oriented degree programs were increasingly accepted by employers as a legitimate and even required credential for employment. At the same time, the private, largely for-profit sector adopted the same model, as we have seen in Fig. 2.

By mid-2005, it became clear that there was a need to further develop São Paulo's long-term strategic plan for its public HE system – a sort of second Master Plan. The rector of Unicamp, Carlos Henrique de Brito Cruz, a well-known physicist, proposed to the Science and Technology Council (CONCITE) that a Director Plan for the Development of the State Public HE System be drafted. CONCITE is a consulting committee that is part of the São Paulo State Secretariat for Science, Technology and Economic Development. The explicit purpose of the plan was to establish guidelines, objectives (and means to fulfill them) in order to achieve a qualified expansion of the public HE system in the state. The main target was to achieve a net enrollment rate⁴ of 30% for the whole system (private sector included) by 2020, twice the 2005 figure of 15%.

The proposal was approved, being enacted as a Governor's decree, at the end of 2005. The decree included the establishment of a Steering Committee, presided by the head of the Secretariat. It had as main responsibilities to orient the development of the plan and to make final decisions about the proposals. It also indicated five areas that were central as focal points to guide its development:

- a) Demand: evolution and regional needs.
- b) Access: expansion and social inclusion.
- c) Institutional structure and governance.
- d) Costs and financing the plan.
- e) Innovation and competitiveness.

For each of these focal areas a working group was formed, to collect data and present studies related to HE in São Paulo, with preliminary proposals regarding the objectives of the plan. An executive coordinator was in charge of assuring that the working groups would fulfill their jobs in a timely fashion, not an easy task considering the breath of the subjects involved, the vast amount of possibilities presented as venues for exploration and the time constraints. It was expected that by mid-2006 a draft of the report with the plan would be available for the Steering Committee's appraisal.

In early November 2006 a report was presented to an enlarged meeting of the Committee, for which all the participants in the working groups were also invited. Among its recommendations, the plan called for intensifying even more vigorously the expansion of the FATEC system, with a target of reaching circa 250,000 students enrolled by 2020. That should follow a pattern of reaching the state areas where the system was still not present in the way it was considered necessary for the local economies of those areas.

The recommendation for expanding the FATEC system was based on evidence that: a) the cost of expanding such a system was only a fraction of a similar expansion using the research university model; b) there was growing demand for higher level professionally trained people. Taking into account that the families of students in the FATEC system are, mostly, headed by parents without a HE degree, an important goal of the enrollment expansion is social inclusion in the public HE system. It is relevant to notice that there are no fees or tuition charged by Brazil's public HEIs by constitutional ordinance. To support enrollment expansion, the plan called for directing new public money to finance the FATEC system's proposed expansion.

For the universities, the plan called for new defined qualifications and standards for graduate programs and research activities, as well as participating more actively in the new internationalized HE environment that was the trend for most top HEIs around the world. The new plan also called for retaining financial autonomy for the state's universities, and maintaining state funding for the university system.

The net effect is that the call for an expansion of the FATEC system was linked to the preservation the universities as they had been conceived originally as research and graduate training orientated institutions. Thus, the immediate pressure for expansion was redirected to the FATEC system. There was a call for the universities to develop an expansion plan as well, but the pace would be much slower, with a target increase in enrollment of 50% from 2006 to 2020. To reach the 30% net enrollment rate target (in 2020), the plan also called for support of private higher education (basically in the form of student aid), since it would need to keep growing at a moderate rate for the goal to be achieved.

The approval of the final report had to be delayed due to state general elections in São Paulo, which had occurred in early October. The new state administration took office in January of 2007 and decided to change the institutional structure of the state HE system, creating a new Secretariat of HE. But the FATEC system stayed at the original

⁴ In Brazil, net enrollment rate for HE is computed using the cohort between 18 to 24 years of age as reference. Thus, a NER of 15% means that 15% of those in that group are enrolled in HE.

secretariat where the plan was being developed. That immediately introduced some difficulties related to the institutional status for the Director Plan, which was moved to the new HE secretariat.

As drafted, the plan was presented to new administration, but the new institutional arrangement created an ambiguous situation, since the just elected state administration chose not to reedit the decree in order to renovate the Plan's Steering Committee, which was a required step for its completion, since its president and many of the participants had left office. Thus, the plan was never officially approved, even though it circulated among those involved in administrative and HE activities at both state and the national levels.

Nevertheless, one very important and relevant objective was reached: the idea of a valid and viable alternative to the research university model, which most still thought was the only way to develop a public HE system in Brazil, became widely accepted by all involved in HE in the state, including state university officials. More importantly for those at the administrative level within the FATEC system and state administrators, the data, the studies and recommendations of the draft for the Director Plan have been extensively used as motivations and as rationale for furthering the system's expansion and qualification. Among them, a job market analysis produced by the working group on innovation and competitiveness, indicating that there was a need for better qualified workers at a level that was clearly within the possibilities of the programs offered by the FATEC system.

As a sign of the impact the plan has had, the FATEC system has seen exactly the growth rate the plan recommended, reaching the 20,000 available spots by 2010, and also reaching all regions of São Paulo.

4. The future of Vocationally-Oriented HE in Brazil and São Paulo and the Role of Universities

From the perspective of what has happened in the short period from 2006 to 2010, which has seen a strong expansion of a vocationally-oriented HE programs in Brazil, with São Paulo showing how that may be developed within the public system, it seems fair to say that a relatively quiet revolution is under way in Brazilian HE. It reflects what has happened in many emerging economy countries, where institutional diversification, including the development of a strong system of HEIs offering vocational programs, has played a key role in expanding their HE systems. Examples are Chile and South Korea.

A regular fixture of Brazilian's newspapers are reports of studies showing that we are still a long way from an ideal situation regarding qualifications in the job market, with many areas where a better prepared workforce is lacking. With the economy showing signs of a strong recovery after the international financial crisis of 2008-2009, with some sectors already showing actual expansion beyond the levels prior to that crisis, some economic sectors are showing a shortage of well-prepared workers. This indicates that the process under way, with strong forces that have been causing and directing the emergence of this new HE system, both in Brazil as well as in the state of São Paulo, have not run its course.

Thus, it may be fair to predict that in the span of one generation we could reach a situation where the vocational HE system will account for a much larger share of the system, as in other countries that have seen a strong expansion of their HE systems in recent years. In many parts of the world, it is private and mostly for-profit institutions that are fulfilling this need and was the path that Brazil took in the 1990s. The case of São Paulo has shown that a large public system of that type is as viable and has strong appeal among stakeholders, including politicians and business/industry people, and in particular prospective students and their families, most of them headed by parents without a HE degree.

As São Paulo HE Master Plan called for, the role of the state universities has been reaffirmed, They have kept their budgets intact as a fixed fraction of state revenues, and have expanded their graduate programs and research activities and productivity. São Paulo universities account for about 45% of all internationally published indexed research originated from Brazil, and produce about 40% of the nation's doctorates.

The recent developments in São Paulo show that a diversified public HE system is a viable alternative to the traditional single-type institution model (the research university) that was considered as the only with credible academic standard in Brazil for so long. The innovation of the 3-Year college brings very desirable qualities: it provides for both high-level academic and job market oriented professional undergraduate programs, it preserves the universities' role in research and graduate education, it allows for a fast expansion of the public HE system due to a more efficient use of public money and it presents to prospective students many alternative paths to a HE degree, still recognized as the single step with most impact for their future careers.