

Chapter 5

Demand and Supply for Higher Education in Brazil

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5.1 Introduction

The chapter discusses higher education (HE) in Brazil in the last 15 years, a period during which Brazil underwent a process of continuous economic growth and marked social inclusion, with significant impact on HE. In 1990 there were a total of 1,540,080 students in HE; this number rose to 2,694,245 in 2000 and to 7,271,488 in 2013. The HE professions gained visibility and value in the labor market, and HE became the goal in life of an ever broadening strata of society.

Two factors explain this expansion, the raising aspirations for the benefits of HE by the students and their families, and changes in the labor market. It has been easier, however, to respond to the demands for social mobility than to the requirements of a modern economy.

The transformation of the Brazilian HE sector will be analyzed in this chapter, considering these two orders of pressure. The text is organized into four parts. It starts with a description of the HE system. In the second part, we discuss the profile of the demand for HE in Brazil. In the third part we present how the system as a whole has responded to the challenge of expansion and inclusion. In the fourth and final part, we analyze the characteristics of Brazilian higher education institutions (HEIs) in the offer of courses and the market demand for qualified people.

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5.2 The System of HE in Brazil: Main Characteristics

The transformation of HE in Brazil in recent decades, especially concerning how demand is formed and the institutional responses, bring us to a few basic characteristics of the system: (a) the coexistence of the private and public segments in HE; (b) the prominence of the federal system in the ensemble of Brazilian HE and the strong concentration, in the Ministry of Education, of the prerogatives to formulate policies, supervise, control, and evaluate the federal and private systems; (c) the weak differentiation of HE offerings; and (d) the model of funding that compromises the expansion of enrolments and constrains social inclusion.

5.2.1 *The Public and Private Sectors*

Until the end of the 1960s, enrolment in HE in Brazil grew slowly. From 1945 to 1964, the number of students rose from 41,000 to 95,000. During this period the network of federal universities and a series of Catholic universities were formed, the São Paulo state university system was expanded, and new, smaller, state, and municipal institutions were established in all regions of the country (Durham 2004). In this period, although 55% of enrolments were concentrated in public HEIs, it appears that the private sector had been growing and already held 45% of enrolments. The National Education Law of 1961 (LDB-Lei de Diretrizes e Bases) defined the legality of private enterprise in offering HE.

Two factors helped to change this reality: the 1968 University Reform and the pressure for places in HE during this period. The university at the end of the 1960s, under a military government, represented an effort to modernize Brazilian HE, bringing it closer to the American model. The reforms replaced the old “chair” system in academic departments, required the adoption of full-time contracts for faculty, and created a framework for graduate education and research. It also introduced the credit system in undergraduate education, replacing the traditional sequential courses (Neves 2002; Balbachevsky and Schwartzman 2007). These reforms assumed that HE should be organized in universities with these characteristics, and the new model was implemented to a large extent in the public sector.

At the same time, in the 1960s and 1970s, there was an exponential growth in the demand for HE, which the public institutions could not absorb (see Fig. 5.4 below). Access to public institutions was limited by entrance examinations, and the government allowed the expansion of private HE in teaching institutions that did not meet the requirements of the 1968 reform—full-time faculty, graduate education, and research—but were considered adequate to provide the students with professional degrees, particularly in the social professions. While public education was free, and fully supported by the public budget, private institutions were maintained through student tuition fees.

However, this massive growth was not taken into consideration in the reforms (Neves 2009). Public universities, maintained by the federal government and a few states, remained multifunctional, tuition-free, research oriented institutions, with a limited offer of places. Meanwhile, the private sector grew significantly through a

number of teaching oriented, nonuniversity colleges, with low-cost courses, primarily in the fields of the humanities and applied social sciences. Their entrance exams, if any, were less competitive, and they offered the further advantage of evening courses. These private institutions operated under the centralized control of the Ministry of Education and the Federal Council of Education, which had to authorize new institutions, new courses, and changes in the curricula. The lenient attitude of the military governments regarding the private sector provided an opportunity for the private sector to expand, but it also had the effect of allowing public institutions to maintain their elitist or selective character (Neves 2009; Nunes 2011).

5.2.2 *The Institutional Framework*

The institutions of HE in Brazil are regulated by the Federal Constitution of 1988, and the National Education Law of 1996 (LDB-Lei de Diretrizes e Bases), and by various official decrees and resolutions of the National Council of Education. The Constitution ensures free tuition at public institutions (Article 206) and allows for the existence of private institutions (Ranieri 2000; Nunes 2011).

Public and private HEIs vary according to their administrative status and academic organization. Public institutions can be established and maintained by the national (federal) and state governments, and are considered part of the civil service. Municipal institutions, in small numbers, can be organized as non-profit foundations, ruled according to the private law and can charge tuition. Private institutions can be community-based, denominational, philanthropic, and for-profit (Neves 2002).

Community institutions appeared at the end of the 1980s, as a specific model characterized as “public, non-state,” strongly connected with the local and regional communities. Denominational institutions are maintained by religious organizations and are also philanthropic, the most important being the Catholic universities. Until 1999, all private institutions were supposed to be nonprofit, although in fact many of them were not. In 1999, the government introduced legislation (Law 9870 of 23/11/1999) authorizing private institutions to declare themselves for profit, and submit to commercial law regarding fiscal, parafiscal, and labor charges; i.e., they become liable as commercial entities (Sampaio 2011). Those who remained nonprofit, and entitled to tax exemption, had to demonstrate that they were in fact philanthropic.

According to the legislation, the federal government is responsible not only for administering its own institutions but also to supervise and regulate the private sector, while state institutions came under the jurisdiction of state governments. According to the 1996 Education Law, the National Council of Education was supposed to be an independent body with normative functions, establishing policies, and guidelines to be implemented by the Ministry of Education. Later, however, the council became just an advisory body, with the Ministry taking all the initiatives in all aspects of national education policies. The state and local HEIs are outside the purview of the federal government, but are still subject to federal laws and standards, since they make use of federal public resources, such as scholarships and research funds.

In terms of academic organization, HEIs encompass four categories: universities, university centers, technological institutes, and nonuniversity institutions. Universities are required to carry out research, teaching, and community outreach. At least one-third of their teaching staff must have Masters or PhD degrees, and at least one-third of their teaching staff must work full time. University centers are multicourse teaching institutions, which need not conduct research. They enjoy autonomy to create courses and open new locations without the government's authorization. In 2008 the Ministry of Education created a new model of vocational and technological education, the Federal Institutes of Technology, Science, and Education. Nonuniversity institutions are basically teaching institutions with no autonomy; the National Council of Education approves their courses and vacancies (Neves 2002). To gain autonomy, there was a movement by private institutions to come together and gain the status of universities or university centers, gaining greater flexibility to close or open new courses and increase the offering of new places without the government's authorization (Magalhães 2013).

