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**HIGHER EDUCATION REFORM IN
CHILE, BRAZIL, AND VENEZUELA**

TOWARDS A REDEFINITION OF THE ROLE OF THE STATE

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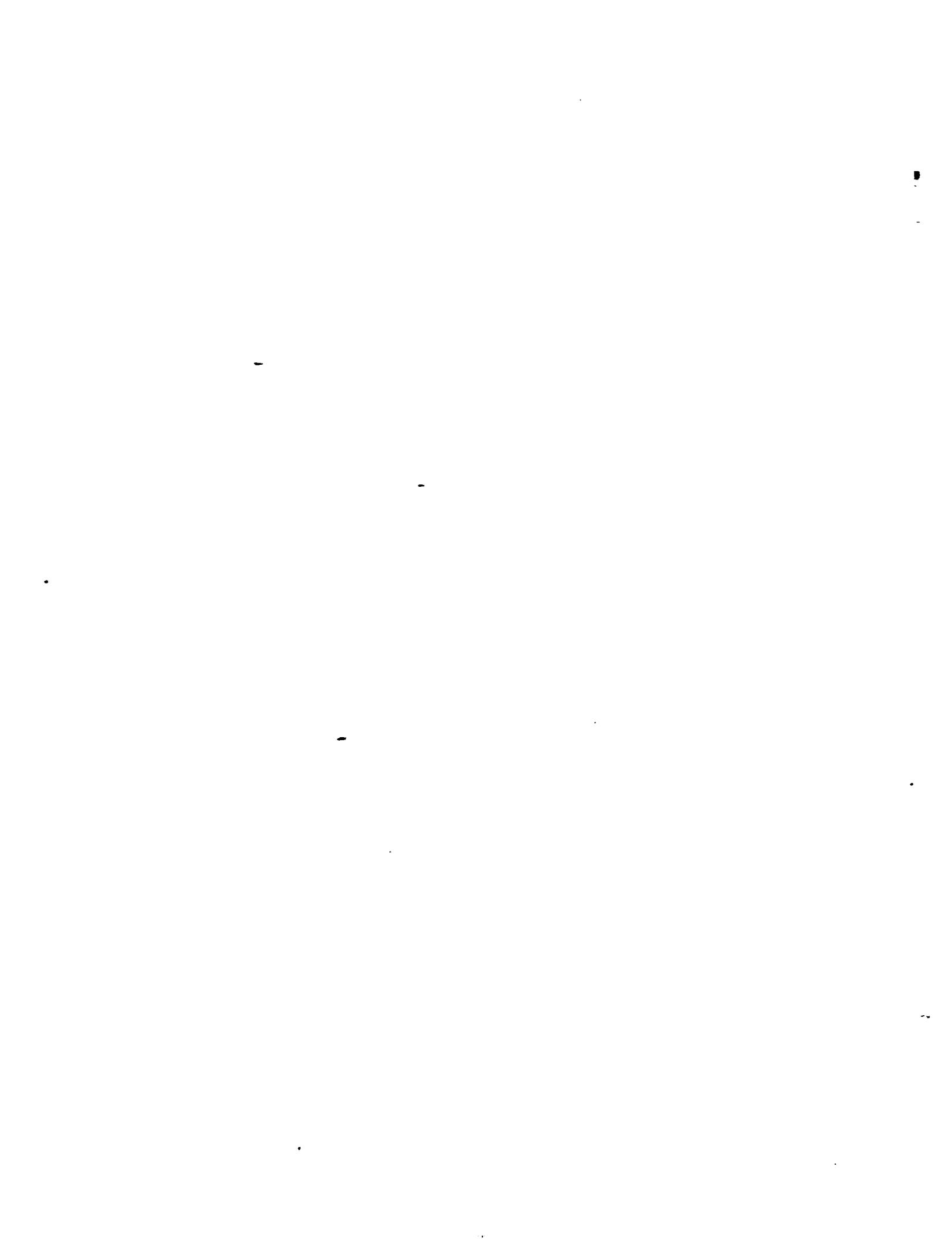
HIGHER EDUCATION REFORM IN CHILE, BRAZIL, AND VENEZUELA

TOWARDS A REDEFINITION OF THE ROLE OF THE STATE

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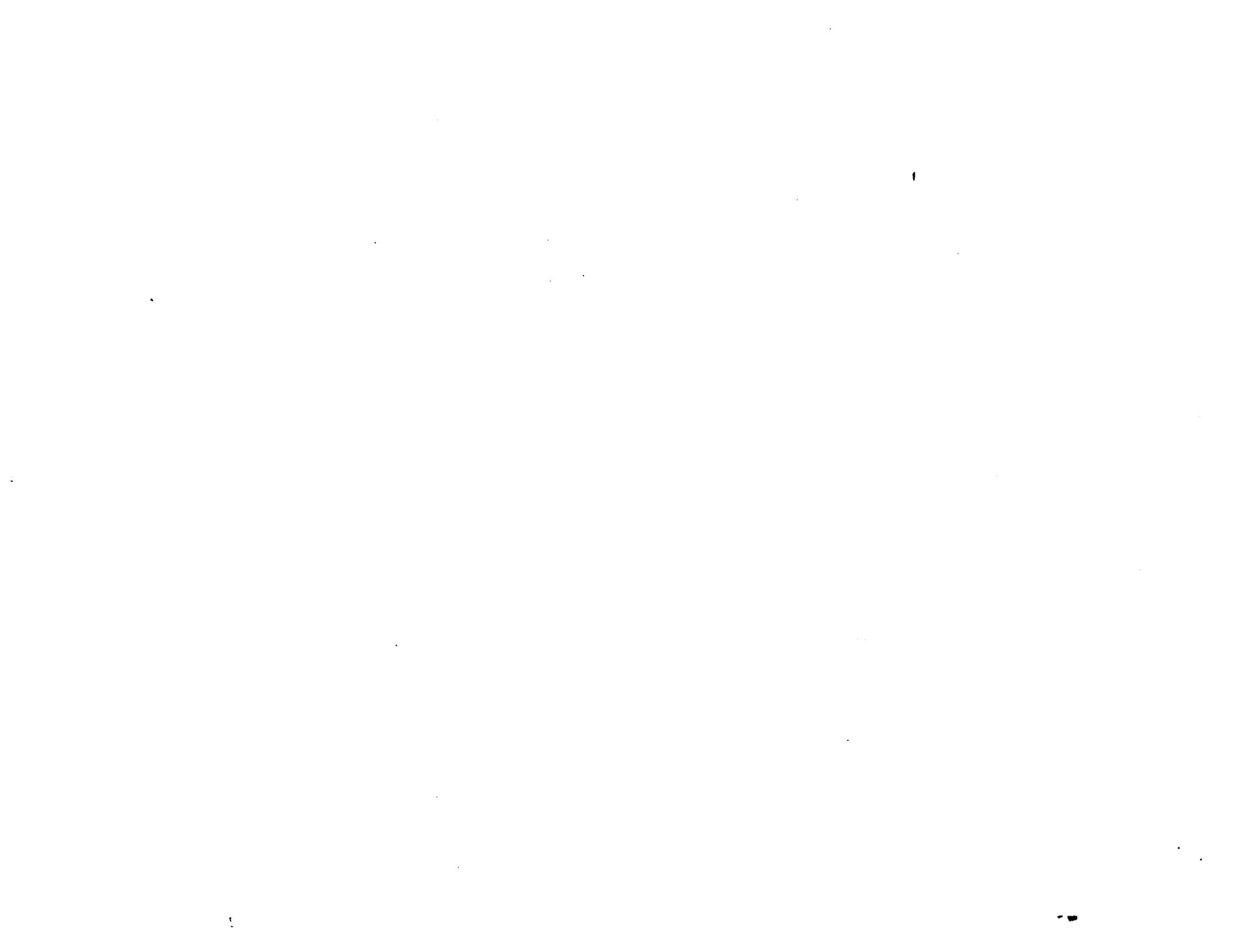
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OVERVIEW

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INTRODUCTION¹

This volume examines the issues related to higher education reform in three Latin American countries. The countries studied—Chile, Brazil, and Venezuela—can be considered to be at three stages of reform: ten years after a radical restructuring of institutions and finance (Chile); initiating important reforms (Brazil); and before embarking on a reform program (Venezuela). This overview summarizes the reform process and issues in these three countries, and identifies common themes applicable to them and to the Latin American region as a whole.

HIGHER EDUCATION REFORM EFFORTS IN CHILE, BRAZIL, AND VENEZUELA

Background

Higher education enrollments in Chile, Brazil, and Venezuela, as in all of Latin America, have grown enormously in the last thirty years. In Chile, enrollments went from 25,000 in 1960 to 250,000 in 1990, in Brazil enrollments increased from 100,000 to 1.6 million, and in Venezuela from 25,000 to 640,000 over the same period. In Brazil and Venezuela most of this growth took place through the early 1980's and has considerably slowed in the last five years.

A much increased proportion of the school age population now attends higher education institutions. Enrollment in Brazil is equivalent to 12% of the 20 to 24 year old age group, Chile enrolls 18.6%, and Venezuela 26%. It should be noted that these figures are "gross" enrollment figures. The net enrollment figures (e.g., enrollment less repeaters) would be much lower, especially in Venezuela, which has very high levels of repetition and where students continue to be enrolled in higher education institutions for many years.

In Brazil, more than 60% of enrollments are in private institutions. The growth of private education was a consequence of a government decision in the 1960's to encourage private education while at the same time preserving the quality of public institutions by enforcing high entrance standards. Brazil's public system can be further divided in federal (22% of enrollment), state (13%, mainly in Sao Paulo), and municipal (5%) institutions. In Chile, the 1980 reforms transformed the system from a small and exclusively public system into a system in which half of enrollments are currently in private institutions. Colombia is another Latin American country with a similarly strong private sector.

In contrast to these systems where the private sector is, at least quantitatively, dominant, Venezuela's public system enrolls 78% of all students. Most other Latin American higher education systems have relied predominately on public provision. In Mexico, Argentina, and Peru for example, public institutions automatically receive students that have graduated from secondary schools and enroll over 80% of all higher education students. Venezuela has an entrance examination which is highly selective to a few of the best institutions but which is in effect an open access system to the weaker public institutions.

With regard to financing, Venezuela relies on public resources to finance 89% of the costs of higher education. In contrast in Chile currently direct public funding of institutions and student accounts for 30% of total expenditures on higher education; an additional undetermined amount (up to 34%) comes from a variety of sources which include public funding through special grants and transfers. In spite of

¹ Unless otherwise noted, the data in this Overview comes from the individual case studies.

the large enrollments in private institutions, public funding in Brazil accounts for 75% of total expenditures in higher education, a result of a combination of high unit costs in public institutions and a constitutional prohibition on charging tuition in public institutions.

Table 1 provides a summary of the situation in these three countries.

Table 1
Enrollment and Financing of Higher Education in
Chile, Venezuela, and Brazil

	<u>Chile</u> (1990)	<u>Venezuela</u> (1990)	<u>Brazil</u> (1989)
Enrollment as a Percentage of School Age Population	19%	26%	12%
Percentage of Total Enrollment in Public Institutions	48%	78%	40%
Percentage of Higher Education Financing Which is Public	30% ^a	89%	75%
Percentage of Total Public Education Budget Going to Higher Education	22%	35%	23%
Unit Costs of Public Higher Education Institutions	US\$1,700	US\$1,625	US\$7,930 ^b
Student/FTE Faculty Ratio (public inst.)	10.8:1	16:1	8.8:1

- a. Plus an additional undetermined amount of grants and transfers.
- b. Estimated at US\$6000 not counting costs of teaching hospitals and pensions.

Chile's Reform Effort

Chile, in 1980, was a small, homogeneous and exclusively public system of higher education. Roughly 6% of the relevant age cohort was enrolled. Virtually all funding came from the state and the only institutional type was the multi-disciplinary university.

The reforms implemented in December 1980 aimed at a radical overhaul of the higher education system, to introduce market forces, to increase the efficiency and responsiveness of institutions to economic demands. In addition, the system was to be expanded rapidly via the harnessing of private, rather than public resources.

According to the Cerych and Sabattier model for analyzing higher education reforms², the reform had five outstanding characteristics. The degree of system change envisaged by the reform was high,

² See Cerych, Ladislav & Sabattier, Paul, Great Expectations and Mixed Performance. The Implementation of Higher Education Reforms in Europe, European Institute of Education and Social Policy, Trentham Books, 1986

affecting the boundaries of the system itself as well as all institutions. Second, the scope of intended changes was inclusive, affecting practically all individuals within each institution and potential actors outside the system. Third, the depth of the reform itself led to the adoption of radical policies. Policy goals strongly diverged from existing values and practices of higher education. Fourth, the goals of the reform were clearly stated and had internal consistency. And finally, changes were brought about by central edict, from top to bottom and through bureaucratic enforcement.

The main objectives of the 1980 reform as articulated at that time can be summarized as follows:

To increase access to higher education through expansion of private education. To meet this goal, only minimal requirements were established for the creation of private institutions.

To diversify the institutions in the higher education system. Three vertical tiers were established, based on a functional hierarchy of educational certificates:

- Universities: expected to focus on long cycle undergraduate programs leading to *licenciaturas* and to professional titles requiring a *licenciado* degree. Only universities could establish graduate programs.
- Professional Institutes (PIs): restricted to four year programs leading to professional titles defined as not requiring the *licenciatura*.
- Technical Training Centers (TTCs): restricted to short cycle (two year) vocational programs leading to technical certificates.

To reduce the institutional power of the two traditional state universities. Both the Universidad de Chile and the Universidad Técnica del Estado (later Universidad de Santiago de Chile) were forced to give up their regional centers, which led to the birth of twelve new state universities and to two state PIs. The breaking up of these two universities was justified as a way of making these institutions more manageable and as a means of encouraging diversity.

To partially transfer the cost of state-financed institutions to the students and/or their families and force these institutions to diversify their funding sources. Tuition was introduced into all publicly funded institutions. The promotion of private higher education was another means of shifting the burden of finance to private sources, since they are solely dependent on resources obtained from tuition fees for recurrent expenditures. A Government financed student-loan scheme was introduced to be provided to needy students in public institutions.

To increase competition among institutions, with the aim of promoting efficiency and quality. Institutional support, which was confined to the eight traditional universities and the 14 new state-institutions, was supplemented through institutional self-financing: tuition fees, competition for research funds, and contract funding. A small amount of public funding was linked to a "best-students formula", based on the number of the best 20,000 scorers in the last year's entrance examinations enrolled by each institution.³ The civil-servant status of academic personnel in state institutions was eliminated, thus enabling universities to differentiate salaries and compete for faculty staff. The Government set up a

³ This figure was later broadened to include the best 27,500 scores.

publicly financed National Research Fund (FONDECYT), which made awards to researchers on the basis of open competition and peer review of proposals.

No public funding was visualized for new private institutions, but for one exception: as of 1989, they can compete for "subsidy-carrying students" (the 27,500 "best and brightest"). Students enrolled in private institutions have no access to subsidized loans. Finally, private grants to both private and state universities were stimulated through specific tax deductions.

Table 2 summarizes the major institutional changes:

Table 2
Summary of Higher Education System Before and After Reform

BEFORE 1980	AFTER 1980
1. One tier, one sector: low institutional differentiation.	1. Three tiers, two sectors: high institutional differentiation.
2. No tuition but selective access according to school performance and achievement in national standardized academic test.	2. Tuition fees are charged by all institutions. Selective access is maintained in the sub-sector that receives institutional public funding. In the private institutions: open access according to and/or family income.
3. State financing of HE on the basis of incremental funding.	3. Multiple competitive sources of funding.
4. System coordination provided by State authority and institutional oligarchies.	4. System coordination provided by markets and policy regulations.

Chile's higher education system was reformed under special and very harsh conditions, due to the existence of an authoritarian Military Government. B.Clark's assertion on the feasibility of authoritarian reforms in higher education applies to the Chilean case: "Of course, in systems under authoritarian or totalitarian rule, the centralization of authority and the central concentration of administration allow more manipulation from above and on a large scale".⁴ Institutions had to endure the changes envisaged by the reformers without having the opportunity to intervene in the process nor to negotiate its outcomes. Authoritarian minded reformers will probably say that only because of this could system-wide changes be brought about and that reforms need not be assessed by the context in which they took place nor by the political conditions that lay behind or made them possible. Reforms, they will argue, should only be evaluated in terms of their actual outcomes and more general effects on society. In turn, those who experienced these changes without any possibility of resisting or discussing their aims and implementation procedures will probably find it more difficult to have confidence in the blessings of supposedly efficient-

⁴ Clark, Burton, "The Organization Conception" in B.Clark (ed.), Perspectives on Higher Education. Eight Disciplinary and Comparative Views, University of California Press, 1987, p. 125

authoritarian rule. In short, the cost of reforms in Chile must also include the shattered hopes and the repression suffered by those who would not yield.