5.2.3 HE: The Supply-Side

Regardless of their legal status and type of organization, all HEIs in Brazil provide the same formal qualifications. The standard undergraduate level of 4-year bachelor degrees; the *Licenciatura* to train teacher for basic education, also lasting 4 years; the technological courses, most of them lasting 3 years; and the distance education courses, in different formats. At the graduate level, academic and professional 2-year-master's programs and 4-year-doctorate programs are offered. The extension programs vary in format, with respect to duration and type of course offered. In practice, the quality of these courses varies, and most of the research and graduate education is concentrated in public institutions.

While the public sector remained limited in size because of its high costs and stronger academic requirements, the private sector expanded rapidly in response to growing market demand. Currently, Brazil has 2365 HEIs, which are very different from each other. Only 284 of them are public, the other 2081 (89%) are private. Figure 5.1 shows that while most public institutions are organized as universities, there is a large variation in the private sector, with a small number of large universities and university centers and a large number of small, nonuniversity institutions. As of 2013, the private sector was responsible for 75% of enrolment (Fig. 5.1).

In general, the public federal and state universities are very heterogeneous. Some are outstanding as public research universities, characterized by offering teaching, research, and maintaining high quality graduate programs. The teachers are highly qualified (about 90% have a doctorate and 70% have full-time contracts). Other public universities are mostly oriented toward the undergraduate level. The teachers usually have full-time contracts but a smaller proportion possesses a PhD degree (Balbachevsky and Schwartzman 2011).

Differences are still greater in the private sector (Sampaio 2000; Magalhães 2013). There are a small number of elite private institutions, including among others the Catholic universities and some schools specializing in business and economics (about 10%), combining academic density, and institutional entrepreneurialism. In

Higher Education Institutions by Academic Organization and Ownership (2013)

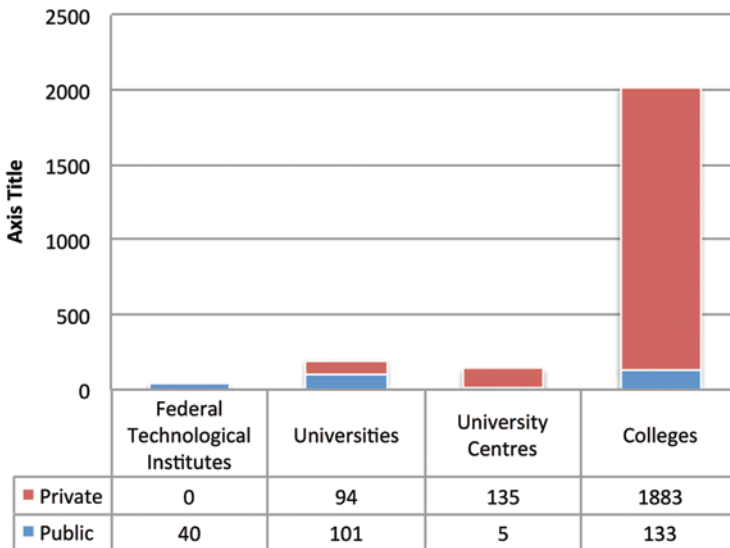


Fig. 5.1 Number of higher education institutions (HEIs) by academic organization and administrative status, in 2012. (Source: INEP/MEC 2013)

addition, there are a large number of private mass-oriented universities, and a huge scattering of small institutions. More than 90% are nonuniversity and a vast majority of them are of relatively poor quality largely because of the low qualifications among staff and lack of proper learning conditions.

Out of a total of 2081 private institutions, 40% are for profit. There are also 36 educational enterprises that are listed on the stock market. Each of these groups controls many educational establishments, which are spread throughout Brazil; overall, these groups have considerable influence (Sampaio 2011). Some of these groups have received investments of foreign capital, and the estimation is that they enroll about 20% of the HE students in the country.

5.2.4 Funding HE

Brazil goes against the worldwide tendency to implement cost-sharing mechanisms in the public sector as a response to expanding costs and increasing austerity. Cost sharing, according to Johnstone (2006, p. 38) means sharing the costs of HE between the government; parents or students, through the payment of fees; donors; and institutional entrepreneurs. In Brazil, HE has largely expanded due to increased

capacity in the private sector, which charges tuition fees. Meanwhile, the public sector, federal and state, remains free of charge for students who pass the entrance examinations.

The federal institutions are basically maintained with funds from the National Treasury. The Ministry of Education establishes individual budgets for each federal university, covering expenditures on personnel (active and retired), current expenditures, and investments. The distribution of these funds traditionally follows a historical matrix in which the most important item is personnel costs, i.e., the payroll for faculty and staff (Schwartzman 2002). State institutions are funded by the state governments, and are likewise free. Resources for research are provided by the Ministry of Science and Technology (MCT) and by special public funds to support scientific and technological research. In recent years, providing consulting services to the public and the private productive sector, such as industry and business is being developed as an additional source of revenue (Schwartzman 2008).

In the private sector, funding depends mainly on tuition. Brazilian law allows private HEIs to set their monthly fees. The cost of private education varies significantly depending on the region, the type of course (medicine, dentistry, and engineering are expensive while management, economics, pedagogy, and social sciences are less expensive), and the type of institution (university, university center, and college). However, there are many indirect sources (fiscal and social security exemptions and tax waivers) of public funds for private philanthropic HEIs, while direct sources (e.g., educational loans) provide a significant contribution to their expansion and maintenance (Schwartzman 2004). In 2005, the government launched a new program (ProUni) that included tax exemptions for private HEIs, which, in turn, were to offer scholarships for low-income students.

In general, private HE has become a major sector of the national economy. It is therefore natural that a significant group of institutions (whose existence is expressly acknowledged by law) should employ instruments and strategies typical of capitalist activity to deal with their funding problems (Slaughter and Rhoades 2004). These activities encompass buying and selling institutions, going public with their capital, streamlining costs, employing vigorous marketing, and demonstrating a clear tendency toward more entrepreneurial management (Sampaio 2011).

In spite of the rapid growth in recent years, Brazilian HE is still small. Expansion is needed, but this will require new public policies and public funds. In recent years the government has invested in the expansion of the public sector, but this will not reverse the strong numerical dominance of the private sector. Thus, the issue of HE funding will continue as a serious problem for a growing number of stakeholders (see Chapter by Balbachevsky).

5.3 The Profile of the Demand for HE

In most of the world, access to HE is increasing and becoming almost universal in some countries (Trow and Burrage 2010). Brazil presents a very different situation.

Despite the growth that has occurred in the last 15 years, the net rate of enrolment is persistently low. In 2013, 70% of the 18 to 24 year old cohort was not

enrolled in any school. their mean level of schooling was around 9 years. Among those who are studying, 16.3% were in HE, 1.8% were still lagging behind at the primary level, and 9.4% were in secondary schools. About 50% of the students in HE are of 25 years and above (PNAD-IBGE 2013). Clearly, enrolment rates have grown as a result of youth and other people outside this age group returning or starting later in formal education, than because of the demand by people who have finished secondary education (figure 5.2).

5.3.1 The Potential and the Qualified Demand

In principle, students who are concluding secondary education are potential entrants to HE. Primary and secondary education in Brazil takes place mostly in public institutions, which are usually of lower quality than private schools, contrary to what happens in HE, where most of the students are in private institutions of lower academic standards (Table 5.1).

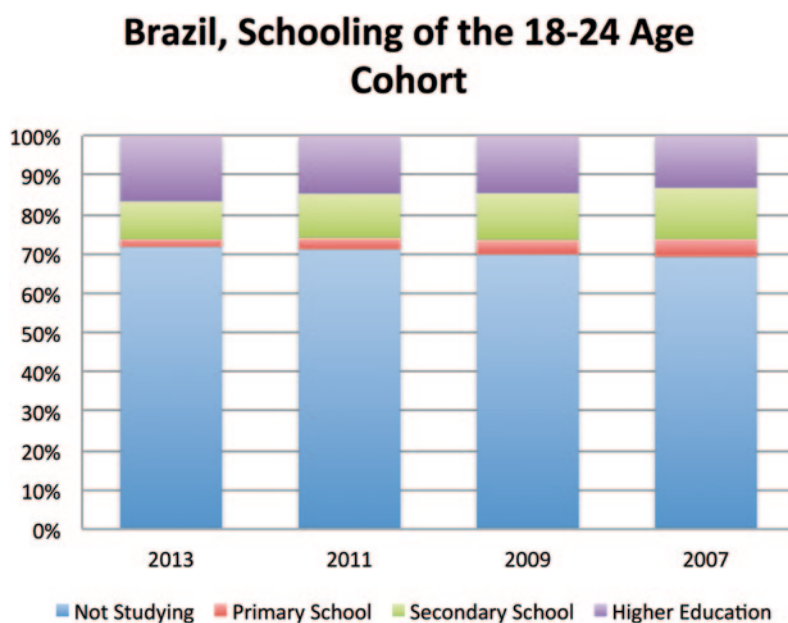


Fig. 5.2 Population of the 18–24-year-old cohort. (Source: PNAD-IBGE, different years)

Table 5.1 The potential demand for higher education (HE) in Brazil. (Source: INEP/MEC 2011)

	Secondary School		Higher Education		
	Enrolment		Graduates	Places	Entrants
	1st year	3rd year			
2000	33,04,837	20,79,628	12,16,287	12,16,287	8,97,557
2005	36,60,934	24,12,701	24,35,987	24,35,987	13,97,281
2011	32,75,265	21,27,319	32,28,671	32,28,671	16,86,854

In 2011, the number of students finishing secondary education was practically the same as in 2000 and, because of the low standards of most secondary schools, many students would not pass the entrance examinations of public universities. In 2011, the number of young people aged 15–17 years who attended school (primary and secondary levels) in Brazil has diminished even further. Between 2009 and 2011 the rate went down from 85.2 to 83.7%. Currently, 8.8 million Brazilians in this age group attend school, while 1.7 million are not studying at all (INEP/MEC 2011). Of those studying, only 50.9% are at the appropriate level of education. One would assume that those who left school decided to work instead of studying, but the fact is that a significant number neither study nor work, joining what is being called the “neither nor” generation (PNAD-IBGE 2011).

Access to HE requires a secondary education certificate and approval in a selection process through formal exams carried out by the institutions themselves (the so-called “vestibular”), and increasingly, according to the student’s scores in the National Secondary Education Examination (ENEM) carried out yearly by the Ministry of Education. Currently 1217 HEIs use the ENEM results as a criterion for selection, mostly public, for their undergraduate courses—either replacing the vestibular or complementing its score.

In the 2010 ENEM, as Table 5.2 shows, 4.6 million candidates were registered, but only 70% of those actually participated. The exam consists of multiple-choice tests of language, mathematics, natural sciences, and social sciences, plus an essay. It lasts for 2 days, and is done simultaneously throughout the country. The student’s scores are used to provide access to HE, and also to grant fellowships in a national program for lower income students attending private institutions (the ProUni program) and granting secondary school certificates for students who did not complete regular education. ENEM is not required for students entering state institutions as they have their own selection procedures, like the state universities of São Paulo. In 2010, there were 2,144,419 participants who managed to achieve 400 points out of 1000 in the ENEM exam, and they can be considered a significant part of the “qualified demand” for HE.

The profile of the selected students in ENEM (Table 5.2) has the following characteristics. In Brazil more women than men attend HE; there are also more of them participating in ENEM, 59.4% are female and 40.5% men. The participants are mostly young, with 65% of the candidates 24 years old or less. 50% of the candidates have a family income of 1–3 times the minimum wages, and 25%

Table 5.2 Participants selected in ENEM (2010). (Source: INEP/MEC 2011)

Total number registered for ENEM 2010	4,626,094
Those who took the exams (multiple choice and written essay) and were selected	3,271,011
Relation between those who were registered for the ENEM and those who took the exams	70%
Scored more than 400 points in the objective exam—“qualified demand”	2,144,419
Relation between the total of selected participants and those who scored more than 400 points	88%

Table 5.3 Number of places offered, candidates, and entrants to undergraduate courses by administrative category (2000–2011). (Source: INEP/MEC 2011)

		2000	2011
Places	Total	1,216,287	3,228,671
	Public	245,632	484,943
	Private	970,655	2,743,728
Candidates	Total	4,039,910	9,166,587
	Public	2,178,918	5,138,136
	Private	1,860,992	4,028,451
Candidates/places	Public	8.9	10.6
	Private	1.9	1.5
Entrants	Public	233,083	426,597
	Private	664,474	1,260,257
Occupation rate (Entrants/places)	Public	94.89 %	87.97 %
	Private	68.45 %	45.93 %

have a family income equivalent to the minimum wage. When asked about personal monthly income, 45.2% answered that they did not have an income and 32.4% said that they had only one minimum wage income. This data reveals the increasing participation of low-income youth in the attempt to gain access to HE (MEC/INEP/ENEM 2010).

Most of the candidates who participate in ENEM are from families with low cultural and schooling capital: 32% of the candidates' fathers and 28% of the mothers attended only the 1st–4th grade of elementary education. Only 7.9% of the candidates' fathers and 9.9% of the mothers have a diploma in HE. Both among the fathers and the mothers, over 70% had only been able to take elementary or secondary school.