Ten years later the reform to a great extent has achieved its goals. The positive quantitative results are as follows:

- A unitary system of eight public universities has been replaced by a highly differentiated one of 310 institutions, including universities, professional institutes, and technical training centers.
- The percentage of the school age population enrolled in higher education has more than doubled. All the enrolment increases occurred in the private sector, which now has 52% of enrollment.
- Real public expenditures in higher education between 1980 and 1990 decreased by over 30%. The percentage of the public budget going to higher education decreased from 38% in 1980 to 22% in 1989, while the percentage of public education expenditures going to primary education increased from 39% to 50%. The real amounts going to primary education have increased by only 12%. During this period total enrollment in primary education decreased by 8%, a result of the demographic transition and improved flow rates. This means that, contrary to most other Latin American countries, unit expenditures in primary education went up during the decade of the 1980's. At the same time enrollment and funding of pre-primary education increased by about 70% and the percentage of the education budget devoted to pre-schooling increased from 4% to 7.7%.⁵
- Whereas in 1980 100% of support to higher education was in the form of direct institutional support, only 56% is now in this form. The new funding mechanisms now include a per capita payment on the basis of students recruited with high entrance examination scores, 16%; student loan scheme, 15%; and science research grants, 8%.
- Student tuition and loan repayment now account for 28% of overall expenditures of public institutions. Students on average pay about US\$700 per year in tuition to public institutions.
- Quality in the public institutions has not suffered. The percentage of teachers in the public sector with graduate degrees has increased from 19% to 24%. The elite public sector universities account for 77% of scientific publications in the country and Chile continues to lead Latin America in per capita production of scientific research.

The less than positive results of the reform include the following:

- Access to higher education continues to be inequitable but has not significantly changed since 1980. Currently the lowest two quintiles of the student population account for no more than 11% of higher education enrollment. Lower income students are more likely to enroll in

⁵ Data on the overall education system comes from the World Bank Staff Appraisal Report, "Chile, Primary Education Improvement Project, September 1991.

public than in private institutions. One reason for this is that loans are available only for public institutions.

- Internal efficiency of the system has declined. It now takes about 9.2 years to produce one graduate from a public institution, compared to 7.1 years at the end of the 1970s.
- FTE student teacher ratios in public institutions are 10.8:1 and have decreased slightly since 1981.

In short public funding declines were offset by cost recovery and revenue diversification in public institutions. The quality of instruction and research at public institutions, which was historically high by Latin American standards, has not suffered. The reform measures clearly prevented quality declines which might have occurred if the public system had been allowed to expand rapidly. Despite significant cost recovery (combined with student support schemes – scholarships and loans), the system as a whole has not become more inequitable. A portion of the public funds saved have gone to primary education.⁶

Higher education in Chile still faces a number of unresolved problems. One problem is that of relatively low internal efficiency, in terms of high dropout and repetition rates, at many of the public institutions. Despite competition, there is no evidence that staff are better deployed in public institutions. There are high default rates in the student loan scheme and it is still not available to private institutions. Further reform in Chile may need to focus on changing the funding formula to explicitly encourage increased efficiency in terms of graduation rates and faculty utilization, as well as to strengthen and reformulate the loan program.

A final issue of concern, which is currently being addressed, is the low quality of many new private institutions and programs. In the first place these institutions are excessively small. Of 40 private universities, only five enroll 1000 students or more. These five account for 68% of the sector's total enrollment. Most of the other private universities have less than 500 students. Private university teaching bodies suffer from lack of objective, merit-based criteria for the recruitment of academic staff, lack of a core group of full-time academic personnel, high turnover rates of faculty, the absence of an academic career structured according to the needs of the institutions, inadequate working conditions, and the lack of library, laboratory facilities and equipment support for academic work. These institutions are also inadequately accredited. The procedures up to 1990 involved prior approval of the new institution's teaching programs by a public sector institution freely chosen by the private institution. After satisfactory completion of a trial period under the aegis of the public institution, the new private institution automatically gained its full autonomy. However, some of the examining public institutions were weak, there were no public assurances that academic standards are being achieved, and the "commercial" arrangement between the two institutions did not encourage objectivity.

Under a new law passed in 1990, a public, autonomous body—the Higher Council of Education (HCE)—has been set up, with two major functions: to accredit new private universities and PIs; and to approve the core national curriculum for primary and secondary education. To encourage improved

⁶ It was never stated that an objective of the reform was to shift funds to lower educational levels. In fact the initial proposals assumed that support for higher education would significantly increase in real terms through a vastly expanded loan scheme and "best students" formula funding. At the same time the Government did explicitly state that support for basic services, including the lower levels of education, should increase.

quality, the accreditation procedures set up under the 1990 law provide a licensing system for the establishment of new private universities and PIs centered around the approval of both an institutional project and the career-programs that will be offered. After a minimum period of six years, the HCE can declare the full autonomy of a private institution. The long term objective is to encourage quality improvement of private institutions through a systematic, objective review process. A recent strategy to increase quality has been to permit private institutions to compete for public funding under the "best students" formula. However, as yet private institutions are not eligible for student loans, which, properly managed, could be another form of indirect subsidy encouraging improved quality.

Brazil: Starting the Reform Process

Reform of higher education in Brazil starts from a different point than in Chile and with a different emphasis. In the first place in 1968 Brazil's Government made an explicit decision to encourage the growth of private education and to restrict access to public institutions, which were to be the high quality end of the system. This decision is reminiscent of Chile's decision in 1980. Since that time enrollment has increased rapidly in private education, which now accounts for 60% of enrollment. Like Chile, Brazil has benefitted enormously from this decision through being able to provide increased access to higher education without increases in public funding.

Brazil's 1968 reform, however, did not pay attention to issues related to financing of public institutions, and to autonomy, accountability, governance, and equity. The result is that Brazil's public education system, especially the federal institutions, is excessively expensive. In fact the unit costs in Brazil's federal higher education system, estimated at US\$7930,⁷ are among the highest in the developing world, a result of low student staff ratios and high administrative costs. This figure is five times higher than the costs of most private institutions in Brazil, twice as high as the costs of the two best private institutions, and significantly higher than the two institutions run by the State of Sao Paulo, which are arguably the highest quality universities in Brazil. Enrollment in federal institutions has been static since 1980 while faculty and non teaching staff have increased significantly, at the same time that these institutions have under-utilized physical facilities. The result is that, despite the fact that only 40% of enrollment is in private institutions which receive very little public subsidies, 75% of the financing of higher education is public. Furthermore free tuition in all public institutions has exacerbated the always troubling issues of inequity in public expenditures in higher education, especially considering that the socio-economic status of students in the public institutions is on average higher than in the private institutions.

Finally Brazil's higher education system is still excessively based on the concept of the large multi-purpose university linking teaching, research, and extension, in spite of the fact that only a few institutions are able to successfully meet these objectives. Brazil has only a fledgling system of short course post secondary technician training.

Brazil's public education system has neither autonomy, since the Government excessively manages and mandates most higher education undertakings, nor accountability, since, with the exception of graduate education, there are no systems of financial or qualitative assessment. Funding of federal institutions is on a negotiated, incremental basis, with no built-in incentives for improved efficiency. The federal government sets all personnel policy, including recruitment, promotion, and salary levels, much

⁷ About US\$6000 if the costs of university hospitals and of pensions are excluded.

of which is encoded in the "law of isonomy" passed in 1987. While rectors are officially selected by the Minister of Education, between 1985 and 1991 generally only those candidates with the highest votes in an open election were selected. The rectors often have little power and inadequate expertise to manage their institutions.

The Federal Council of Education (CFE) establishes minimum curriculum for all courses, which covers 94% of the total of credits needed to obtain a diploma. The CFE, charged with authorizing new private institutions, makes such authorizations on the basis of unclear and subjective criteria including "labor market demand." Regulations are such that diplomas are the entry points to most professions, thus encouraging excessive "credentialism." Brazil's large private sector is of great importance and varies from high quality institutions to "diploma mills". However public policy currently discourages quality improvement of private institutions through tuition controls, regulation of professions, and inadequate programs of assessment and certification.

By 1990 budgetary pressures brought about by the overall compression in government spending, an increasing public impression that large public expenditures were not resulting in an adequate return in terms of the quality and quantity of graduates, a growing realization of the impossibility of improving quality under the current system, and continuous strikes by faculty and students, had put Brazilian higher education in crisis. A new team of reformers in the Ministry of Education (MEC) took office in late 1991. This team was unusual in the Brazilian context because of its high degree of technical competence. The team began to put forth a comprehensive package of reforms, designed to make Brazil's higher education system more efficient, effective and equitable, to improve the quality of output, and at the same time to reduce unit costs of federal higher education. The reform especially sought to change the relationships of Government to public and private institutions, through establishing new systems of autonomy, accountability, evaluation, certification, and financing of both public and private institutions. As in Chile, the reforms sought to change the financing role of the state so as to increase equity and efficiency.

With regard to the financing of federal higher education, the reformers in the Ministry of Education (MEC) had as their long term objective the provision of financial autonomy to federal higher education institutions, as a means of ensuring that institutions operate efficiently and effectively. The main instrument of financing would be a funding formula explicitly encouraging higher student teacher and student staff ratios, reduced student dropout, more rapid completion of degree studies by students, more highly qualified staff, and an initial decrease in unit costs of 25% to be achieved through increasing enrollment in public institutions. The funding formula, summarized in Annex 1, Chapter III, is a sophisticated adaptation of the formula used in the Netherlands. Formula funding would break the culture where accountability is absent, since institutions themselves would have to make trade-offs among elements such as salaries, maintenance and equipment. The formula would be a dynamic instrument, changing over time. Institutions would be subject to audits to ensure the reliability of the statistical reporting which forms the basis of the formula.

Through early August, 1992, MEC used its formula to allocate portions of the discretionary funds directly under its control. In 1993, it planned to allocate all of these funds (about 10% of the higher education budget) on the basis of the formula. Based on the formula, by mid 1992, a number of institutions had already moved to increase enrollments (many through night classes that facilitate access for lower income students) and to increase staff qualifications.

MEC also introduced several laws that would make higher education institutions "autonomous public institutions" not subject to normal civil service regulations. Parallel to this, MEC was seeking to permit all federal institutions to establish private foundations under their control as a means of giving them further flexibility to seek new sources of funding and to provide additional services to government and industry.

Over the long run, MEC was seeking to replace the law of "isonomy", which provides a single salary and promotion policy for all higher education teaching staff, as well as civil service protection, with a new system under which teaching and non-teaching staff would be employees of the institutions where they work. In principle, this would allow institutions to develop differentiated programs and to manage their funds more effectively. Because of possible opposition from the key groups affected, passage of legislation of this sort would be difficult and time consuming. As an intermediate measure, a law which establishes a "floor" for salaries which higher education institutions could supplement with their own funds was submitted to Congress. On this basis MEC hoped to enable institutions to be free to establish their own set of salary incentives. Passage of laws on financial autonomy and on isonomy would be essential for the funding formula to have its full effect on institutional decision making.

MEC also initiated work on a long term plan for evaluation and certification of undergraduate higher education institutions and programs, to be mainly carried out by peer review committees. The main objectives of the program would be to provide publicly available information on the quality of public and private institutions, so as to help inform students' decisions on attendance, as well as to partially tie public funding to the results of these evaluations, as a means of encouraging improvements in quality. MEC would begin with evaluations of medical education followed by teacher education.

MEC also sought to reform the student loan program. In contrast to Chile, the loan scheme is available solely to students attending private institutions. Similar to Chile, it has suffered from a combination of high subsidies and defaults and has had the effect of supporting the lowest quality private institutions. The objective of the reform was to ensure that federal funds could assist the largest numbers of students at the lowest cost to Government and to utilize loans as a cost effective means of encouraging increased quality in the private sector, through setting quality-based criteria for loan eligibility. The public subsidy would be reduced and repayment would be on an income contingent basis. In May 1992 Congress passed a law making MEC responsible for establishing the regulations for the student loan program, and mandating a minimum of US\$50 million per year for the program. This was a major step forward, since it meant that the loan program could be integrated into national higher education policy.

MEC planned to introduce legislation to deregulate a large number of professions, with the exception of the traditional areas of health services, law, structural engineering, teaching and accountancy. Deregulation would help to end the pervasive "credentialism" of higher education. Professional associations were expected to oppose vigorously these proposals. MEC was also planning to introduce legislation leading to indirect election of rectors through election by the university council.

Many of the laws and regulations described above would encourage institutions to diversify their sources of income. For example, financial autonomy would free institutions from excessively strict civil service regulations. Current regulations, for example, do not permit institutions to deposit funds into interest bearing accounts, which is fundamental in a high inflation economy. The establishment of private university-associated foundations would also encourage diversification of income. Permitting institutions to use their own funds to top off teachers' salaries would also function as an incentive for universities to seek additional sources of revenue. Implementation of the funding formula would make institutions

more aware of the trade-offs in expenditure categories and would encourage them to reduce subsidies in the provision of food and other ancillary services. The Government was also considering a matching grants program to further encourage private sources of funding for public institutions.

Finally, over the period 1991-92, MEC reformers floated numerous ideas on ways and means of asking students in public institutions to pay for a portion of their education, either now or in the future. These included a "parent" tax, a graduate income tax, and encouraging institutions to charge for miscellaneous services such as diplomas or parking. Another idea, currently being implemented in one state, was to establish a fund which better off students would have to contribute to, but which would then be used to support needy students attending the same institution. Given the political uncertainties, and in order not to jeopardize the implementation of the other reforms, the reformers at MEC were not immediately seeking a constitutional amendment which would permit the charging of tuition in public institutions. They expected to seek such changes in a year's time, when the entire constitution would be revised.

The reform program thus put forward was significant. Its focus was to improve the efficiency and effectiveness of the current public intervention in higher education. The strategy was to provide institutions with greater autonomy and to introduce new mechanisms of accountability, especially through implementation of a new funding formula but also through related programs of evaluation and assessment. The funding formula would promote efficiency, while the student loan program would be used to promote equity as well as quality in private institutions.

In mid 1992, Congress as well as the informed public, were becoming increasingly convinced of the importance of higher education reform, and the prospects for implementing many of the reform proposals were good. Unfortunately the resignation in early August 1992 of the Minister of Education and his team, for reasons unrelated to the reform effort, temporarily stopped the reform process.

Venezuela: the Need for Reform

As noted above, Venezuela has seen a vast expansion of the higher education enrollments from 1960 to 1990, and now enrolls 26% of the school age population. 80% of its enrollment is public, and tuition is free. While there is a national entrance examination, there is essentially open access to the lower quality public institutions while access to the three or four higher quality institutions is available only to those students who score highest on the examinations.

Besides this vast expansion, Venezuela has had a number of other successes. To a larger extent than other systems, Venezuela has channeled more expansion into lower cost, shorter length technical institutions. 800 graduate education programs enrolling 15,000 students have been established. CONICIT, the science funding agency, appears to be a well operated and functioning agency providing research grants on a competitive basis and the Government is acting to increase its investment in R&D significantly.

Nonetheless, as in Brazil, there is now a general perception of declining quality in the public higher education system, an apparent result of a demoralized academic staff, declining salaries, poor and overly politicized management, inadequate investment in libraries and equipment, and turmoil in the form of strikes and protests by students and faculty.

To a great extent the current problems are a result of decisions taken in the 1960's, 70's, and early 80's, when the Government vastly expanded the public higher education system. As the large amounts of funds from the oil boom gradually disappeared, the only way Government could hope to achieve these two goals simultaneously was to increase the amount of public funds going into the system to the detriment of lower levels of education and other social programs. As a result Venezuela now devotes 35% of its education budget to higher education, a figure which, along with Costa Rica, is the highest in Latin America. In short Venezuela took exactly the opposite policy decision, with regard to public funding of higher education, that Brazil took in the late 1960's and Chile took in the early 1980's. The Government now finds itself unable to support a large public system, little or no tuition, and the semblance of quality in a few of its public institutions.

While unit costs in the public system are comparable to public system in other Latin American countries, only 26% of all entering students eventually graduate. Overall the public system requires on average 16 student-years per graduate, compared to about six student years for private institution graduates, and nine years for Chilean public institutions. Thus the costs per graduate are far higher than they should be because of the inefficiency of the system. Low internal efficiency is caused by two factors: a relatively open admissions policies, and weak university administration which is unable to establish or enforce rules on student attendance and failure.