This data refers to all participants in the ENEM exam that can be considered a significant part of the “qualified demand” for HE. But there are no data on the candidates who actually participated in the selection process at the HEIs by income, gender, and race/ethnic group. It should also be highlighted that the number of candidates refers to the total number registered in a selection process, often at more than one HEI (Table 5.3).

A relevant aspect to be considered is the growth in the number of places and the candidates/places ratio. In 2000–2011, the number of places in the public sector grew 97.4% while in the private sector growth was at 182.7%. In the year 2000, the mean number of candidates per place was 3.3 (8.9 at public HEIs and 1.9 at private HEIs). In 2011, this ratio was 2.8 on average (10.6 at public HEIs and 1.5 at the private ones). Concerning the occupation rate in 2011, 87.9% of all places offered by public HEIs were filled as against only 45.9% of the places at the private HEIs (INEP/MEC 2011). Thus, many private places are left empty. It is true that the fact that places are remaining vacant may not be an immediate indication of a crisis in the institution affected, since a number of places generally function as a

strategic reserve in case of increased competition. However this shows the difficulty of access for a significant number of candidates and gives a reasonable idea of the need to find a more creative solution to the problem of funding for improved access to HE.

Figure 5.3 shows that the number of places in HE, which was growing steadily since 2000, has stabilized in the last few years, and is now close to the number of entrants in high school, which has remained steady. The figure also shows how the number of students finishing secondary education has diminished, and the big gap between the offer of vacancies and the number of students actually entering HE. Students coming from lower socioeconomic backgrounds, who enter public secondary schools, face multiple discrimination in an attempt to access HE. Due to the low quality of schooling received, many of them never get their degrees, and those who do, do not manage to enter public universities via the entrance examination due to fierce competition, while access to private universities is limited by their ability to pay fees. The low quality of the education offered to children and youths from low-income families also places them at a disadvantage in the labor market. Educational inequality reinforces social inequality, thus constraining social mobility (Dubet et al. 2012).

5.4 The Expansion of HE: Access and Inclusion

Brazil has undergone two waves of enrolment expansion. The first period of significant growth occurred from the mid-1960s to the beginning of the 1980s. Enrolments in 1960 consisted of just 93,000 students, 55.9% of whom were in public institutions. In 1970, enrolment increased to 425,478 students. Of this total, 49% were in the public sector. Already in 1975, the number of students was 1,072,548, about 62% of them in the private sector. The increase in enrolments in undergraduate courses per administrative category from 1960 to 2011 can be seen in Fig. 5.4.

The 1980s became known as the “lost decade” marked by economic instability and growing inflation, with a negative impact also in the demand for private HE. The year 1985 marked the end of the military regime. In 1994, a stabilization plan was put in place that was able to eliminate hyperinflation and introduced a new currency, the Real. With economic stabilization, the economy started to grow again, and the socioeconomic conditions of the population started to improve. Access to basic education had been growing, and economic stability allowed for a second wave of expansion of private HE, which increased its relative weight. A major difference from the previous period was the growing demand for HE by members of the lower income sectors, with less purchasing power.

In the last 17 years, enrolments grew 283%, from about 1.7 million students in 1995 to close to 7.3 million by 2013 (INEP/MEC 2013). There was a renewed growth of enrolments at federal public HEIs, but this did not significantly change the weight of the private sector in the system as a whole (Table 5.4).

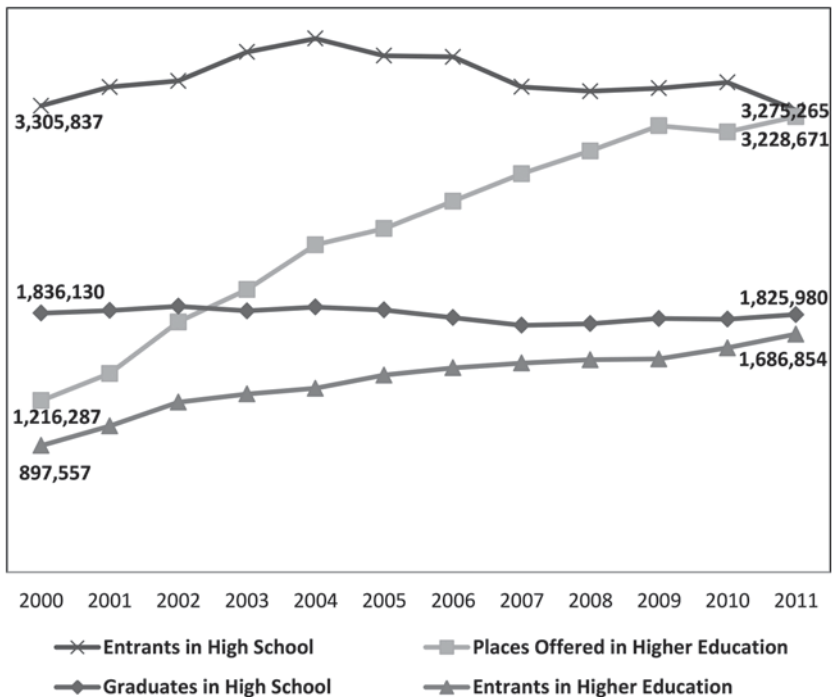


Fig. 5.3 Demand for higher education(HE; 2000–2011). (Source: INEP/MEC 2011)

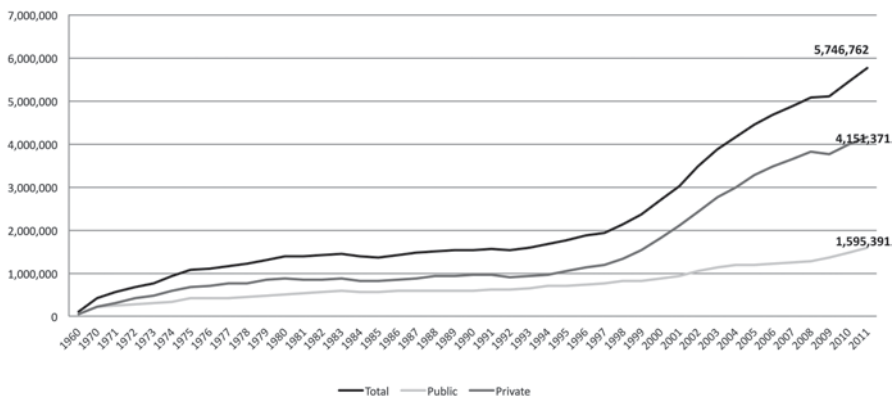


Fig. 5.4 Expansion of undergraduate programs (1960–2011). (Source: INEP/MEC 2011)

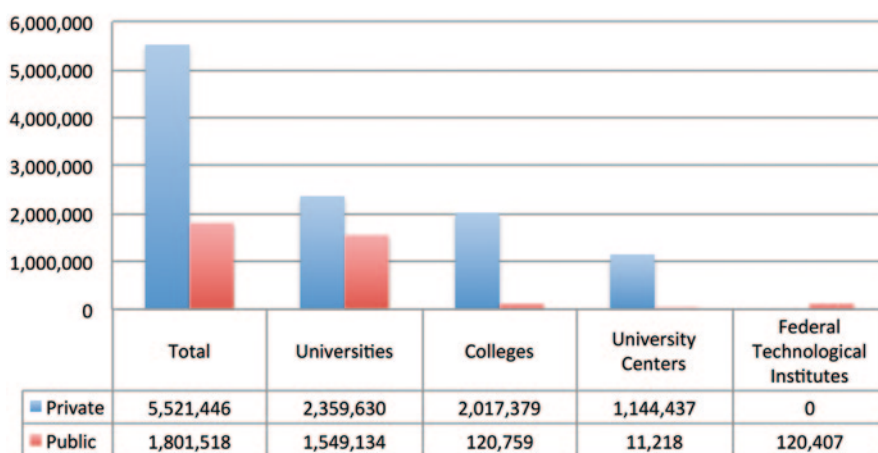
Out of the total enrollments in undergraduate studies in 2013 (84.2% contact and 15.8% distant) 75.0% were in the private sector. Considering academic levels, 67.5% worked for a BA degree, 18.8 for a teaching license and 13.6 for a short-term, vocational degree. The number of people who finished undergraduate courses jumped from 352 000 in 2001 to 982 thousand in 2013. The distribution of these

Table 5.4 Higher Education in Brazil - Basic Facts - 2013 (except graduate programs)

	Total	Public			Private
		Total	Federal	State/Municipal	
Institutions	2,391	301	106	195	2,090
Teaching Slots	3,69,864	1,57,801	1,01,376	56,425	2,12,063
Course Programs	30,920	9,595	5,730	3,865	21,325
Enrolment	72,71,488	17,85,036	11,28,341	6,56,695	54,86,452
Entrants	27,37,796	4,84,645	3,24,283	1,60,362	22,53,151
Graduates in 2013	9,82,024	2,04,097	1,13,033	91,064	7,77,927

Source: INEP/MEC 2013

Enrolment by Academic Organization and Ownership (2013)

**Fig. 5.5** Undergraduate enrolments by academic organization and ownership (2013) (2011). (Source: INEP/MEC 2013)

enrollments by type of institution is as follows: 53.4% at universities; 15.8% at university centers; 1.6% at technological institutes and 29.2% at colleges (INEP/MEC 2013; Fig. 5.5).

The total number of teaching slots in the Brazilian higher education in 2013 was 369,864 (the total number of teachers is smaller, since one person may work in more than one institution). In Federal universities, 57.7% have a PhD and 29.1% a Master's degree. At the private institutions, only 18.1% of the teachers have a PhD, and 47% a Master's degree 40% have a Master's degree. (INEP/MEC 2013).

It is worth highlighting the intense growth of enrollment in distance undergraduate and vocational courses in the last few years. Distance education, which almost did not exist before, started to grow in recent years, reaching about 15.8% of the

student body in 2013, (1,153,640) provided mostly by the private sector. 39.1% of the students in distance education are enrolled in “licenciaturas” courses (teacher training), 31.3% in bachelor degree courses and 29.6% in vocational courses. By general area of study, students are concentrated in education (39%) and 43.7% in applied social sciences (social sciences, management and law) (43.%). In post-secondary vocational programs, enrollments reached a total of 995,746 students, a very significant growth in recent years, but still just 13.6% of total enrollment.

Graduate education, comprising MA and doctoral programs, have also been growing, although from a small basis. The number of Master’s programs grew 246% from 1998 to 2011 and the PhD programs, 201% during the same period. Currently there are 3,045 Master and 1606 PhD Programs. In the Masters Program the number of students is 116,373 and in PhD programs 71,387. About 40,000 Masters’ and 11,000 PhDs graduate every year (INEP/MEC 2011). In contrast to undergraduate studies, these courses take place mostly in public federal and state institutions.

Summing up, these figures show how the expansion of higher education in Brazil has been limited by the grave situation of the secondary schools, as well as by the inability of public institutions to expand their offerings while maintaining and improving their standards; and also by the current funding arrangement, which provides free education for those who can access the well-endowed public institutions and charge tuition for those constrained, by their previous education; background and the need to work, to attend private institutions.

Summing up, these figures show how the expansion of HE in Brazil has been limited by the grave situation of the secondary schools, as well as by the inability of public institutions to expand their offerings while maintaining and improving their standards; and also by the current funding arrangement, which provides free education for those who can access the well-endowed public institutions and charge tuition for those constrained, by their previous educational background and the need to work to attend private institutions.

5.4.1 Affirmative Policies

Recently a change began to occur, because of the emergence of a strong debate regarding the social inclusion of specific socioeconomic and ethnic groups. There are two outstanding initiatives aimed at fostering access to HE: the ProUni program and the policy of quotas or reserved places for students emanating from public schools and/or by racial/ethnic criteria targeting blacks/pardos/indigenous people. *ProUni (University for All Programs)* is an innovative project launched in 2005 by the federal government. Its purpose is to grant scholarships to low-income students and minorities enrolled at private institutions of HE that benefit from the program by enjoying tax exemptions. The program works by awarding full or partial (50%) scholarships for undergraduate courses. To be eligible for full scholarships, students must have a maximum family per capita income of 1.5 times the minimum wage (R\$ 933.00, approximately US\$ 466). Moreover, partial scholarships may be

awarded to students with a family per capita income of up to three times the minimum wage (R\$ 1866.00, US\$ 933), who have attended secondary school either in a public institution, or in a private one on full scholarship. Public school teachers wishing to study can also receive benefits from ProUni. Quotas for black and indigenous people were also implemented (ProUni-MEC 2010).

It should be highlighted that the scholarship only covers the monthly tuition fees of the course attended. When the scholarship is partial (50%), the student needs to pay the balance of the fee or they can combine the partial scholarship with a loan from the FIES educational credit program. ProUni applicants do not have to take the university entrance examinations; they are chosen by their scores in the National Exam of Secondary Education/ENEM and by their socioeconomic profile.

Between 2005 and 2010, 919,551 scholarships were allocated for students, of which 67% were full scholarships and 33% were partial (ProUni-MEC 2010). In 2011, there were 368,000 students with ProUni grants, 73% with full coverage. There is no significant difference between the number of male and female students. Just under half (47.6%) are white. The number of indigenous people who received a scholarship is still very small. Almost half the scholarship recipients chose for-profit HEIs and study in the evening (74%). In 2010, 1442 private HEIs are joining the ProUni program.

ProUni is largely regarded as a positive initiative that has contributed to the increase in the participation of lower income students in HE—even though the program has a limited margin of growth, due to the tax exemptions and the increase in the number of places.