The combination of relatively open access to public institutions, provision of free tuition, and subsidized food and transport means that a broader socio-economic group in Venezuela compared to Chile or Brazil is able to attend higher education, especially the public institutions. However, higher education continues to serve a relatively elite group, in part because of inadequate quality at the lower levels of the education system. About 30% of higher education students are in the "worker" and "marginal" category, compared to 80% in the general population. The result is that, in Venezuela as in Brazil and elsewhere, the population as a whole is paying for the full costs of a relatively privileged class which will benefit monetarily from higher education. Free public education also encourages students to continue their studies, thus contributing to the inefficiency of the public system.

Venezuela's public system also suffers from a poor budgeting system which further encourages inefficiency. Like Brazil, its budgetary allocations are based on ad-hoc judgments, proportional increases and political bargaining. Other elements in the financing system which are counter-productive include, as in Brazil, the requirement that salaries are the same for all teachers throughout the system, as well as a system of early retirement which results in universities losing their best staff at the time of highest productivity.

In 1991 and 1992, the Government began to discuss on a tentative basis a number of possible reforms. In particular, there were initial discussions on developing a formula basis for funding which might have a modest impact on efficiency. The proposed formula was designed to encourage the full complement of student teacher contact hours, as well as mandate specific amounts to research and to library and other support services. There was also a growing tendency to restrict the intake of new students at public institutions. There was as yet no significant public discussion on cost recovery in public institutions.

A more radical reform agenda for Venezuela, similar to that of Chile or Brazil, should focus first and foremost on the changes in the financing of higher education. Efforts should be made to increase the private financing of higher education and reduce the excessively high burden on public funds. The most straightforward reform would simply be to charge tuition fees to all students and then to expand a

loan and scholarship scheme for the neediest students. Venezuela has a number of fledgling student loan schemes which could be built on. However, in Venezuela as in most of Latin America, the long tradition of free public education makes cost recovery in public institutions difficult in the short run although nonetheless necessary in the long run. A less immediately painful option for increasing private financing of higher education would be to restrict enrollment in the public system and thus encourage the growth of private education. This is already happening in Venezuela because of public financial constraints. Through this policy the public system would increasingly focus on higher quality, graduate and research oriented education; and the current loan schemes would be strengthened to help support the neediest students attending private institutions.

The second part to a reform agenda, similar to that contemplated in Brazil, would be to change the way government funds public institutions, through implementing a funding formula designed to encourage improved quality and efficiency, enhance faculty performance and encourage self-assessment. This formula could be based on how the Government estimates the system should cost rather than on how higher education institutions would like to spend such funds. In particular, in the Venezuela case, formula funding should include a parameter based on the number of graduates of each institution, rather than enrollment, so as to create a strong incentive for improved internal efficiency. Other criteria could be based on performance and efficiency in the use of resources, and safeguards could help ensure that institutions do not arbitrarily award degrees to get increased funding. In addition institutions could compete on an open basis for some portion of funding which could be held back and awarded on the basis of innovative or particularly cost-effective programs. The result of increased internal efficiency could be a much lower cost per graduate as well as increased social and private return to investment in higher education. Along with funding mechanisms based on formulas, contractual arrangements, student fees and other similar provisions, Venezuela would need to expand its utilization of institutional self-assessment procedures and the use of external evaluations and accreditation.

CONCLUSIONS: THE NEW ROLE OF THE STATE

The reforms undertaken in Chile and under discussion in Brazil seek to increase diversity, strengthen autonomy of public institutions, increase accountability of all higher education institutions, increase access and equity, and encourage quality improvement of all institutions. The objective is to develop higher education systems better able to meet the demands of the twenty first century.

To meet these goals the reforms radically change the relationship of the state with higher education institutions. The role of the state as a financing agent is reduced and additional private resources are mobilized. To mobilize private sources, tuition charges are established or increased to cover a large portion of the teaching costs of undergraduate education in public institutions, and public enrollments are restricted so as to encourage the growth of the private sector. Increased private funding results in incentives for efficiency and helps provide labor market signals to institutions regarding appropriate courses and methods of instruction. It also protects them from the vagaries of excessive dependence on the state.

The financial relationship between the state and higher education institutions is also changed. In the past Governments directly funded institutions and negotiated increments on the basis of political bargaining. In the reformed system, government support of institutions is provided on the basis of formulas designed to encourage action by institutions to meet mandated goals of increased efficiency, quality, or equity. Government support also increasingly focusses on the areas within higher education such as research and graduate education, which have externalities in terms of encouraging economic

development, and on institutions in backward or underdeveloped regions. Financial support is provided increasingly through open competition based on peer review, especially for research. In addition a significant proportion of government funds are provided directly to students or on a student basis. Support mechanisms include scholarships (or vouchers) on the one hand, and loan programs to encourage individuals to make investments in their human capital and enabling them to pay for that investment when they are reaping its benefits. Subsidizing students through scholarships and loans rather than directly subsidizing institutions means that Governments place greater choice of institutions in the hands of students, with possible encouragement of increased cost efficiency of higher education systems.

With regard to governance and oversight, Governments in the past strongly intervened in the operation of institutions, directly mandating expenditures, enrollments, courses, staffing patterns and salaries. The new role of the state is to operate at a distance, establishing the rules by which a diverse set of institutions operate and relate to the overall objectives of the higher education system, including setting clear rules governing the establishment of new institutions, which give them the autonomy to make judgments about how to use their resources efficiently to undertake their instructional and research tasks. At the same time Governments develop indirect mechanisms to ensure accountability. These include not only funding mechanisms which tie resources to the quantity and quality of different activities and which also make awards on the basis of open competition, but also strong mechanisms to openly and publicly assess and evaluate institutions and programs.

Chart 1 summarizes progress and proposals in Chile, Brazil, and Venezuela in relation to the above. Chile has gone the farthest. It has diversified the sources of funding, through increased private sources of financing, and has devised funding mechanisms which explicitly encourage national goals of efficiency, quality, equity, and relevance. The Chilean Government has moved away from direct involvement in the affairs of individual institutions, at the same time providing a coherent framework with clear roles and responsibilities linked in a system of public accountability and with a variety of incentives for improved quality and efficiency. Chile still needs to develop funding mechanisms to encourage internal efficiency in publicly funded institutions and to improve quality in the private sector through programs of accreditation and assessment. It also needs to strengthen and redirect the loan program. Nonetheless, because of its reform program Chile's higher education system is arguably the most stable and effective in the region.

Brazil's proposed reform program is at least as ambitious as Chile's was. It goes further than Chile by proposing to set up a sophisticated funding formula for public institutions explicitly designed to encourage increased efficiency and to lower unit costs, by proposing income contingent loans and to use the loan scheme to encourage quality in private institutions, and by setting out to deregulate professions. Similarly to Chile the Brazilian reform seeks to link financing reform to expansion of access to higher education (in this case, to the public system). While there have been setbacks, critical areas of Brazilian society appear to be reaching a consensus on the need for reforms of this type. The key step will be to reinforce the technical capacity of MEC and to reduce its traditional political patronage role.

Venezuela has a more difficult task ahead than Brazil in implementing reform. It begins with a public dominant, tuition free system, enrolling a very high proportion of the school age cohort, leaving little leeway in terms of increasing access as a means of ameliorating any cost recovery measures.

Chart 1.
HIGHER EDUCATION REFORM IN CHILE, BRAZIL AND VENEZUELA
Summary of Policies

POLICY AREA	CHILE		BRAZIL		VENEZUELA
	Before Reform	After Reform	Before Reform	Proposed Reforms	Before Reform
Financing Sources					
Tuition in Public Institutions	None	28% of expenditures	None	Proposed, no figure given	None
Enrollment in Private Institutions	None	52% of enrollment	60% of enrollment	No change expected	22% of enrollment
Financing Means					
Direct Institutional Support	Negotiated	Based on per student estimates	Negotiated	Formula-based to encourage efficiency and quality	Negotiated
Loan Schemes	None	Large coverage, but large defaults	In operation, but highly subsidized	Reduced subsidy, expanded coverage, to be used to encourage quality in private institutions	Minimum coverage, highly subsidized
Research Support	None	Open competition and peer based awards	Direct institutional support and also open competition	No change	Direct institutional support and also open competition
Diversity	Low	High	High but few short courses in technology	No change	High
Autonomy of Public Institutions	Low	High: institutions fully manage their own budgets	Low: government controls salaries, budget levels, and enrollments	High: institutions would determine salaries, working conditions and enrollments	Some autonomy in budgeting but teacher salaries, conditions of work, and enrollments are centrally determined
Accountability of Public Institutions	Little	Evaluation system to be set up. Some funding based on quality of entering students	None	Funding formula will reward efficiency and additional funding will be made available on the basis of institutional evaluations	Little
Quality Improvement of Private Institutions	None	Accreditation system operating and being improved	None. Tuition controls and loan scheme discourage quality improvement	Loan scheme and evaluation system to encourage quality	None, except for initial recognition
Credentialism	Professions highly regulated	Some deregulation reported	Professions highly regulated	Deregulation proposed	Professions highly regulated

Nonetheless even in Venezuela the long term prognosis is hopeful. Leaders in Venezuela, as well as in Chile and to some extent in Brazil have shown considerable talents in implementing radical economic reforms. The task now is to direct these same skills towards the social sectors.

The path to higher education reform lies through dialogue and negotiation, rather than Government decree and imposition, as was the case in Chile in the early 1980's. To achieve reform on this basis will require a firm grounding in higher education facts and figures, and a national debate on higher education reform, through the newspapers, radio and television, conferences and reports, designed to mobilize key opinion leaders. This is already happening on a large scale in Brazil and Chile. International support may well be helpful here as leaders of other educational institutions inform and describe their experiences. The key stake-holders—students, teachers, businessmen, politicians, will need to be convinced that reform is to their long term benefit; and important potential stake-holders who have been silent up to now, such as primary and secondary school teachers and parents who theoretically might benefit from cost savings in higher education, will need to be brought into the picture.

Reform efforts will need to be structured so that all parties feel that they gain something. For example tuition fee increases will need to be accompanied by at least partially offsetting programs, such as well managed, expanded student loan and scholarship programs, as well as increased access to high education, and a large portion of tuition revenue at least initially could remain within higher education institutions. New funding formulas will need to include explicit financial rewards to the most efficient and productive institutions.

Overall reforms in higher education such as those described above would result in gains for all elements of society. Government could gain through reducing its financial burden and redirecting funds on the basis of equity and efficiency. The academic community could gain through improvement in conditions of work and through rewards for quality. Students could gain through increased access to a variety of higher education institutions through expanded loan schemes. Finally society as a whole would gain through more agile and differentiated institutions able to respond to changing economic and social needs. As key opinion leaders become increasingly aware of these potential gains, the issue in Venezuela and Brazil, as perhaps in all of Latin America, will no longer be whether reform will come, but when.

HIGHER EDUCATION IN CHILE

EFFECTS OF THE 1980 REFORM

José Joaquín Brunner and Guillermo Briones

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INTRODUCTION¹

Arguably the most radical reform of higher education was implemented in Chile beginning in 1980. Basic features of Chilean Higher Education (HE) were drastically altered by the 1980 Reform, most notably that in order to rapidly expand access, market oriented strategies were applied to the higher education system. An important feature was to increase the mobilization of private resources through cost recovery and the rapid promotion of private institutions. Given the pressure on many countries to adopt similar reform programs, this paper examines the impact of the reforms ten years after their implementation.

This paper is divided as follows. In the first part, the system prior to reform is outlined, along with a synoptic recapitulation of the Reform's primary objectives. Second, the major system level effects of the Reform will be examined, particularly in terms of the distribution of: *establishments*, their size, tier and sector affiliation, and regional distribution; *enrollment* growth and its distribution by tier, sector and field of study; and finally changes in HE *funding*, public expenditure and institutional financing. A third section will examine the issues of quality, efficiency and equity as a consequence of the 1980 Reform. In this place a more detailed analysis of outcomes is intended based on two principal sources: (i) official information and secondary data as well as the analysis of results obtained from previous studies; and (ii) new information on specific quality, efficiency and equity issues produced on the basis of data analysis and a brief case study that was conducted for this study during the spring term of 1991. A final section briefly outlines outstanding issues and planned reforms in the upcoming years.

THE OBJECTIVES OF THE 1980 REFORM

Prior to 1980, Chile's Higher Education system was relatively small, homogeneous and exclusively public.² The system consisted of one tier and one sector, comprising 8 universities: 2 state and 6 private universities (3 Catholic and 3 non-confessional universities), all funded by the public treasury. Henceforth, these 8 institutions will be referred as the "traditional" or "old" universities, following the local convention. Within each institution, the undergraduate level was clearly predominant. In 1980, only 1% of total enrollment corresponded to the postgraduate level (Table 1).

All higher education institutions were legally recognized as self-governing bodies with no administrative dependence from Government. Universities were entitled to freely initiate schools and careers and extend professional titles and academic degrees. But in 1973, shortly after coming to power, the Military Government directly intervened in university affairs, imposing tight control over the universities and invalidating their self-government powers. In addition, faculty associations and student

¹ Paper prepared for the World Bank with the partial support of the Regional Project on Higher Education Policies in Latin American which is funded by the Ford Foundation, Facultad Latinoamericana de Ciencias Sociales (FLACSO), José Joaquín Brunner and Guillermo Briones, Chile, January 1992.

² For a more detailed overview see Brunner, José Joaquín, Informe sobre la Educación Superior en Chile. FLACSO, Santiago de Chile, 1986

bodies were prohibited. Universities underwent what was euphemistically labelled a "deputation" process.

Higher education institutions received public support on the basis of incremental funding. That is, the annual budgets at institutions were based on previous budget allocations and a distribution formula loosely arranged according to institutional size, enrollments and additional costs originated by research and postgraduate programmes. In addition, no general higher education law existed. But new universities had to be established with the Government's understanding, thus securing public funding and the legal validity of their educational certificates.

Free of charge HE was the norm but selective admission was enforced on the basis of the compound result of students scores in a national standardized academic test (*Prueba de Aptitud Académica, P.A.A.*) and their secondary school performance.

Table 1
Summary Statistics of Higher Education in 1980

Number of HE institutions	8
Enrollment in 1980:	118,978
State universities	63 %
Private universities (with public funding)	37 %
Postgraduate enrollment (Ph.D. and MA)	1,200

The Scope and Objectives of the Reforms

The reforms implemented in December 1980 aimed at a radical overhaul of the higher education system, to introduce market forces, to increase the efficiency and responsiveness of institutions to economic demands. In addition, the system was to be expanded rapidly via the harnessing of private, rather than public resources.

The reform was to be radical in nature. According to the Cerych & Sabattier model for analyzing HE reforms³, there were five outstanding characteristics. The degree of system change envisaged by the Reform was high, affecting the boundaries of the system itself as well as all institutions. Second, the scope of intended changes was inclusive, affecting practically all individuals within each institution and potential actors outside the system. Third, the depth of the Reform itself led to the adoption of radical policies. Policy goals strongly diverged from existing values and practices of HE. Fourth, the goals of the Reform were clearly stated and had internal consistency. And finally, changes were brought about by central edict, from top to bottom and through bureaucratic enforcement. B.Clark's assertion on the feasibility of authoritarian reforms in HE perfectly apply to the Chilean case: "Of course, in systems

³ See Cerych, Ladislav & Sabattier, Paul, Great Expectations and Mixed Performance. The Implementation of Higher Education Reforms in Europe, European Institute of Education and Social Policy, Treatham Books, 1986

under authoritarian or totalitarian rule, the centralization of authority and the central concentration of administration allow more manipulation from above and on a large scale".⁴

A brief caveat is here in order. Chile's HE system was reformed under special and very harsh conditions, due to the existence of an authoritarian Military Government. Institutions had to endure the changes envisaged by the reformers without having the opportunity to intervene in the process nor to negotiate its outcomes. Authoritarian minded reformers will probably say that only because of this could system-wide changes be brought about and that reforms need not be assessed by the context in which they took place nor by the political conditions that lay behind or made them possible. Reforms, they will argue, should only be evaluated in terms of their actual outcomes and more general effects on society. In turn, those who experienced these changes without any possibility of resisting or discussing their aims and implementation procedures will probably find it more difficult to reflect upon these changes and have less confidence in the blessings of supposedly efficient-authoritarian rule. In short, one should not forget that under these special conditions, the cost of reforms must also include the shattered hopes and the repression suffered by those would not yield.