Affirmative action policies (AP) can be instituted by state or local law, or decided by the universities themselves. Currently there are two types of affirmative policies: quotas (racial and/or social quotas), with reserved places for students from public schools and/or who self-declare themselves black and/or pardo; and the bonus model in which extra points are added to the entrance examination score to students coming from poor backgrounds, public schools, or ethnic minorities.

Up to 2010, 88 public federal and state HEIs had implemented affirmative policy actions in their selection processes (there is no precise information regarding the existence of affirmative policies in private HEIs). Most federal HEIs, adopted the quota system (racial and/or social); while public HEIs in the state of São Paulo adopt the modality of adding points to the entrance examination score.

Whereas AP was first introduced as a selective processes focused on racial issues, today they are mostly directed to social issues. The main challenge for institutions would be to find out how to ensure that quota students are able to perform well in the more demanding courses, as medicine and engineering, e.g., (Santos and Queiroz 2010).

In April 2012, the Federal Supreme Court approved the constitutionality of racial quotas at Brazilian public universities. According to the Court, affirmative policies do not violate the principle of equality, nor do they institutionalize racial discrimination, as stated by those who are against quotas. For the social movements advocating quotas, the decision was a victory. Among its critics, the decision ran against the constitutional principle of nondiscrimination based on race, religion, and similar

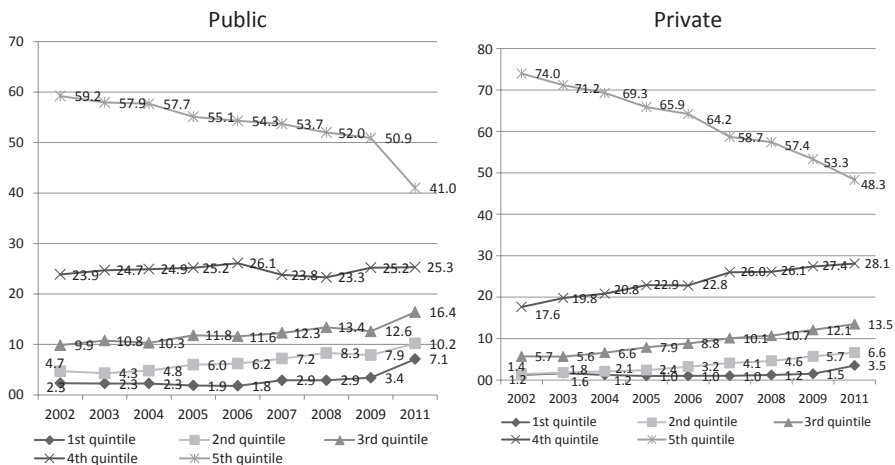


Fig. 5.6 Distribution of higher education (HE) students across the public and private sector by per capita family income in quintiles (2002–2011) public private. (Source: PNAD-IBGE 2011)

criteria. In August 2012, a new Quota Law (no 12. 711/2012) was sanctioned by the federal government. The law foresees that federal public universities and technological institutes reserve at least 50% of the places for students who did all of their high school education in the public system, with a proportional distribution of places among blacks, pardos, and indigenous people. The HEIs will have 4 years to progressively implement the percentage of reserved places established by law.

Looking at the data for the last decade (Fig. 5.6), one can see that the social inclusion policies have led to changes in the social composition of the student body.

When considering the time period since the first AP were established in 2001, and from 2005 onwards, after the ProUni program began, it is possible to visualize a slow but steady increase in the participation of students emanating from the lower social quintiles in HE, both in the public and the private sectors.

5.4.2 New Programs to Increase Access to Federal Public Institutions

In 2010, the Unified Selection System (Sistema de Seleção Unificada/Sisu) was established and managed by the Ministry of Education, in which public institutions of HE offer places in undergraduate courses to candidates participating in the National Secondary Education Examination (ENEM). The candidates make their online inscription among the vacancies offered by the HEIs involved with the program. The Sisu program selects automatically the top-ranked candidates in each course, according to their ENEM scores (MEC/SISU 2013). For 2013, the Sisu program supply reached 129,319 places at 101 public HEIs. Close to 2 million can-

didates compete for the vacancies. Nowadays, many universities exclusively use the Sisu program as their selection process.

To strengthen the federal sector, the government instituted in 2007, a Restructuring and Expansion Plan for Federal Universities (REUNI). The aim was to broaden access and improve retention in HE, by increasing the use of the physical structures and human resources that already exist at federal universities, and by adding more courses and hiring new staff. The program is financed through annual government grants currently consigned and administered by the Ministry of Education (REUNI-MEC 2007). Between 2006 and 2010, ten new federal universities were created covering all Brazilian regions. On the supply side about 78,000 new study places and more than thousand new undergraduate courses were established (Andifes 2010).

5.5 Supply in HE and the Market Demand for Qualified People

Recently a paper was published with the suggestive title “Young people study Humanities, the market demands Hard Sciences” (Menezes Filho 2012). This title is a good summary of how relations between social demand, market demand, and the economy have developed lately, and the response by HEIs to these external trends and dynamics.

Besides the problem of access and of filling places, another complex problem is the offer of courses in HE and the demand of the labor market. It should be underscored that in Brazil the professions are regulated by Professional Councils. In the case of law it is still necessary to take the exam of that Professional Order (Bar Association). But there is a vast field in the public and even in the private sector, in companies with managerial positions that can be carried out by any professional with a diploma.

Throughout the expansion of HE marked by the growing presence of private education, the main pattern has been to offer places with a heavy emphasis on courses that cost less to implement, namely, in applied social sciences, and humanities. These courses can be cataloged as “generic.” With a diploma in this field one can work in different jobs, such as management and human resources. The lack of elementary and secondary schooling among young people finally consolidated this trend. The demand accommodated to the offer and supported it. Figure 5.7 shows the growth and concentration of students in undergraduate programs of education, comparing 2000 and 2011.

The largest percentage increase in this decade occurred in the field of engineering (217%), followed by health (163%). Nevertheless the higher concentration of enrolment remains in applied social sciences. Table 5.5 shows the distribution of students by fields of education in 2011, according to the levels of the International Standart Classification of Education (ISCED) (UNESCO 2013).