Together with the legislative and policy measures that were adopted to direct the future of HE, the Military Government disclosed the main purposes of the 1980 Reform. Its primary objectives can be summarized as follows:⁵

To open-up access to HE. Deregulation was announced as a way of promoting "private initiative" in the organization of new institutions. Only minimal requirements were established for the creation of private institutions. It was stated that, from this moment on, expansion of HE enrollment should be taken care of by private institutions.

To diversify the institutions in the HE system. Three vertical tiers were established, based on a functional hierarchy of educational certificates:

- **Universities:** expected to focus on long cycle undergraduate programmes leading to *licenciaturas* and to professional titles requiring a *licenciado* degree. Only universities can initiate postgraduate programmes.
- **Professional Institutes (PIs):** are restricted to four year programs leading to professional titles defined as not requiring the *licenciatura*.
- **Technical Training Centers (TTCs):** are restricted to short cycle (two year) vocational programs leading to technical certificates.

⁴ Clark, Burton, "The Organization Conception" in B. Clark (ed.), Perspectives on Higher Education. Eight Disciplinary and Comparative Views, University of California Press, 1987, p. 125

⁵ The 1980 Reform legislation is contained basically in: Decreto Ley N° 3.541 de 1980; Decretos con Fuerza de Ley N°s 1,2,3, de 1980; Decretos con Fuerza de Ley N°s 4,5,22 y 24 de 1981. For a detailed discussion see Brunner, José Joaquín, "La Educación Superior en Chile: 1960-1990. Evolución y Políticas" (FLACSO, manuscript) 1990, and Cox, Cristián & Brunner, José Joaquín, "Políticas Públicas de Educación Superior en Chile durante el Régimen Militar: Generación, Ejecución, Resultados" (FLACSO, manuscript), 1991

To reduce the institutional power of the two traditional state universities. Both the Universidad de Chile and the Universidad Técnica del Estado (later Universidad de Santiago de Chile) were forced to give up their regional centers which —through a process of institutional amalgamation— gave birth to 12 new state universities and to two state PIs. From the Government's point of view, the contraction of these two universities was justified as a way of rationalizing them and making them manageable.

To partially transfer the cost of state-financed institutions to the students and/or their families (cost recovery) and to force these institutions to diversify their funding sources. In addition to cost recovery at publicly funded institutions, the emphasis on promoting private higher education also shifted the burden of finance to private sources. New private institutions are dependent on resources obtained from tuition fees. (In fact, income derived from tuition fees covers part of the capital investment in these institutions also).

To increase competition among institutions, with the aim of promoting efficiency and quality, incremental budgeting to institutions was replaced by a more competitive funding mechanism. Institutional support (*aporte fiscal directo*) was confined to the 8 traditional universities and the 14 new state-institutions. In all these establishments core funding would now have to be supplemented through institutional self-financing: tuition fees, competition for research funds, and contract funding. A small amount of public funding was linked to a "best-students formula" (*aporte fiscal indirecto*), based on the number of the best 20,000 scorers in last years P.A.A. enrolled by each institution.⁶ In addition, a Government financed student-loan scheme (*crédito fiscal universitario*, later designated *pagaré universitario*) was introduced. Lastly, the civil-servant status of academic personnel pertaining to state institutions was eliminated, thus enabling universities to differentiate salaries and compete for faculty staff. In addition, a publicly financed National Research Fund (*Fondo Nacional de Desarrollo Científico y Tecnológico, FONDECYT*) was set up. Researchers were called upon to contend for funds in a yearly competition under peer-review control.

No public funding was visualized for new private institutions, but for one exception: as of year 1989, they can compete for "subsidy-carrying students" (the 27,500 "best and brightest"). Students enrolled in (new) private institutions have no access to subsidized loans. Finally, private grants to both private and state universities were stimulated through specific tax deductions.

Table 2 provides a summary of these changes.

⁶ This figure was later broadened to include the best 27,500 scores.

Table 2
Summary of Higher Education System Before and After Reform

BEFORE 1980	AFTER 1980
1. One tier, one sector: low institutional differentiation	1. Three tiers, two sectors: high institutional differentiation
2. No tuition but selective access according to school performance and achievement in national standardized academic test	2. Tuition fees are charged by all institutions. Selective access is maintained in the subsector that receives institutional public funding. In the private institutions: open access according to and/or family income
3. State financing of HE on the basis of incremental funding	3. Multiple competitive sources of funding
4. System coordination provided by State authority and institutional oligarchies.	4. System coordination provided by markets and policy regulations.

SYSTEM LEVEL EFFECTS OF THE 1980 REFORM

At the system level, the main outcomes of the policy and legislative measures adopted can be seen as a series of structural shifts that have taken place during the last 10 years.

From low to high system differentiation

A relatively small scale HE system, with a total enrollment of approximately 119,000 students distributed in 8 universities with a common funding mechanism and a similar development pattern—modelled according to the ideal of all becoming "comprehensive universities" covering a wide array of discipline and/or profession-based faculties (*facultades*) and both research and teaching functions, has developed into a system with a total enrollment of about 250,000 students distributed in 310 different establishments. Institutions wildly vary in size, function and core values, and each one adopts a development pattern adjusted to its mission-definition and market orientation. Thus institutional homogeneity has been replaced by system heterogeneity. In 1990, Chile's HE system included two major sectors (i.e., a public sector of 20 universities and 2 PIs with public institutional funding and a private sector consisting of new institutions with no public funding, distributed along the three vertical tiers). The growth in the number of establishments by tier and sector is shown in Table 3.

Table 3
Chile: Development of HE institutions, 1980-1990

Institutions	1980	1985	1990
Universities	8	21	60
With public funding	8	18	20
New private, no public funding	-	3	40
Professional Institutes	-	25	82
With public funding	-	6	2
New private, no public funding	-	19	80
Technical Training Centers	-	102	168
With public funding	-	-	-
New private, no public funding	-	102	168
Total	8	148	310

Source: División de Educación Superior, MINEDUC, 1991

From a state subsidized selective system to open access according to achievement and income

Chile is the first Latin American country to have introduced a comprehensive and stringent cost recovery scheme for all HE students through tuition fees or the deferred payment of state subsidized loans. Whereas before 1980 students were admitted without charge to one of the 8 old universities according to their school performance and achievement in the P.A.A. (national standardized academic test introduced in 1967), after the 1980 Reform all HE establishments, both public and private, charge fees that are expected to cover the approximate direct cost of the given program adjusted according to market reputation of each institution. In practical terms, the 22 publicly supported institutions continue to sustain selective admission procedures. In addition, students are asked to pay tuition fees but those who can prove economic incapacity have access to state subsidized loans.⁷ Students enrolled in the private sector will be admitted regardless of their school performance and achievement on the standardized academic test so long as they pay the full price charged by each institution.⁸ The Government does not control the amount of fees charged by the institutions nor does it intervene in the process of fixing yearly adjustments.

From incremental budgets to a competitive funding mechanism

The total amount assigned to the 8 old universities, expressed as a share of GNP, rose from 0.72% in 1960 to 1.28% in 1970 and to 2.11% in 1972. After the advent of the Military Government and up

⁷ Only a fraction of those students who request loans will get them. See Sanfuentes, Andrés, "Comportamiento Universitario y Políticas de Financiamiento", in C. Lehmann (ed.), Financiamiento de la Educación Superior: Antecedentes y Desafíos. Foro de la Educación Superior, CEP, Santiago de Chile, 1990.

⁸ But a few of the new private institutions are now becoming more selective as a consequence of increasing demand and the competition for market reputation.

to 1980, the same allocative mechanism was maintained, but with decreasing amounts. In 1980, HE funding totalled 1.05% of GNP. Until 1980, Government allocations to the eight traditional universities were made on the basis of incremental funding, that is, the previous year's budget plus some increment. Such budgets did not necessarily relate to the activities at universities or their costs, nor were institutions given incentives for efficiency or quality.

After the 1980 Reform, Government allocations continued to fall and were drastically rearranged. From that moment on institutional core funding was restricted to the 22 public sector institutions. Overall, incremental funding was replaced by four different funding mechanisms:

- Public institutional funding (*aporte fiscal directo*), which is confined to the 8 traditional universities and the 14 new state institutions. But incremental funding as a way of allocating institutional core-funding was substituted by a formula consisting in diminishing public resources during a set period of time and, after that, the levelling of that amount over time.
- In addition, an increasing amount of public resources was tied to a "best-students formula", based on the number of the 27,500 best scores in last years P.A.A. enrolled by each institution (*aporte fiscal indirecto*).
- Publicly funded institutions were asked to charge tuition fees. A Government financed student-loan scheme was introduced to support cost-recovery (*crédito fiscal universitario*).
- A separate Fund (Fondo Nacional de Ciencia y Tecnología, FONDECYT) was established to finance research projects chosen after a peer review process on the basis of a yearly competition open to all researchers.

The funding of new private institutions was made dependent on resources obtained from tuition fees. HE institutions were encouraged to seek supplementary funding both from public and private sources through various means such as contractual funding, income for services and from private philanthropy.

From state-corporative system coordination to market-policy regulations

Traditionally, system coordination was provided by state authority and institutional oligarchies. In fact, as has been stated by B.Clark, "national systems not strictly organized as state systems are likely to depend heavily on the many ways that academic oligarchy can link persons, groups, and institutions. When institutions are funded mainly by Government, academics normally seek the privileged autonomy of a direct and unfettered lump-sum grant from the national treasury to the individual institution (...) with past commitments and budgets guaranteeing and adequate sum".⁹ This was precisely the way Chilean HE worked and produced system coordination until the 1980 Reform. The 8 old universities benefited from "privileged autonomy" – which came to an end in its self-governing features after the military intervention. In addition, they had received permanent Government support through yearly lump-sum grants, and produced their own self-administered ways and means of coordination, the most important being the Consejo de Rectores de las Universidades Chilenas (Council of Rectors) chaired by the Rector of the oldest institution.

⁹ Clark, Burton, p.140-41

The 1980 Reform radically altered these arrangements. System coordination was to be provided mainly by a social choice context "in which there are no inclusive goals, and decisions are made independently by autonomous organizations"¹⁰ which were called upon to compete for students, faculty and resources. Market-orientation became the catch word that was presumed to best capture the practical philosophy of the 1980 Reform, both for friends and foes alike. Additionally, system coordination was to come from regulations provided by policy orientations and the allocation of public money. Thus institutional leverage and the academic-oligarchic power of professors, deans and rectors were both curtailed by the Reform, with the expectation of changing the system's self-centeredness (its monopolistic features, as was claimed by the Military Government) and forcing its opening to society's demands as expressed through markets and diversified funding opportunities. In this context, "competition is seen as leading to value for money for the consumer and a diversity of products to suit individual demands. In broad terms, the public sector is seen as wasteful, inefficient, and unproductive, while the private sector is seen as efficient, effective and responsive to the rapid changes that are needed in the modern world".¹¹

INSTITUTIONAL AND OPERATIONAL EFFECTS OF THE 1980 REFORM

This section examines changes in the main functional variables of the Chilean HE system during the last decade as a result of the 1980 Reform. Modifications, mainly of a quantitative nature, produced in the following system components will be analyzed: institutions, their size, tier and sector affiliation, and regional distribution; enrollment growth and its distribution by tier, sector and field of study; and finally changes in HE funding, public expenditure and institutional funding. The following section will examine the impact on quality (including teaching staff and research), efficiency and equity.

Institutions

As a result of the reforms, the number of higher education institutions has rapidly proliferated. Both the breaking up of the two largest public institutions and the encouragement of new private education have significantly increased the supply of higher education. A group of 12 new public (state) universities and 4 PIs was created out of the "rationalization" imposed on the Universidad de Chile and the Universidad Técnica del Estado, the 2 old State-universities.¹² Most of these new State institutions are located in major cities outside Santiago, and their creation as autonomous institutions was supported by the local communities.

¹⁰ Ibid, p.137

¹¹ Walford, Geoffrey, "Changing Relationship between Government and Higher Education in Britain", in G. Neave and F. Van Vught (eds.), Prometheus Bound. The Changing Relationship Between Government and Higher Education in Western Europe. Pergamon Press, Oxford, 1991, p.169

¹² Only two state-PIs remain. The other two were incorporated into preexisting universities. The Instituto Profesional de Chillán was assimilated by the Universidad del Bío Bío and the Instituto Profesional de Valdivia by the Universidad Austral de Chile.

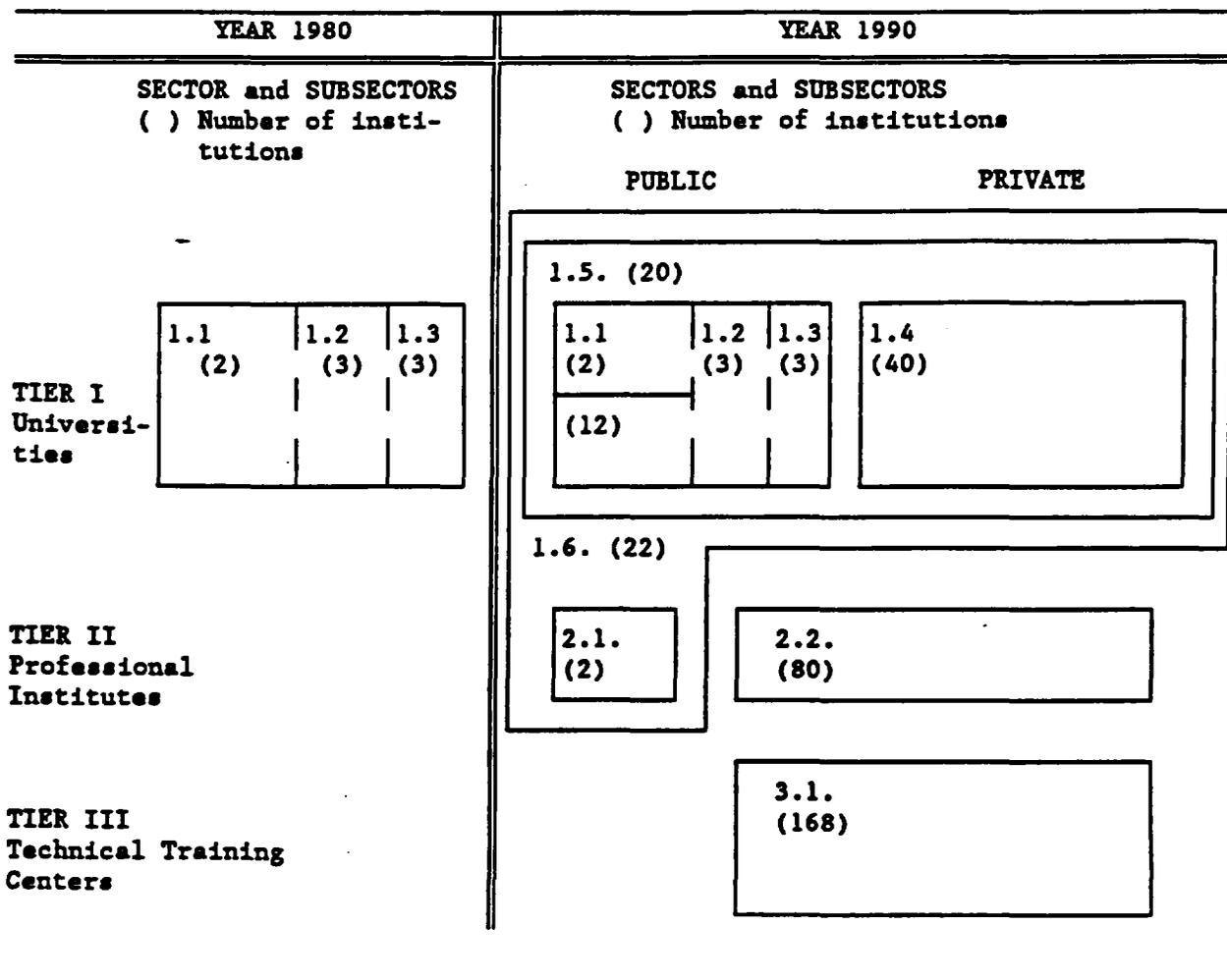
The founding of new private institutions was encouraged through a permissive licensing system. In fact, private universities could be established with the only obligation of offering at least three professional programs leading to different professional certificates selected out of twelve defined by law as previously requiring the obtention of a *licenciatura*.¹³

To ensure some quality standards, private universities and PIs were required to submit to a special examination procedure. Once officially authorized by the Ministry of Education, the new private institution must sign an examination agreement with either one of the traditional universities or one of the new state institutions. This agreement takes the form of a private, fee-for-service, contract without any intervention by any public body nor further Government control. In accordance with the examination agreement new private institutions must submit their teaching programmes for approval by the examining institution. During a period of 5 to 10 years students of new private institutions as well as the first five cohorts of graduating students must take their final examinations with a committee composed by faculty members from both the new and the examining institution. After satisfactory completion of the examination period, the new private institution will automatically obtain the status of a full autonomous university or PI. No additional accreditation and/or evaluation procedures were established, the underlying idea being that quality and efficiency were to follow from competition for students, teachers and researchers, and for public and private funds.