In ISCED 5, which corresponds to undergraduate courses, students are still concentrated in the field of applied social sciences (41.5%), followed by education

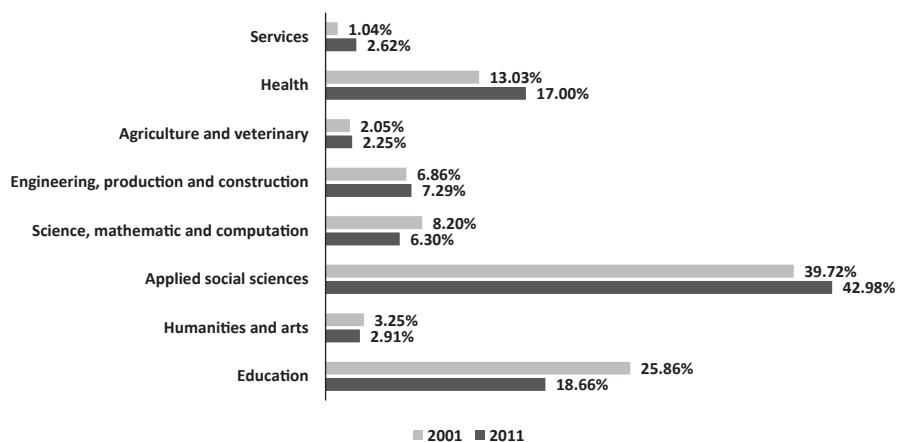


Fig. 5.7 Enrolments in undergraduate fields of education and growth during the period (2000–2011). (Source: INEP/MEC 2011)

Table 5.5 Total enrolment in undergraduate studies (ISCED 5) and graduate programs (ISCED 6) by fields of education (2011). (Source: INEP/MEC 2011)

	ISCED 5	ISCED 6
Education	1,354,918	12,793
Humanities and arts	154,915	19,223
Social sciences, business, and law	2,798,289	22,560
Science, mathematics, and computer science	423,372	36,004
Engineering, production and construction	759,873	33,357
Agriculture and veterinary sciences	155,616	19,516
Health and welfare	931,571	29,986
Social services	144,140	3,601
Interdisciplinary courses	0	10,720
Other courses	16,995	0
Total	6,739,689	187,760

(20%). In ISCED 6, which corresponds to graduate programs, an inversion takes place. The concentration of students is in science, mathematics, and computer science (19.2%) followed by engineering, production, and construction areas (17.8%; INEP/MEC 2011). The preferential choice for career courses, in the area of applied social science in undergraduate studies, appears as a polyvalent resource, favoring the perception that they can open many doors in the labor market, in the context of a services society, like Brazil. Already in graduate programs there is a concentration of students in fields like science, engineering, and health. One reason for this is that these fields were earlier structured as research and graduate programs and have always been a priority in governmental policies and public investments aiming at scientific and technological development of the country (Balbachevsky 2004; CAPES/MEC 2013a).

Indeed, government actions are committed to expanding the most modern economic sectors, able to increase the national potential for technological innovation to strengthen the overall competitiveness of the country. This has been accompanied by measures to stimulate the formation of human resources in science and technology that are considered strategic at this stage of development. Recently, in this sense, the government launched the Science Without Borders Program. This program aims to support 100,000 students, from undergraduate to doctoral, post-doctoral students, and researchers in the fields of science, engineering, and health, in training and qualification activities abroad. It also intends to stimulate the attraction of post-doctoral students and high-level researchers from overseas to strengthen HEIs and national research institutions in these same areas (CAPES/MEC 2013b).

Despite these efforts, data on labor market expansion and qualifications of the population show a strong adherence of human resources training by the education system to the demands of the economy. Data on the working population shows that in Brazil a great number of workers, about 41.5 million (45% of the workers) are active in service-related activities. The participation of this group in the working population grew from 43.1 to 44.9% from 2009 to 2011. Figure 5.8 shows the evolution of the number of people employed by economic sector in Brazil.

Trade and repairs, with approximately 16.5 million workers is the second largest group of activities. Compared to 2009, there has been a 1.9% growth. However, its proportion in the working population remained stable (17.8%). The number of workers in agricultural activities, in 2011, was estimated as 14.1 millions, which shows a reduction of approximately 1.1 million people compared to 2009, i.e., a 7.3% drop. This number represented 15.3% of total employment in 2011, indicating a reduction compared to 2009, when this proportion was estimated as 16.7%. Approximately 12.4 million workers (13%) were involved in industry-related activities, meaning an 8% drop compared to 2009. The participation of these workers in the employed population also followed the falling trajectory from 14.9% in 2009 to 13.5% in 2011. Construction was outstanding for growing most in percentage terms from 2009 to 2011. The increase was 13.6%, a total of 7.8 million workers and thus broadening its participation in the working population, which increased by 0.9% points. In 2011 it represented 8.4% of the working population (PNAD-IBGE 2011; Fig. 5.9).

According to the PNAD 2011 data, the percentage of workers who have not finished elementary education has diminished—31.8 to 25.5%. The percentage of workers who have at least finished HE increased from 11.3% in 2009 to 12.5% in 2011, even so, it is still a very low percentage.

In this context, two phenomena have required attention regarding the supply of graduate staff by HEIs. In the last decade, one can identify clearly a new trend in the private sector regarding the offer of courses: the fragmentation of typical careers of applied social sciences to meet a new type of demand. Since the beginning of the twenty-first century, Sampaio (2011) has observed that there has been rapid growth in the number of courses, through a phenomenon that she calls “career fragmentation,” i.e., the transformation of a skill and/or discipline into an independent career.

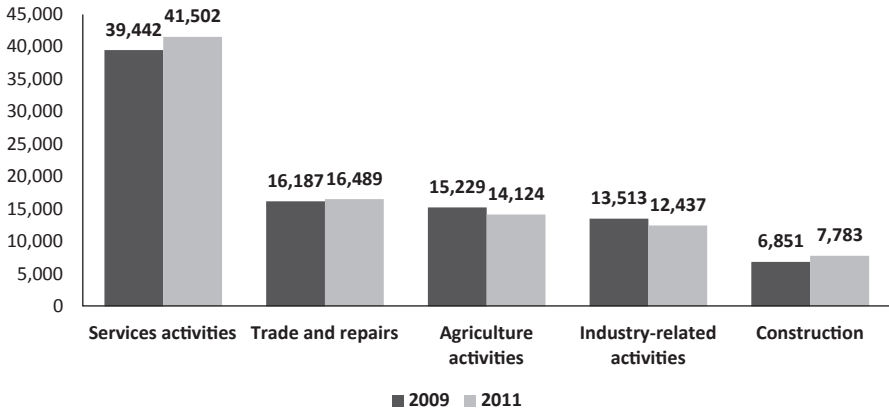


Fig. 5.8 People aged 15 or older employed by activity groups Brazil (2009/2011). (Source: PNAD-IBGE 2009, 2011)