By Governmental decision, the two old state universities gave birth (eventually) to 14 additional (state) establishments. In addition, a total of 276 new private HE establishments have been officially recognized during the years 1980-1990. In effect, the shape of Chilean HE has changed dramatically, as shown in Diagram 1. New institutions were established more rapidly in Tiers II and III (i.e., in the non-university levels of HE), in part because the founding of new private universities was submitted up to 1987 to one additional prerequisite, involving a prior authorization by the Ministerio del Interior, that is, the Ministry in charge of internal affairs and security. This restriction, and not the socially more demanding expectations involved in the setting up of this type of institutions, explains the slow emergence of private universities during the first half of the last decade and the abrupt institutional explosion after 1987 (See above, Table 1).

¹³ This specification was later changed to the obligation of conferring one professional certificate out of a list of 15 defined by law as previously requiring a *licenciatura*. The latter correspond to the following careers: law, economics, psychology, medicine, odontology, engineering, forestry engineering, agronomy, chemistry and pharmacy, veterinary, biochemistry, architecture, primary education teacher, secondary education teacher, special education teacher.

Diagram 1
Changed Configuration of the Chilean HE System, 1980-1990:
Tier and Sector Distribution of Establishments



- 1.1. Old state universities (2) and their offsprings:(12) new state universities)
- 1.2. Old private catholic universities with public funding (3)
- 1.3. Old non-confessional private universities with public funding (3)
- 1.4. New private universities (40)
- 1.5. Sum total of universities with public funding (20)
- 1.6. Sum total of HE establishments with public funding (22)
- 2.1. PIs with public funding (2)
- 2.2. New private PIs (80)
- 3.1. New private TTCs (156)

The rapid increase in the number of HE institutions over a relatively short period of time had four major effects:

- The Chilean HE system has turned private-dominant in the non-university levels and now is dual public/private at the university level. Post-secondary, non-university HE is now a (private) market concern with a wide supply of different study opportunities.
- Establishments have grown more regionally dispersed thus enlarging access opportunities over the whole of the country, particularly in the non-university levels. Nonetheless, overall distribution of enrollment between the Metropolitan Region and the rest of the country has changed in the direction of a still higher concentration in the capital city, which in 1983 accounted for 49% of total enrollment and in 1990 for 51.2%.
- Supply of HE is now provided by a large number of small size private institutions and a few medium-size establishments. Appendix Table 1 shows the average enrollment by establishment in the different tiers and sectors. In the private university sector, the three largest of the new establishments account for 56.3% of total sector's enrollment.
- The rapid expansion of higher education capacity, however, may be exceeding the demand. The latter phenomenon is most intense at the non-university levels but can also be perceived in the private university sector. Thus, while in 1980 the ratio of new openings to first year enrollments in the 8 old universities was 100.0% in 1990 the ratio for the whole system is 59.0%. That is, there are more places available than there are first year students entering the system. But for each tier and sector, ratios differ: public universities 97.4%; private universities 69.6%; public PIs, 96.5%; private PIs 50.5% and TTCs 45.6%.¹⁴

Table 4
Chile: HE Supply and Demand, 1983-1990

Variable	1983	1985	1990
Terminal enrollment at the secondary level	122,210	137,795	132,018
Number of students who take the PAA(1)	119,245	121,168	114,343
New openings supplied by the HE system	72,765	116,564	162,794
1st year enrollments	64,037	71,766	96,089
Ratio of 1st year enrolls./ new openings	88.0	61.6	59.0

Source: División de Educación Superior, MINEDUC, 1991
(1) Considers both High School graduates from last years cohort and school leavers from previous years who take the PAA.

¹⁴ See Yañez, José, "Antecedentes económicos y financieros del sistema de educación superior" (manuscript, 1991), Table 1

Enrollment

HE enrollments have more than doubled during the last decade. The entire expansion has been provided by private sector institutions, mostly at the non-university levels. University enrollment increased by 12.6% during the decade, exclusively by new private universities.

Table 5
Chile: HE Enrollment by Tiers and Sectors

	1980	1985	1990
Universities	116,962	118,079	131,702
With Public Funding	116,962	113,128	112,193
New Private, No Public Funding	—	4,951	19,509
Professional Institutes	—	32,636	40,006
With Public Funding	—	18,071	6,472
New Private, No Public Funding	—	14,565	33,534
Tech Training Centers	—	50,425	77,774
With Public Funding	—	—	—
New Private, No Public Funding	—	50,425	77,774
Total	116,962	201,140	249,482

Source: División de Educación Superior, MINEDUC, 1991

In 1990, 52.4% of total enrollment was provided by private institutions with no public funding. But at the university level, enrollment in publicly funded institutions clearly outweighs private sector enrollment.

From a comparative point of view, the gross enrollment ratio in the Chilean HE system of 18.6% for the corresponding age group (20-24 years) is similar to other Latin American countries and as high as some European countries. Chile's HE system is still in the process of massification, despite the proliferation of establishments and the doubling of enrollment during the last decade. However, given that demand for places is for the most part being satisfied, further massification will not be possible until secondary school coverage is increased.

Enrollment distribution by field of study at the undergraduate level greatly varies between tiers and sectors. Table 3 presents the overall distribution at the system level and for the different tiers.

Table 6
Chile: Students by Field of Study According to
Tier Classification of HE Institutions, 1990

FIELD OF STUDY	University	PIs	TTCs
Agriculture	8.5	6.3	6.5
Medical Science and Health	9.7	—	3.7
Engineering and Reltd. Tech.	28.6	16.1	29.9
Natural Sciences and Mathematics	4.4	0.5	0.7
Social Sciences	11.3	17.3	2.8
Commercial and Bus. Admin.	7.0	24.6	46.9
Law	6.4	—	0.9
Humanities	7.1	21.3	
Education and Teacher Training	12.3	20.6	1.9
Arts and Architecture	4.7	11.0	5.3

Source: División de Educación Superior, MINEDUC, 1991

Public institutions enroll students in all fields of study, but tend to concentrate on engineering and related technologies, education and teacher training, the social sciences, and commercial & business administration. During the last decade, there have been some major shifts in enrollment distribution within this subsector. On the one hand, public institutions have witnessed a decline in the area of teacher training, that was partially absorbed by Tier II institutions (PIs), and in the area of medical sciences and health related studies. On the other hand, these institutions have expanded programs in agricultural studies, natural sciences and mathematics, and law.

Private HE institutions possess a very different enrollment distribution profile, specializing in courses that are relatively low cost. In Tier I institutions, law, social sciences and commercial and business administration careers account for more than 80% of total enrollment. In the case of PIs, the social science programs and teacher training account for more than half total enrollment. In the case of TTCs, almost 50 per cent of enrollment is in the social sciences and a third in the technological field.

Funding

Probably the single most far reaching effect of the 1980 Reform has been its impact on financing. The 1980 Reform envisaged two major changes related to funding. First, there would be an emphasis on mobilizing non-government, particularly student, resources to finance higher education. This was achieved via tuition fees at publicly funded institutions and the establishment of private institutions to expand access. Second, the allocation of public resources would be on the basis of criteria that would stimulate quality and efficiency.

In accordance with these changes, the Military Government made the following projection of the percentage allocation of public funds to HE (Table 7).

Table 7
Chile: Projected Public Expenditure in HE, 1980 onward

Resources	1980	1981	1982	1983	1984	1985	1986
Institutional support	100	100	90	75	60	50	50
Best students related formula	-	-	10	25	40	50	50
Student loan scheme	-	7	15	23	30	40	50
Total	100	107	115	123	130	140	150

Source: Decreto con Fuerza de Ley N° 4, 1981

Thus not only a change in the funding mechanisms of the publicly supported institutions was envisaged but also a net increase of the total amount disbursed by the public treasury, over a period of 6 years, after which state funding would stabilize at a level representing 50% more (in real terms) of the amount apportioned in 1980.

Although the proposed changes were rapidly adopted the budget projections did not materialize. In fact, Chile's economy experienced a severe crisis in 1982, and during the following years fiscal policy and public expenditure were highly restrictive. As a result public expenditure in HE followed a very different path than had been projected in 1981 (Table 8). On their part, public institutions had to cope with diminishing State resources and with a broadening spectrum of new financing opportunities.

Table 8
Chile: Actual Public Expenditure in HE, 1980-1990

Resources	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Institutional support	100.0	96.0	86.2	59.6	58.7	53.2	47.9	43.7	41.6	37.5	33.4
Best students related formulae	0.0	0.0	11.0	11.0	9.4	8.4	7.8	7.2	7.8	11.0	10.8
Student loan scheme	0.0	7.0	14.7	18.3	22.7	18.9	17.7	16.2	15.6	12.5	9.4
FONDECYT	0.0	0.0	0.3	0.2	0.4	0.4	1.0	1.8	3.0	5.5	5.6
Development funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	1.9	0.0
Total 100	103	112.2	89.2	91.2	80.9	74.4	68.9	72.1	68.4	59.2	

Source: C. Lehmann (ed.). Financiamiento de la Educación Superior: Antecedentes y Datos. Colección Foro de la Educación Superior, CEP, Santiago de Chile, 1990, p.92

Thus, while direct public allocations were diminishing, the public-sector establishments increased their income from other public and private sources. The net effects of these changes are presented in Table 9, which shows the actual level and composition of HE funding in Chile considering the whole system (i.e., public and private) and the various funding sources.

Table 9
Chile: Estimated Total National Expenditure in HE by Sources, 1990

Source	US\$ (million) ^a
Public sources	
Public treasury allocations	
a) to public sector institutions ¹	125.6
b) to new private institutions ²	2.6
FONDECYT (assigned to HE)	11.8
Subtotal	140.0
Private sources	
Private philanthropy	
a) going to public institutions	4.9
b) going to new private institutions	1.5
Tuition fees	
a) Paid in public institutions ³	81.6
b) Paid in private institutions ⁴	77.4
Subtotal	165.4
Public/private sources	
Various other incomes ⁵	159.4
Subtotal	159.4
Total	464.8

Source: Ministerio de Hacienda, Dirección de Presupuesto, Balances Presupuestarios, and MINEDUC, Dirección de Educación Superior, 1991

^a US\$ = 304,90 pesos.

¹ Includes *aporte fiscal directo*, *aporte fiscal indirecto*, *pagaré universitario* and *recuperación de préstamo por crédito fiscal*. The *aporte directo* represents around 62%, the *aporte indirecto* 16%, the *pagaré universitario* 15% and the rest is *recuperación de préstamo por crédito*.

² Share of *aporte fiscal indirecto* going to private universities.

³ Estimate based on Appendix Table 10.

⁴ Estimate based on average cost of tuition fee for private sector institutions according to tier (US\$1000, US\$800, US\$400).

⁵ Estimate based on Appendix Table 10. Includes: *venta de bienes y servicios*, *renta de inversiones*, *venta de activos*, *transferencias del sector privado y de entidades públicas*, *endudamiento*, *recuperación de otros préstamos*, *leyes especiales* y *otros ingresos*.

In 1990, total national expenditure in HE represents the equivalent of approximately 1.67% of Chile's GNP. Around 30% is directly disbursed by the public treasury, 36% comes directly from private contributions, mainly through the payment of tuition fees, and the rest (34%) is mixed funding originating

from services, various specific public allocations, borrowing, venta de activos, international cooperation and private philanthropy. Student fees in 1990 averaged about US\$700. Appendix Table 10 illustrates the sources of funding at the universities.

Conclusions

Overall, the 1980 reforms enabled a doubling of enrollments in higher education, primarily through a rapid increase in the number of private, non-university institutions. To achieve this expansion, a large portion of the financing burden of higher education was shifted from the state, to the students and their families. Market forces came into play in the allocation of state funds and competition for fee paying students. The next section will attempt to address the impact of such market forces and expansion of the system on the-quality, efficiency and equity of the system.

EFFECTS OF THE 1980 REFORM ON QUALITY, EFFICIENCY AND EQUITY

Quality

Quality assessments in HE are difficult to come by in general. It is still harder to evaluate the impact on quality of broad and in-depth changes as those brought about by the 1980 Reform. In the absence of reliable quality measures, analysis must rest on circumstantial evidence and on indirect assessments. In the subsequent sections the following quality-related aspects will be analyzed:

- Impact of enrollment extension on public sector institutions
- Student's institution and career choices
- Faculty staff
- Institutional research capacities
- Provision of postgraduate studies
- Institutional reputation of establishments in the various sectors and sub-sectors

On the whole, the 1980 Reform does not seem to have negatively affected public institutions in terms of the qualitative aspects of their performance. Moreover, it might be argued that the policies adopted prevented these institutions from experiencing the more common negative effects of enrollment massification. On the other hand, nothing seems to indicate that dramatic improvements in quality resulted from the 1980 Reform.

Using student choice as a proxy for quality, one can begin to make judgements about 'perceived' quality shifts within the system as a whole. While such indicators may reflect how one institution stands relative to another, such information reveals little about how the quality of the system as a whole has been affected by the reforms. The demand for access to the elite, selective, university portion of the system has remained fairly constant since the reforms. Whereas in 1980 the ratio of new openings to effective demand was 0.54%, it was 0.64% in 1990. The relative stability of demand over time suggests that

potential candidates with less than fair chances to be admitted in the more selective level of institutions are now opting for private universities and institutions. Moreover, candidates who used to select second choice programs in the old and more prestigious universities because they were not admitted to one of the more selective careers, now have the option of still taking their preferred course of study in a private university. In short, nothing seems to warrant the contention that public institutions are perceived by students as having deteriorated in quality and would therefore be redirecting their demand to private sector institutions. It is much more likely that demand is steady in the more selective institutional sector because supply of openings is not changing in this sector while at the same time selective admission procedures have been maintained, whereas new private institutions have generated a significant amount of new HE opportunities, particularly in those professional courses of study that command the highest prestige and expectations of private returns. On the other hand, an important number of young adults—with non-elite secondary training or coming from the vocational branch of secondary schools—are now choosing to enter PIs and TTCs.¹⁵

An important indicator of quality within the new system is the institutional choice by the best students. In fact, the new funding system rewards those institutions able to attract the best students. Indirectly, quality can be associated with the enrollment distribution of these 27,500 subsidy-carrying students. In the years 1990 and 1991, public institutions captured 87,8% and 88,9% of the total sum allotted for this purpose. Appendix table 2 presents the distribution of these funds between public institutions and compares their respective share with their participation in total first year enrollment.

The only conclusion to be drawn up to here is that after 10 years of the launching of the Reform, public institutions, particularly the 8 traditional universities and a group within those derived from the reorganization of the 2 traditional state universities tend to fare better than private institutions on selected items that can be used to indirectly assess quality of undergraduate teaching. This can not come as a surprise, considering the very recent creation of private universities and the well established reputation of the older and publicly supported institutions. More surprising — at least by Latin American standards — is that a system-wide Reform set in motion and implemented in a period during which state spending on HE was declining did not demolish the public sector institutions, which in general have managed to maintain their standing and reputation.

One indicator of quality of the system as a whole is the level of staff professionalization. The percentage of faculty holding graduate degrees (PH.D and MA degrees) increased in the public sector institutions from 19.3% to 23.3% during the period 1981-1988, which again can be taken as indirect evidence of quality improvement, particularly if one considers that student/teacher ratios, already low, were at the same time further decreasing (Table 10).

¹⁵ For a detailed analysis, see Muga Alfonso and Rojas, Fernando, "Análisis del Proceso Regular de Admisión a las Universidades Chilenas, Período 1982 a 1989", in Lemaitre, María José (ed.), La Educación Superior en Chile: Un Sistema en Transición. Colección Foro de la Educación Superior, CPU, Santiago de Chile, 1990

Table 10
Chile: Public Sector Institutions, Total Number of Academic Staff, Percentage of Postgraduate Degree Holders and Student/Teacher Ratios, 1981-1987

Year	Total N° of academic staff	% of Postgrad degree holders	S/T ratio
1981	12,833	19.6	8.01
1985	16,683	22.8	7.64
1987	17,655	24.0	7.10

Source: Consejo de Rectores, Anuarios Estadísticos, Santiago de Chile, 1982 a 1987

In public sector institutions, about half of the academic staff is employed on a full time basis, while in the private sector universities no more than an estimated average of 3% to 5% of the total academic staff is hired in the same condition, the latter frequently being engaged in authority positions within the institution. Estimated student/teacher ratios in the leading new private universities are not very different from those found in the public universities, with an average of 11/1 in the two major private universities.¹⁶ Appendix tables 5 and 6 examine in more detail staff professionalization at different institutions.

Another indicator of quality is the research output of the higher education system. Such an indicator, however, only reflects what is happening at the elite institutions in which research activities are concentrated. In terms of internationally registered scientific publications, the major state university (Universidad de Chile) produces around 50% of the total university output, followed by the Universidad Católica de Chile (25%), and the two leading public regional universities (Universidad Austral de Chile and Universidad de Concepción) each with around 8% of the total output.¹⁷ Amongst those researchers actively engaged in the presentation of proposals to the yearly competition of FONDECYT (2,137 researchers), during the period 1982-1989, 42% belong to the Universidad de Chile, 24% to the Universidad Católica de Chile and around 6%, in each case, to the Universidad Austral de Chile and the Universidad de Concepción. The other four old universities account for an additional 11% of the active researchers. The remaining 10% is distributed between researchers of the 14 new state institutions.¹⁸ Table 11 shows the percentage participation of the various HE institutions in the distribution of projects and resources assigned by FONDECYT over the 1982-1990 period.

¹⁶ In these two universities, full time teachers are 5% and 10% of total faculty staff, respectively. Administrative personnel stands in a ratio of around 0,25 to one faculty, and there are around 45 students per one administrative staff member, without considering junior staff (auxiliares).

¹⁷ See Krauskopf, Manuel, *op.cit.*

¹⁸ See Saavedra, Francisca y Vergara, Patricio, Recursos Humanos en Investigación Científica y Tecnológica. Su participación en FONDECYT, CONICYT, Santiago de Chile, 1989

Table 11
Chile: Percentage Participation of the HE Institutions in the
Distribution of Projects and Resources Assigned by FONDECYT,
over the 1982-1990 Period

Institution	Approved projects	% of allocated resources*	Number %
U.de Chile	1,038	40.1	40.2
U.Católica de Chile	635	24.5	23.0
U.de Concepción	156	6.0	6.9
U.Austral de Chile	139	5.4	6.8
U.de Santiago de Chile	106	4.1	4.3
U.Católica de Valparaíso	90	3.5	3.6
UTFederico Sta.María	79	3.1	2.9
U.Católica del Norte	16	0.6	0.5
New state universities	161	6.2	5.9
Other HE institutions	17	0.7	0.8
Other institutions and individual researchers	152	5.8	5.1
TOTAL	2,589	100.0	100.0

Source: Based on F.Saavedra, "Estadísticas del Fondo Nacional de Desarrollo Científico y Tecnológico. Período 1982-1991", CONICYT, Santiago de Chile, 1991

* Considers years 1982 to 1991, resources already allocated or set aside for approved projects.

Research productivity measured in accordance with the science-publication data provided by the Institute for Scientific Information shows a regular increase during the latest comparable years and puts Chile steadily amongst the 5 most productive Latin American countries (Table 12).

Table 12
Chile and Selected Latin American Countries: Number of Scientific Publications, 1986-1989

Country	1986	1987	1988	1989
Argentina	1,674	1,688	1,648	1,718
Brazil	2,001	2,083	2,193	2,556
Chile	815	799	841	901
Mexico	1,022	1,139	1,061	1,270
Venezuela	382	375	362	412

Source: CONICYT, *Op.cit.*

In 1988, 82.3% of Chilean internationally registered scientific publications originated within the HE system. The 2 oldest universities, that is, the Universidad de Chile and the Pontificia Universidad

Catolica de Chile, contributed respectively with 45.6% and 24.4% of all HE institutions originated publications. In turn, the 8 traditional state supported universities account in 1988 for 94.2% of the scientific publications produced by the HE system.¹⁹

Although the Chilean research community is small and heavily concentrated in a few of the old universities, and public expenditure on R & D is just about average in the Latin American region, its performance and comparative quality have been assessed positively. A 1988 report prepared for the National Science Foundation, the National Aeronautics and Space Administration and the Department of Energy of the United States, declares that although Chile is the least populous of the five major scientific countries in Latin America, it had twice as many papers as fourth-ranked Venezuela in 1985. "On a population-weighted basis, Chile was much the most productive of the five, even discounting international activity in astronomy. In astronomy, the geosciences, and agronomy, Chile was active in a higher proportion of rapidly developing areas than average". The report concludes that "Chile's profile in the international literature is more like that of a small developed nation than one that is attempting new industrialization efforts".²⁰ Appendix table 4 illustrates that this scientific output has occurred with a declining public expenditure for R&D.

These and other favourable assessments of Chile's university-based scientific performance are challenged by some recent evaluative studies. For example, Zanelli and García argue that a country's position within the Latin American scientific context is not relevant, due to the meager overall regional science and technology productivity, which is 20 to 60 times lower than that of developed countries such as Belgium, Australia or the Scandinavian countries. Moreover, Zanelli and García show that Chile is losing position compared to more dynamic developing countries such as Nigeria, which already in 1985 was more productive than Chile in terms of main stream science production, and other countries such as Taiwan, Hong Kong, Saudi Arabia and Korea, which are rapidly increasing scientific output.²¹

The provision of graduate studies can also be taken as an indirect indicator of university development and institutional capacity. According to Chilean law, only universities can confer doctoral and masters' degrees. Presently, these degrees are granted solely by public sector institutions, while most of 4th level enrollment can be found in the old universities. Total postgraduate enrollment has increased by 83.1% during the last decade, but still represents only above 2% of undergraduate enrollment. 123 master's programs and 21 doctoral programs were registered in 1988 (Table 13).

¹⁹ See Krauskopf, Manuel, "Vision de la Investigación en Chile a través de algunos Indicadores Epistemométricos" (manuscript, n/d)

²⁰ Science and Technology Policy Program, SRI International/Washington, "New Directions for U.S.-Latin American Cooperation in Science and Technology", Final Report, 1988

²¹ See Zanelli, Jorge y García, Martha C., La Ciencia, la Tecnología y la Universidad, FLACSO, Santiago de Chile, Contribuciones N.66, 1990

Table 13
Chile: Graduate Enrollment in Public Sector Universities, 1981-1990

Year	Number	% of undergraduate enrollment
1981	1,432	1.4
1985	2,835	2.2
1990	2,622	2.2

Source: Consejo de Rectores Universidades Chilenas, Boletín Estadístico, 1990.

As can be expected, almost all graduate enrollment is in the group of old universities that possess at least some research capacities.

During the last ten years (1981-1991), a total of 3,231 people obtained their degrees at the fourth level, over a total of 23,500 students enrolled over the same period. Computed on a yearly basis, it took an average 2350 students to graduate 323; a ratio of 7.2 students enrolled per graduate. Doctoral degrees conferred during the period amount to around 5% of the total degrees awarded. New private universities have recently established their first few MA programmes, up to now only in the social sciences and education.

The figures thus far analyzed mostly refer to public sector universities. Overall they indicate the existence of a core group of "quality universities", with a more or less developed research base and teaching programmes distributed across various fields both at the undergraduate and postgraduate levels. These universities—amongst which the Universidades de Chile, Católica de Chile, de Concepción and Austral de Chile preeminently qualify—also possess a well established reputation based on their capacity to attract the best students, successfully compete for research funds and produce most part of nationally originated scientific publications, grant most of the more prestigious professional and postgraduate degrees, and on their ability to maintain and increase over time the number of graduate holders within a predominantly full-time body of faculty. Appendix table 3 presents a summary of some quality-related data for the 22 public sector institutions. The remaining group of public institutions, involving 14 (new) state establishments and 4 old universities (one state university and 3 private state-funded universities) are more heterogeneous.

Private sector HE institutions, which in 1990 comprise 40 universities, 82 PIs and 168 TTCs can not be assessed through indirect quality indicators because of the unavailability of public information. No systematic evaluation studies have been carried out on these institutions. Furthermore, their short period of existence also inhibits quality assessments. In the case of new private universities the following arguments referring to academic-quality issues have been debated.²²

²² See Apablaza, V. and Lavados, H., La Educación Superior Privada en Chile. Antecedentes y Perspectivas. CPU, Santiago de Chile, 1988. Also, Lemaitre, María José (coord.), Informe sobre la Educación Superior en Chile, 1988. CPU, Santiago de Chile, 1988. And Brunner, José Joaquín, Informe sobre la Educación Superior en Chile. FLACSO, Santiago de Chile, 1986

Private universities are said to be queuing behind most public universities having to accept second-best students. The stereotype is that new private universities would be restricted only to students who do not perform well in the P.A.A. but have sufficient money to pay their way into HE. In fact, as was shown earlier, the best performers in the P.A.A. tend to go to traditional public sector universities; only a small fraction go to private sector establishments. Students wanting to enter the private sector must pay the full amount of the demanded fees since state funded student-loans and scholarships are restricted to public-sector students. In short, up to now private universities—with the exception of a few programs—only attract second-best students who can pay the full cost of their studies. This distribution, as will be shown later, reflects the more intense socioeconomic selectivity of private universities. On the other hand, it might also contribute to explain the high drop out rates of these universities. According to the available information, inter-annual drop out rates in the three oldest private universities vary over 1984 to 1987 between 20.6% and 19.5% in the case of the Universidad Diego Portales, between 36.7% and 30.9% in the case of the Universidad Central, and between 28.5% and 30.2% (only years 1984 and 1985) in the case of the Universidad Gabriela Mistral.²³

On the whole, then, the 1980 reform does not seem to have negatively affected the qualitative aspects of the performance of public institutions. Moreover, it might be argued that the policies adopted that year prevented that these institutions experienced the more common negative effects of enrollment massification. A core group of four public universities—those that originate most research— can probably be considered as reasonably good institutions within the Latin American context. A more detailed analysis of these institutions would probably show a very unequal development of its different sections and levels. For example, in most of them the social sciences—both in terms of research and teaching—tend to be below level. In all of them, also, graduate studies are still an area in need of development, both quantitatively and qualitatively. It is much harder to assess the quality of the remaining universities. With the information at hand it is not possible to draw qualitative distinctions between these different groups of institutions, although there seems to exist, on the whole, some correlation between the size and complexity of these institutions and their perceived quality. New private universities have adopted, up to now, a very different development pattern compared to state-supported institutions, in part precisely because of this difference in funding. New private universities are solely teaching establishments, with a high enrollment concentration in a few low cost programs, practically no full-time teachers, with "open access" of students tied to their family income, and only minimal regulations in terms of public assurance of their quality performance, though the latter trait has been partially corrected through the introduction, in 1990, of a public accreditation system. With regard to quality evaluation of PIs and TTCs nothing can be said at this stage due to a complete lack of information.

Efficiency

Efficiency can be broken down into internal and external efficiency. The study of internal efficiency in turn has two distinct but closely related aspects. Intra-system (and sectoral) efficiency considers decision-making at the system level and allocation of resources among the various sectors and institutions. The second aspect of internal efficiency is intra-institutional efficiency, which considers

²³ See Sanfuentes, Andrés, Políticas Económicas para la Universidad. ILADES-Georgetown University, Santiago de Chile, 1990, p.169

decision-making at the institutional level and the allocation of resources within the institutions.²⁴ The following analysis focuses on internal efficiency.

Intra-system efficiency is said to be low in most Latin American HE systems due to the widespread employment of public incremental funding procedures,²⁵ which do not provide incentives for improving quality and performance on the part of institutions. On the contrary, it induces counter-productive organizational behaviors which result in over-dependence on the state and lack of institutional accountability.

As part of the reform, the government radically altered the means of allocating state resources to institutions. Enrollment doubled while public allocation decreased. The entire cost of HE expansion during the 80's was carried by the students entering the private sector institutions and their families. Moreover, students entering public sector institutions also shared the cost of their training, contributing in 1990 with US\$32 for each US\$100 awarded by the Government to support teaching in the various public sector establishments.²⁶ Overall efficiency in the use of public resources allocated to HE therefore dramatically improved, without severely affecting the quality of public sector institutions.

Student teacher and student administrative personnel ratios greatly differ between public sector HE institutions. Considering nominal ratios first, differences amounting to almost five times exist between the two universities with the lower (Universidad de Chile) and the highest (Universidad del Bio Bio) student teacher ratios. Not counting the Universidad de Chile, the average nominal student teacher ratio in public institutions is 9:1. If the Universidad de Chile is included, the average ratio drops to around 7:1, since its ratio is 5:1. In terms of FTE teachers, ratios differ by a factor of four between the lowest and highest, with an average of 11:1 (see appendix table 7).

Overstaffing therefore exists to a similar degree in other Latin American universities. For example, in Brazil, FTE student/faculty ratios both for Federal and State universities (1988) is 9:1, which still is about two times higher than the Universidad de Chile. The state university of Sao Paulo (USP), the largest and considered to be the best institution of HE in Brazil and one of the more prestigious in the Latin American region, has a student teacher ratio of 10:1. UNICAMP, with the highest percentage of enrollment at graduate level (31%) has a student teacher ratio of 7:1. Also, Chile's average ratio for public sector institutions compares unfavorably with other country's public sector ratios. Thus for example, in the USA public 4 year institutions show a student teacher ratio of 17:1 in 1988. In brief, although similar to the nominal ratios found in other Latin American countries, Chile's average ratio is significantly lower than ratios found in North American, European, Asian and Oceanic countries, with the exception of Norway, Portugal and Japan. The number of students to administrative personnel²⁷ is

²⁴ For these standard distinctions and their application to Latin American HE, see Winkler, Donald, Higher Education in Latin America. Issues of Efficiency and Equity, World Bank Discussion Paper 77, Washington, 1990

²⁵ See Brunner, José Joaquín, Evaluación y Financiamiento de la Educación Superior en América Latina. Bases para un Nuevo Contrato, CPU, Documento de Trabajo 62/91, Santiago de Chile, 1991

²⁶ In fact, the actual figure of student's contribution should be still higher if the sum assigned to loans is discounted from the overall public allocation and computed as deferred expenditure by the individuals.

²⁷ Paradocentes, administrativos and auxiliares

also low, with an average of 6.1:1, a figure that is better than the very low ratios in Federal Brazilian universities (3.1 and 4.1 in the UFMG and UFSC) and lower than the ratios of two Brazilian Catholic universities (11.1 and 14.1 in PUC-Rio and PUC-SP, respectively).

Internal efficiency of public sector institutions needs to be assessed also in terms of productivity. A study carried out in 1984 shows that on-time graduation rates in 12 university-only based career programs fluctuate between 23% and 74% percent. Nine out of the 12 programs had less than 50% on time graduation rate (Table 14).²⁸

Table 14
On-Time Graduation Rates by Field circa 1985

Career	%
Law	34
Agronomy	29
Architecture	47
Biochemistry	43
Dentistry	74
Engineering	28
Economics	39
Forestry	23
Veterinary	47
Medicine	71
Psychology	73
Pharmacy	30

Taking year 1985 (or around) as base, a comparative efficiency index for 8 Latin American HE systems has been computed so as to allow for cross national comparisons inside Latin America and with European HE systems. As shown in Table 15, total enrollments across a selection of 8 Latin American systems were 4,218,769 and the graduate output 497,621. In effect, these 8 systems graduate 11.8 per cent of their total enrollments. If, all other things being equal, this average output is taken to be the norm and that it constitutes an actual—rather than desirable—measure of efficiency, it is then possible to see how far effective output for 1985 compares with what might be expected if all HE systems had an output of 11.8%.²⁹ In the case of Chile, the efficiency index is below the norm.

Surprisingly enough, the Latin American situation does not differ substantially from the situation of the nine university systems that were analyzed by G.Neave. In fact, expected output in Europe was slightly below the Latin American norm, at 11.3%. And the efficiency index varied from 51.2 in Austria to 204.4 in the case of Great Britain.