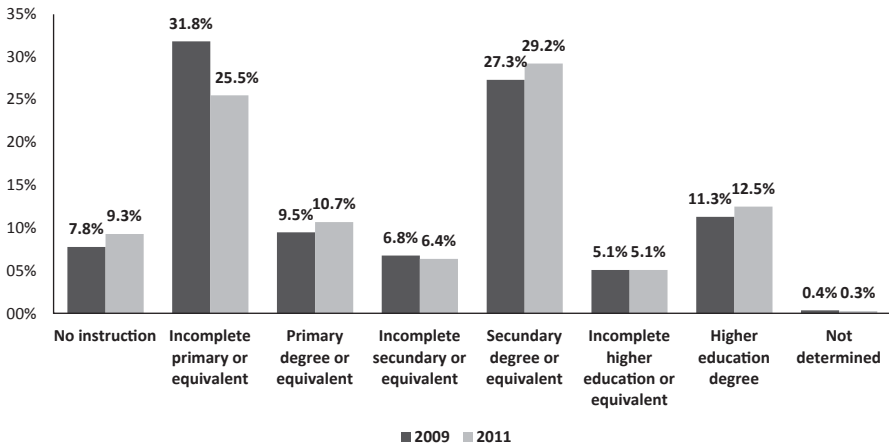


Fig. 5.9 Distribution of persons 15 years or older, employed by education level. Brazil (2009–2011). (Source: PNAD-IBGE 2009, 2011)

According to the author, the fragmentation of careers is a movement guided by and for the market, aiming to expand and diversify the clientele, responding to demands for HE and generating others.

It is different to the phenomenon of fragmentation in which new courses generally derive from consolidated and prestigious career courses linked to technological or scientific areas (Sampaio 2000), the *very new* careers offered by the private sector, come from enhancing “a knowing—how-to-do.” They are connected to trade professions for which, traditionally, no HE was needed. Some examples: *chef de cuisine*, *somelier*, gastronomers, hair designer (barber and hairdresser), furniture designer (cabinet maker), *pâtissier* (confectioner/baker), fashion professionals (stylists, modistes, and dressmakers). These courses, generally, when they acquire the

status of HE, are glamorized, receive foreign names, and are associated with luxury consumption to create the fields in which they are applied (Sampaio 2011).

This strategy of the private sector helped to strengthen a unique feature of HE in Brazil in relation to the other BRICs (Brazil, Russia, India and China) and developed countries: enrolment the small percentage of students technological and engineering careers, despite the marked growth of enrolments between 2000 and 2011, as can be seen in the table above.

However, this reality has been changing after an intense debate about the lack of engineers in Brazil, especially in the media, in the last few years. People are beginning to apply more for engineering courses. In the private sector, in the state of São Paulo, the field of civil engineering has seen a 49.2% growth in enrolments, followed by production engineering with 26.5%. Enrolment in law courses grew 5.6% and in management it has fallen 0.1% (Semesp 2012). This increase in the number of candidates and places for engineering careers shows this reaction, both by the society and by the system of HE to labor market demand. In this sense, the main concern is identifying discrepancies between what students have learned in secondary school and what is actually expected of them at the HE level. There is a long way to go, with huge challenges (Gusso and Nascimento 2011).

Actually, although engineering career courses in Brazil grew, their graduates filled workplaces in the services sector rather than in the manufacturing industry and in companies with infrastructural projects. In Brazil the professions are regulated, but there is a wide field, as mentioned, in the public sector and even in the private sector that can be implemented by any professional with a diploma in HE. Gusso and Nascimento (2011) showed that six of every ten engineers are not working in engineering, e.g., 36% of the Itaú Bank trainees in 2011 had studied engineering.

The fact is that the new trend of change in the production structure and economic growth has led to a demand for more technical professional profiles, with a more solid education in sciences and mathematics. This demand for professionals with this profile has been pointed out in many articles and newspaper reports. Representatives of industry and government have recorded this new era in the economy and speak of a “scarcity” of highly skilled professionals (Menezes Filho, 2012; Nascimento et al 2010).

Some studies, however, have identified a more serious and widespread shortage of labor at the base of the pyramid and less in areas such as engineering, which is the subject of discussion. The problem emerges mainly regarding technical, mid-level occupations. In higher level careers, outbreaks of scarcity appear to be restricted to specific qualifications: of engineering (naval engineering), certain professions that have been most sought after in recent years but which graduate fewer students, such as geology and some medical specialities. Another focus of scarcity is the difficulty of attracting qualified professionals to some distant regions or even in large centers (Nascimento et al 2012).

There are other studies, however, showing further problems related to the labor force. According to the study performed by Menezes Filho, many analysts have emphasized that there is a “blackout of qualified (skilled) labor” in Brazil. However, based on the analysis of the variation of the mean salaries of people with HE,

he calls attention to the fact that, in a few specific careers, in which the number of graduates increased greatly, comparing 2000 and 2010, such as nursing, business administration, tourism, pharmacy, marketing and therapy, and rehabilitation, salaries have gone down. On the other hand, in some professions the salaries have risen significantly, since the percentage of graduates (2000–2010), as a proportion of the total, has dropped in areas such as medicine, architecture, engineering, and economics. In these professions demand is increasing faster than the offer. The percentage of graduates working in the typical areas of their training has increased in medicine and humanities, but has gone down in some fields of health, such as nursing, pharmaceuticals, and chemistry.

Given the uncertainties inherent in the economy, the increased supply of graduates appears to be in line with demand in the labor market. Gusso and Nascimento (2011) stress that one cannot expect that the supply of skilled professionals anticipate the needs of the market, since the decisions of young people in the training area depend on signals from the market and the appreciation of salaries and careers to choose from.

The different positions in the debate, about some lag between market signals and adjustment between demand and supply of professionals suggest the need for further studies on the trends in the process of transformation of the economy and its real impact on the labor market and on HE.

5.6 Concluding Remarks

Brazilian HE has changed significantly in the last 15 years, with growth and improvements in terms of social inclusion. However, this growth is limited by the lack of quality of elementary and secondary education. People from lower socioeconomic backgrounds are beginning to seek HE but have difficulty accessing it, despite the affirmative policies and official programs to support social inclusion.

The government continues to maintain the exclusivity of public funding for public HEIs, i.e., ensuring full funding of studies. The interweaving of the government in the private segment occurs through the institution of philanthropy, by funding education credit programs or by direct or indirect subsidies in the form of tax waivers and debt negotiation.

However, the great challenges are to expand enrolment while democratizing access and differentiating the offer so as to ensure the fulfillment of the demands of the economy and of society, seeking the excellence of education offered and an appropriate formula to fund expansion. Yet the initiatives to expand access to HE are strongly tied to public investments through inclusion policies.

Thus a new formula for HE funding, including grants and loans system or other feasible forms of student subsidy, is required as a condition for maintaining significant growth rates of enrolment and ongoing social inclusion. The strategies of HEIs to respond to the pressures of the demand and the challenges of economic growth, suggest difficulty in understanding the expectations and trends. The dominant pat-

tern of response is still the offering of places in low cost careers, with polyvalent characteristics in the labor market. Social transformation and economic development are pressuring HE, creating specific demands, which are still not fully taken into account by existing institutions.

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