²⁸ See J.Ruz, I.Navarro & C.Aguilar, Cuadernos Consejo de Rectores, N° 22, 1984

²⁹ The efficiency index represents graduate output x 100 divided by expected output. The same formula has been used by G.Neave for 9 European university systems. See Neave, Guy, "Editorial", G. Neave (ed.) European University Systems, Part I, CRE-Information, 3rd Quarter, 1986, p. 18

Table 15
Selected Latin American countries: Efficiency levels in graduate output, around 1985

Country	Total enrollments	Graduate output	Expected output	Efficiency index
Brazil	1,479,397	253,553	174,495	145.3
Colombia	391,490	56,052	46,172	121.4
Costa Rica 63,771		4,908	7,522	65.2
Chile	197,437	20,256	23,288	87.0
Mexico	1,207,709	120,829	142,449	84.8
Peru	443,640	9,706	52,327	18.5
Uruguay	87,707	3,488	10,345	33.7
Venezuela	347,618	29,402	41,002	71.7

Source: Based on UNESCO, Statistical Yearbook, 1988

International comparisons only give very gross relative efficiency measurements because of the differences in systems, their internal differentiation and the length of studies in the various tiers and sectors. The above contrast, for example, could be disputed because it does not take into account the different mix of graduate output of the various systems according to levels (and therefore length) of careers.

Using the same efficiency index to compare institutions within Chile yields results that are listed in Appendix Table 8. Total enrollments across the 22 establishments were 121,876 and graduate output 12,624. Overall, the public sector institutions graduate 10.4 per cent of their total enrollments. Graduate output is lower than expected in the case of 13 institutions, 5 of which belong to the group of the 8 old universities. The Universidad Católica de Chile has the highest efficiency index across the old universities and the Universidad de Talca in the case of the new regional state-universities. Allowing for differences in the duration of the various careers, on time graduation for the whole sector is on average 38.8 per cent.

The high input-output ratios in the public sector confirm the low levels of internal efficiency amongst these institutions. In theory, most university based programs take 5 years. But computed input-output ratios show that on average the figure per graduate is 9.2 years. Although this figure indicates a relatively high level of inefficiency, when compared to the still higher input-output ratios in other Latin American countries, as Venezuela for example, the Chilean public sector institutions stand out—in comparative terms—as "fair performers". In Venezuela only the Universidad Simón Bolívar, which has by far the best input-output ratio, favorably compares with the average ratio of the Chilean public sector institutions.³⁰

Over time, there has been a noticeable rise in input-output ratios over the last two decades (see Appendix Table 9 for the ratios for 24 institutions). At the end of the 1970's, the average input-output ratio for the 8 existing HE institutions was 7.1 years. Today, this figure is 9.2 student-years per graduate at system level and it stands at 10.1 years for the old universities (Table 16).

³⁰ In the case of Universidad Simón Bolívar this figure is 9.13 years. See Reimers, Fernando, "The Feasibility of Introducing Loan Schemes to Finance Higher Education in Latin America. The case of Venezuela". Paper prepared for the IBRD, November 1990

Table 16
Chile: Old Universities, Input-Output Ratios in 1980 and in 1990

Institution(1)	Average enrollment (1986-1990)	Average Graduates (1988-1990)	I/O ratio 1990	Average enrollment (1976-1980)	Average Graduates (1978-1980)	I/O ratio 1980
U. de Chile	16,888	1,734	9.74	52,280	7,208	7.2
U. Católica de Chile	14,817	2,497	5.93	13,845	2,293	6.0
U. de Concepción	11,419	1,088	10.53	12,536	2,282	5.5
U. Católica Valparaíso	6,932	878	7.90	6,832	759	9.0
U. Técnica F. Santa María	5,653	547	10.33	3,537	326	10.8
U. Santiago de Chile	12,261	1,153	10.63	28,840	3,867	7.5
U. Austral de Chile	5,596	657	8.48	4,540	683	6.6
U. Católica del Norte	2,969	149*	19.92	5,882	548	10.1
Total	76,535	17,966	10.05	128,307	17,966	7.1

Source: Consejo de Rectores, *Anuario Estadístico*, 1980 and 1990

* This figure needs to be checked.

High input-output ratios not only reflect levels of inefficiency but also translate into higher public expenditure per graduate. High public expenditure per student and per graduate will also translate into high unit costs per student and per graduate. Computation of student unit costs and per graduate cost must include, in the Chilean case, both public and private expenditure directly related to teaching.³¹ Table 17 shows average costs per student and per graduate in the public sector institutions. Leaving aside the two PIs, student unit cost are highest in the Universidad Católica de Chile and the Universidad de Chile and lowest in the Universidad de la Serena. Average unit cost for the whole public sector is US\$ 1.700, well below the figures for equivalent institutions in other countries of the world.

³¹ Cost of teaching will be estimated as the sum of expenditures incurred by the public treasury (aporte directo, indirecto, pagaré universitario and recuperación de crédito fiscal universitario) and the expenditure equivalent to the income originated by payment of tuition fees. Unit costs will thus be computed as the average of public and private expenditure per student enrolled at the undergraduate level. Unit costs of graduates will be computed as student unit cost times the input-output ratio for each establishment.

Table 17
Chile: Average Estimated Unit Costs per Student and per Graduate
in the Public Sector Institutions in US dollars, 1990.

Institution	Student unit cost	Graduate unit cost
U. de Chile	2,435.6	23,722.8
U. Católica de Chile	2,582.4	15,313.6
U. de Concepción	1,613.1	16,985.9
U. Católica Valparaíso	1,787.8	14,123.6
U. T. F. Santa María	1,400.5	14,467.2
U. de Santiago	1,454.6	15,462.4
U. Austral Chile	1,520.7	12,895.5
U. Católica Norte	1,623.8	32,346.1
U. de Valparaíso	1,828.8	11,704.3
U. de Antofagasta	1,505.4	17,823.9
U. de la Serena	1,027.8	7,677.7
U. del Bío Bío	1,271.1	18,641.7
U. la Frontera	1,375.9	11,241.1
U. de Magallanes	1,994.6	13,423.7
U. de Talca	1,894.8	11,937.2
U. de Atacama	1,631.7	16,512.8
U. de Tarapacá	1,255.1	11,797.9
U. Arturo Prat	1,158.7	15,144.2
U. Metropol. Cs.Ed.	1,431.7	15,147.4
U. Playa Ancha	1,192.3	—
I.P. de Santiago	877.2	16,465.0
I.P. Osorno	513.1	7,947.9
Average	1,699.7	15,637.2

Unit costs for graduates differ more widely as they reflect the computed input-output ratios for the different institutions. The highest per graduate unit costs are found in two of the old universities, the Universidad del Norte and the Universidad de Chile. The lowest unit costs per graduate are to be found in some of the new regional universities (Universidad de la Serena, Universidad de la Frontera, Universidad de Valparaíso, Universidad de Tarapacá and Universidad de Talca). But also one of the old universities (the Universidad Austral de Chile) shows a graduate unit cost that is well below the sector's average.

Equity

The following section examines available data on to the socioeconomic status of students in higher education. The results of the various studies cannot be compared to make any judgements about the impact of reforms over time because of the differing methodologies and disparate sources of information they use.

A study carried out in 1966 examined the socioeconomic profile of students in the 8 old universities.³² In general, 40.4% of students came from high and middle high socioeconomic backgrounds.

A second study, performed by G. Briones, compares the socioeconomic composition of students entering the 8 old universities in 1976 and 1981.³³ A reduction in the representation of students coming from families with low educational attainment can be discerned (Table 18). Briones contends that there has been an elitization of access to the 11 only-university based courses of study in the 8 old universities.

Table 18
Chile:--Socioeconomic Background of University Students Entering into the 8 Old Universities, in Years 1976 and 1981 According to Father's Education. (percentage)

Father's education	1976	1981
Illiterate	0.8	0.5
Incomplete primary	11.9	12.6
Complete primary	17.0	13.0
Incomplete secondary	21.9	17.7
Complete secondary	25.0	28.7
Incomplete university	5.9	5.8
Complete university	14.5	18.1
Military studies	2.9	3.5

Source: G.Briones, "La educación superior en el modelo de la economía neoliberal" in PIIIE, Las Transformaciones Educativas bajo el Regimen Militar. PIIIE, Santiago de Chile, Vol.2, chapter 11.

A further study by Gonzalez, Latorre & Magendzo shows the socioeconomic background of students enrolled in first year classified by tier and sector, according to father's education in year 1984.³⁴ Table 19 presents a summary of the findings. A clear difference of students background exists between public sector institutions, both universities and PIs, and new private institutions. While in the first type of institutions students coming from families where father's education is below the complete secondary level represent more than 40% of total first year enrollment, in the private sector institutions the same group is less than 15% in the case of universities and less than one third in the case of PIs. Moreover, the socioeconomic profile of students in the TTCs is on the whole not very different from the profile of students in the public universities. These findings confirm the overall strong selective character

³² See E.Schiefelbein y otros, Un Intento de Análisis Global de la Universidad Chilena. PLANDES, Boletín Informativo, N° 28-29, 1968, p.40

³³ See Briones, Guillermo, "La educación superior en el modelo de la economía neoliberal". En PIIIE, Las Transformaciones Educativas bajo el Regimen Militar. PIIIE, Santiago de Chile, Vol.2, cap. 11

³⁴ See Gonzalez, Luis Enrique, Latorre, Carmen Luz and Magendzo, Abraham, "Análisis de la incidencia sobre la educación postsecundaria chilena de los cambios producidos por la reestructuración universitaria del año 1981". PIIIE, Santiago de Chile, 1987 (mimeo), Table 3.2

of the Chilean HE system. Appendix Table 11 confirms some of these findings for first year students using a different classification of SES.

Table 19
Chile: Socioeconomic Background of Students Enrolled in First Year
Classified by Tier and Sector, According to Father's Education, 1984

Institution	Illiterate	Primary		Secondary		University	
		Incomp.	Compl.	Incomp.	Compl.	Incomp.	Compl.
Universities							
With public funds	0.6	9.9	15.9	18.5	30.8	5.4	18.8
No public funds	0.1	0.9	1.9	7.6	31.9	19.5	38.2
Total	0.6	9.2	14.8	17.6	30.9	6.5	20.4
P. Institutes							
With public funds	3.0	26.4	20.6	12.5	20.8	5.8	11.1
No public funds	0.4	3.9	5.5	13.6	35.8	9.9	31.0
Total	0.9	8.6	8.7	13.3	32.6	9.1	26.7
TT Centers	0.6	11.4	15.4	17.4	35.3	5.1	14.8
Total Population							
40 yrs. and more	14.0	42.0	10.7	23.8	5.5	2.2	1.8

Source: L. E. Gonzalez, C. L. Latorre, A. Magendzo, "Análisis de la incidencia sobre la educación postsecundaria chilena de los cambios producidos por la reestructuración universitaria del año 1981". PIIE, Santiago, Chile, 1987 (mimeo), Table 3.2

J. Castañeda has analyzed the redistributive impact of public educational expenditure for year 1985.³⁵ This study demonstrates that only 25% of direct institutional allocations benefit the poorer 60% within society. If one looks more specifically at the beneficiaries of student loan funds, 51,4% of the funding benefits these groups. Two additional studies reviewed by A. Sanfuentes – one based on the same 1985 figures and the second based on a special household survey carried out by J. Rodríguez – corroborate these results. In effect, they show that the top 20% income distribution group obtains around 53% of public expenditure allocated to HE, while the bottom 20% group only captures 6%.³⁶ These

³⁵ See Castañeda, Tarsicio, Para Combatir la Pobreza. Política Social y Descentralización en Chile durante los '80. CEP, Santiago de Chile, 1990, Chapter 2, section IV. This analysis is based on data provided by the CASEN survey (1987). Although these results are very much under dispute, they provide gross estimations that can be used when interpreted carefully.

³⁶ Sanfuentes, Andrés, "Antecedentes sobre la distribución del ingreso y gastos gubernamentales para atenuar la extrema pobreza". In Revista Estudios Sociales, N° 60, 1989, p.29

figures compare unfavorably with the information available for other Latin American countries, with the exception of Dominican Republic.³⁷

More recent household-survey data from the Planning Ministry, can be used to construct³⁸ an inequality index of the ratio of HE share to population share for each quintile (Table 20). The value 1.0 shows equality between population share and enrollment share for a given group. Values below 1.0 suggest discrimination against the group. Values above 1.0 over-representation of the group in enrollments. Thus, young adults in the poorest group represent one fifth of the total 18-24 age population but only less than 5 per cent of HE enrollments. At the other end, young adults in the upper income group represent a mere 13.5 per cent of the age population and approximately one third of total enrollments. These figures are similar to those of Latin America, but with a more pronounced inequality index in the case of the low status group and a milder index with respect to the high status group.

The socioeconomic background of HE students enrolled in private institutions can be estimated, although only in very gross terms. While only 1.3% of the bottom quintile age-group enrolls in private sector institutions, 13.2% of the top group does. Thus an important result revealed by these surveys is that lower income groups are far less likely to enroll in private institutions than in public institutions. That is, poorer students who access the system go to public institutions. Private universities have a much more unequal representation of the various status groups within society, as presented in Tables 19 and 21.

Table 20
Chile: Distribution of Enrollments by Income Groups, 1990

Quintile	Percent of total 18-24 population	Percent of enrollments	Inequality Index
1	20.9	4.2	0.2
2	23.5	6.6	0.3
3	23.0	9.4	0.4
4	19.1	15.9	0.8
5	13.5	32.0	2.4

³⁷ See Winkler, Donald, *op.cit.*, Table IV.6, p.62

³⁸ MIDEPLAN, "Análisis preliminar de la información de la encuesta CASEN 1990: módulo educación", (mimeo, 1991). As will be noticed, HE enrollment figures obtained by way of the CASE N survey do not correspond to the official figures provided by the Ministry of Education. In fact, they are produced on the basis of a survey with only a very limited number of HE students acting as respondents. Nonetheless, they can be considered as a gross approximation to student's socio-economic background classified according to per capita income of their families.

Table 21
Chile: Percentage of 18-24 Years per Capita Income Quintiles Enrolled in HE
and Percentage Enrolled in Private Institutions, 1990.

Quintile	Enrolled in HE	Enrolled in private insts.
1	4.2	1.3
2	6.6	3.0
3	9.4	4.2
4	15.9	7.0
5	32.0	13.2
TOTAL	12.0	5.1

Access opportunities to HE have been improving during the last decades, in parallel to the enlargement of secondary education. Moreover, as noted earlier, the ratio of new openings to first year enrollments has steadily increased, to a point where in 1990 the whole system supplied 1.7 openings for each one student enrolled in first year. But this latter occurrence has more to do with private institution's supply side strategies than with the actual levels of equality of the system. In fact, over-supply grows in inverse proportion to the reputation and tier affiliation of establishments, thus allowing the ratios of applications to admissions to remain stable at the university level while they decrease at the level of private PIs and TTCs.

REMAINING ISSUES AND ACTIONS

In sum, the reforms of 1980 have dramatically restructured higher education in Chile. Enrollments have doubled during the decade chiefly through a proliferation of private, non-university institutions. The doubling of enrollment has been achieved at the same time as public funding for higher education has been reduced.

The introduction of market forces—competition for students, and significant cost recovery measures—does not seem to have harmed quality in the public universities, the elite part of the system. In fact, the measures taken may be seen as having prevented deterioration that has elsewhere been associated with rapid expansion. On the whole, Chile boasts some of the highest quality universities in Latin America. There is concern, however, about the quality of the new private institutions.

A more puzzling aspect of the system is the apparent failure to improve the efficiency of the system, especially the low output of graduates relative to the number of students. Despite competition, there is no evidence that staff are being more efficiently deployed in public institutions. The relatively low student teacher and student staff ratios may be explained, in part, by the utilization of staff for income generating activities and second employment in private institutions.

In terms of equity, the reforms have expanded access overall, but higher education continues to serve mainly middle and upper middle income groups. The lower income groups do not appear to have benefited from the rapid expansion of private institutions which mostly serve upper income groups that

are unable to find places at the elite institutions. On the other hand, the moves towards cost recovery have limited the extent of public subsidies benefiting upper income groups.

Further Reform

A central issue of concern that remains after the reform, and is currently being addressed under further reforms in 1990 and 1991, is the overall development of new institutions and the mechanism for ensuring quality in new programs. Three issues stand out:

Number and size of institutions. Out of 40 private universities, only 2 enroll 3000 students or more; the next 3 enroll 1000 students or more. These 5 universities account for 68% of the sector's total enrollment. Most of the other private universities have less than 500 students. (Appendix Table 1).

Inadequate accreditation of these institutions. Up to 1990, all new private universities, once officially authorized by the Ministry of Education, were accredited through the examination procedure introduced in 1981. The procedure involves prior approbation of the new institution's teaching programs by a freely chosen public sector institution. In each program, students and academic degrees or professional certificates candidates belonging to an examined university must take their final exams under a commission composed by faculty members of both intervening universities. After satisfactory completion of the examination period, the new private institution automatically gains its full autonomy. The examination procedures introduced by the 1980 Reform have been criticized mainly because:

- they do not provide institutional supervision,
- the relative academic weakness of some of the examining public institutions,
- they do not provide public assurance that academic standards are being achieved by the new institution,
- they are based on a commercial arrangement between the two intervening institutions thus being liable to extra-academic arrangements,
- there is a lack of public control over the whole process.

Standards and professional status of academic staff. A HE Commission set up by the Government in 1990 voiced the more common apprehensions about the quality of the private universities teaching bodies: "absence of objective, merit-based criteria for the recruitment of academic staff; lack of a core group of full-time academic personnel; high turnover rates of faculty; multiple employment by the part of faculty members thus preventing the maturing of a sense of institutional identity and belonging; the fact that numerous private university faculty members come from the old public institutions which have to bear the cost of supporting a full time academic body without obtaining value for money; the absence of an academic career structured according to the needs of the new institutions; scarce attention given to academic personnel development; the inadequate working conditions prevailing in some

of the new institutions, and the lack of library, laboratory facilities and equipment support for academic work".³⁹

Recent developments in the accreditation of private institutions. In March 1990, four days before the installation of the democratically elected Government a Constitutional Law (i.e., a law that requires a special quorum for its reform) for the whole educational system was passed by the Military Government. The larger part of the law refers to the HE system. Under the new law, a public, autonomous body –the Higher Council of Education (HCE)– was set up, with two major functions:

- (i) to accredit new private universities and PIs,
- (ii) to approve the core national curriculum for primary and secondary education.

The HCE has nine members: the Minister of Education, who chairs the Council; 3 members elected one by the state universities, one by the old and new fully autonomous private universities, and one by the fully autonomous PIs; 3 members elected by the scientific community; and two members elected, respectively, one by the Supreme Court and one by the Chiefs of Staff of the Armed Forces and the Director General of the National Police. The Council designates an Executive Secretary who is in charge of day to day operations and directs the Council's staff. The HCE is financed through a specific annual National Budget allocation and is legally entitled to charge fees for its accreditation services. The Council's staff is composed of 8 professionals and 3 administrative employees. During its first year of operation, approximately 70 consultants were engaged in assessment activities. The operational cost of the Council's first year was US\$ 85,000.

The accreditation procedures set up under the 1990 Constitutional Law have the following major characteristics:

- They provide a licensing system for the establishment of new private universities and PIs centered-around the approval of both an institutional proposal and the programs that will be offered. Once these have been approved by the HCE, the institution is officially recognized by the State and can initiate its activities.
- They also provide a temporary institutional assessment system whereby the development of each approved institutional program is periodically reviewed (once a year) and closely monitored, during a minimum period of six years, after which the HCE can declare the full autonomy of a private institution.
- Under the regulations of the 1990 law, all universities and PIs that were created after 1981 and have not been granted full autonomy are free to choose between remaining within the examination system or submitting to the newly established accreditation procedures. These procedures are therefore optional for already existing private HE institutions.

³⁹ Comisión de Estudio de la Educación Superior, Una Política para el Desarrollo de la Educación Superior en la Década de los Noventa, Santiago de Chile, 1991, p. 27

- Institutions that might be created before March 1992 can decide between being accredited by the HCE or use the 1980 examination procedures. After March 1992, new universities and PIs will have to be accredited by the HCE.

Out of the 40 existing private universities, 21 have chosen to be accredited by the HCE. They comprise 71% of all students enrolled in the private university sector. Of the 80 existing private PIs, 15 of which have already gained their full autonomy under the examination regime, and 18 have chosen to be accredited by the HCE. They comprise 33% of all students enrolled in private PIs.⁴⁰

⁴⁰ See, Consejo Superior de Educación, Un Año de Trabajo, Santiago de Chile, 1991

APPENDIX TABLES

Appendix Table 1
Chile: Average HE Enrollment by Establishments

Establishments enrollment	Number	Average
Universities		
W.p.f.	20	5,610
New private	40	488
Private Institutes		
W.p.f.	2	3,236
New private	80	419
T. T. Centers		
W.p.f.	—	—
New private	168	463

Source: División de Educación Superior, MINEDUC, 1991.

Appendix Table 2

Chile: Public Sector Institutions, Their Share in First Year Enrollment and the Proportion of Student-Quality Subsidies They Obtain*, 1990

Institution	% of 1st year enrollment	% of participation in student-quality subsidy
U. de Chile	10.25	19.26
P. U. Católica de Chile	11.67	15.30
U. de Concepción	9.66	11.29
U. Católica Valparaíso	7.24	8.31
U. Técnica F. Santa María	5.40	5.03
U. Santiago de Chile	8.26	9.28
U. Austral de Chile	5.05	4.75
U. Católica del Norte	3.53	2.21
U. de Valparaíso	3.41	3.48
U. de Antofagasta	2.19	1.49
U. de la Serena	-3.11	0.93
U. del Bío Bío	5.06	3.32
U. de la Frontera	3.27	2.78
U. de Magallanes	1.19	0.31
U. de Talca	1.91	1.94
U. de Atacama	1.25	0.40
U. de Tarapacá	4.02	1.53
U. Arturo Prat	1.73	0.85
U. Metropolitana Cs.Ed.	4.48	2.46
U. de Playa Ancha Cs.Ed.	2.17	0.84
I.P. de Santiago	3.19	3.66
I.P. Osorno	1.95	0.59

Source: Consejo de Rectores, *Anuario Estadístico*, 1990 and División de Educación Superior, MINEDUC, 1991.

* Only considers the amount obtained by public institutions.

Appendix Table 3
Chile: Selected Quality-Related Indicators
for Public Sector HE Institutions, 1989-1990

Institution	A	B	C	D	E	F	G	H	I	J
U. de Chile	16,926	14.7	19.3	3229	5.2	0.17	39.7	41.0	46.3	9.74
P. U. Católica de Chile	14,399	12.4	15.3	1166	12.3	0.43	22.1	24.5	22.2	5.93
U. de Concepción	11,192	9.6	11.3	1104	10.3	0.34	6.7	5.9	7.4	10.53
U. Católica Valparaíso	6,737	5.8	8.3	479	14.1	0.46	3.8	3.6	3.3	7.90
U.T.F. Santa María	5,486	4.7	5.0	255	21.5	0.25	2.9	2.9	2.2	10.33
U. Santiago de Chile	11,324	9.7	9.3	739	17.1	0.18	4.0	4.2	5.3	10.63
U. Austral de Chile	6,863	5.9	4.8	601	11.4	0.35	5.9	5.3	7.8	8.48
U. Católica del Norte*	3,013	2.6	2.2	218	13.8	0.40	1.0	0.6	0.3	19.92
U. de Valparaíso	3,001	2.6	3.5	324	9.3	0.11	1.0	0.5	0.9	6.40
U. de Antofagasta	2,757	2.4	1.5	202	13.6	0.34	1.1	0.9	0.7	11.84
U. de la Serena	3,017	2.6	0.9	203	14.9	0.25	1.0	0.7	0.9	7.47
U. del Bío Bío	4,958	4.3	3.3	276	18.0	0.20	0.2	0.2	0.2	14.66
U. de la Frontera	4,360	3.8	2.8	362	12.0	0.18	1.0	0.8	1.1	8.17
U. de Magallanes	1,036	0.9	0.3	90	11.5	0.20	0.6	0.5	0.1	6.73
U. de Talca	2,933	2.5	1.9	148	19.8	0.39	0.3	0.3	0.5	6.30
U. de Atacama	1,436	1.2	0.4	97	14.8	0.36	0.4	0.3	0.0	10.12
U. de Tarapacá	3,894	3.3	1.5	307	12.7	0.30	0.9	0.6	0.3	9.40
U. Arturo Prat	988	0.9	0.9	113	8.7	0.11	0.1	0.1	0.0	13.07
U. Metropolitana Cs. Ed.	4,158	3.6	2.5	366	11.4	0.23	0.5	0.6	0.0	10.58
U. de Playa Ancha Cs. Ed.*	2,203	1.9	0.8	181	12.2	0.47	0.1	0.2	0.1	—
I.P. de Santiago	3,399	2.9	3.7	236	14.4	0.06	0.2	0.1	0.0	18.77
I.P. Osorno	2,074	1.8	0.6	144	14.4	0.15	0.6	0.4	0.2	15.49

A: Enrollment, 1989. Consejo de Rectores. Anuario Estadístico, 1989 (*) 1988 enrollment figures.

B: % of total enrollment.

C: % of participation in 1990 best students-subsidy. See Table 18.

D: Number of FTE faculty. 1989. MINEDUC. División de Educación Superior.

E: Student/FTE teacher ratio. 1989.

F: Ph.D & MA/FTE teacher. 1989.

G: % of active researchers in FONDECYT during period 1982-1989. Defined as those who participated at least once as "investigador responsable" or two times as "co-investigador" in approved projects. Percentage over total of active researchers. 5.8% of these come from outside the considered HE establishments. CONICYT. Recursos Humanos en Investigación Científica y Tecnológica, op.cit.

H: % of research projects approved during the period. Percentage over total of approved projects during the period. 5.6% of approved projects come from outside the considered HE establishments. Source same as in G.

I: % of publications over total originidad within HE institutions (85.0% of national total) for 1989 registered by the I.S.S. M. Krauskopf. op.cit. Table V.

J: Graduates/enrollment ratio. 1986-1990. See below, Table 9.

Appendix Table 4
Chile: R & D Public Expenditure and Percentage in HE System,
1980-1988

Year	US\$ (million)	% GNP	% to HE
1980	104.4	0.37	47.0
1984	87.0	0.45	44.6
1988	90.6	0.46	32.5

Source: Based on CONICYT, Op. Cit.

Table 5
Chile: Faculty Staff, Nominal Time and Formal Training by Tiers and Sectors, 1986

	%FT	%HT	%PT	%PHD	%MA	%PT	%NT
Universities							
W.p.f.	59.1	7.3	33.6	7.6	12.5	78.9	1.0
private,n.p.f.	5.5	1.5	93.0	8.5	15.1	72.4	4.0
Professional Institutes							
W.p.f.	50.3	12.3	37.4	0.5	9.0	84.3	6.1
Private,n.p.f.	9.7	7.0	83.3	2.2	9.3	80.2	8.3

Source: C. Cox and C. Jara, Datos Básicos para la Discusión de Políticas en Educación (1970-1988), CIDE-FLACSO, Santiago de Chile, 1989.

FT: full time

HT: half time

PT: part time

PT: professional title and/or *licenciatura*

NT: no professional title

Appendix Table 6
Chile: Institutional Profile of the New State Universities, 1990

Institution	Number of students	Faculty staff			Number approved research projects (1988-1990)	Major fields of enrollment concentration			
		Number (1986)	% of FT	% of post-grads. holders		1st.	%	2nd.	%
U. de Valparaíso	3,391	639	36,3	7,7	5	Medic./health	34,5	Social Scs.	24,2
U. de Antofagasta	2,825	373	61,1	17,2	10	Technologies	43,2	Health	31,7
U. de la Serena	3,066	304	67,8	13,2	9	Technologies	42,1	Education	35,9
U. del Bío Bío	5,806	495*	21,2	25,1	4	Technologies	46,0	Social Scs.	15,7
U. de la Frontera	4,487	573	50,3	10,1	11	Technologies	33,2	Med./Health	22,6
U. de Magallanes	1,100	192	44,8	0,8	9	Technologies	38,5	Social Scs.	28,3
U. de Talca	2,328	326	54,6	17,2	9	Social Scs.	37,6	Agriculture	22,7
U. de Atacama	1,458	144	54,9	13,2	3	Technologies	81,0	Education	16,9
U. de Tarapacá	4,274	468	58,3	22,9	14	Education	31,5	Technologs.	29,9
U. Arturo Prat	1,206	164	62,8	0,9	-	Social Scs.	52,0	Education	14,5
U.M. Cs. Ed.	4,462	485	71,8	11,3	10	Education	100,0	-	-
U.P.A. Cs. Ed.	2,071	357	58,3	11,2	2	Education	81,7	Humanities	15,1
I.P. de Santiago	4,221	414	29,0	13,0	-	Technologies	49,4	Social Scs.	26,7
I.P. Osorno	4,217	202	63,4	12,4	10	Education	51,7	Agriculture	26,1

Source: Based on Consejo de Rectores Universidades Chilenas, Anuarios Estadísticos, 1986 and 1990 and F. Saavedra, op.cit

* Does not consider faculty staff of IP de Chillan which was later absorbed by the U.del Bio Bio

Appendix Table 7

Institution	S/T Ratio	FTE/S Ratio	S/AP Ratio
UCH	3.1	5.3	2.7
PUC	6.7	9.8	6.5
UC	9.1	10.3	5.9
UCV	7.7	12.3	8.3
UTFSM	13.7	20.1	7.6
USACH	9.3	17.2	8.4
UACH	7.7	9.0	4.7
UCN	13.6	14.0	4.9
UV	4.3	7.7	5.4
UANTO	10.4	12.0	7.6
ULS	13.2	17.7	10.6
UBB	14.5	25.2	17.7
UFRO	8.2	12.4	9.4
UMA	6.2	10.2	9.4
UTAL	11.9	17.0	11.8
UATA	14.0	19.8	10.6
UTAR	9.6	13.4	7.5
UAP	6.8	11.5	8.1
UMCE	8.9	11.9	8.5
UPACE	n.i	n.i	n.i
IPS	9.2	18.2	15.4
IPCh	12.8	16.7	8.3
IPV	16.0	20.8	9.9
IPO	13.6	18.0	13.5
Average	7.1	10.8	6.1

Source: Consejo de Rectores. Anuario Estadístico, 1987.

Appendix Table 8
Chile: Public Sector HE Institutions
Efficiency Levels in Graduate Output, 1990

Country	Total enrollments	Graduate output (2)	Expected output (3)	Efficiency index
Total	121,876	12,624	10,358	100.0
U. de Chile	16,478	1,793	1,707	105.0
P. U. Católica de Chile	14,566	2,243	1,509	148.6
U. de Concepción	11,692	995	1,211	82.2
U. Católica Valparaíso	6,976	732	723	101.2
U. Técnica F. Santa María	6,145	539	636	84.7
U. Santiago de Chile	11,251	1,111	1,165	95.4
U. Austral de Chile	6,562	537	680	79.0
U. Católica del Norte	3,291	140	341	41.1
U. de Valparaíso	3,391	275	351	78.3
U. de Antofagasta	2,825	208	293	71.0
U. de la Serena	3,066	347	216	109.8
U. del Bío Bío	5,806	680	601	113.1
U. de la Frontera	4,487	594	465	127.7
U. de Magallanes	1,100	133	114	116.7
U. de Talca	2,328	442	241	183.4
U. de Atacama	1,458	152	151	100.7
U. de Tarapacá	4,274	360	443	81.3
U. Arturo Prat	1,206	122	125	97.6
U. Metropolitana Cs, Ed.	4,462	358	462	77.5
U. de Playa Ancha Cs. Ed.	2,071	340	215	158.1
I.P. de Santiago	4,221	332	437	76.0
I.P. Osorno	4,217	191	437	43.7

Source: Consejo de Rectores. Anuario Estadístico, 1990 and División de Educación Superior, MINEDUC. 1991

Appendix Table 9
Chile: Public Sector HE Institutions, Input-Output Ratios, 1990

Institution (1)	Average enrollment (1986-1990)	Average Graduates (1988-1990)	I/O ratio
U. de Chile	16,888	1,734	9.74
U. Católica de Chile	14,817	2,497	5.93
U. de Concepción	11,419	1,088	10.53
U. Católica Valparaíso	6,932	878	7.90
U. Técnica F. Santa María	5,653	547	10.33
U. Santiago de Chile	12,261	1,153	10.63
U. Austral de Chile	5,596	657	8.48
U. Católica del Norte	2,969	149	19.92
U. de Valparaíso	2,986	471	6.40
U. de Antofagasta	2,813	239	11.84
U. de la Serena	3,510	470	7.47
U. del Bío Bío(2)	3,576	244	14.66
U. de la Frontera	4,415	540	8.17
U. de Magallanes	1,137	169	6.73
U. de Talca	3,252	516	6.30
U. de Atacama	1,639	162	10.12
U. de Tarapacá	3,929	418	9.40
U. Arturo Prat(3)	1,281	98	13.07
U. Metropolitana Cs. Ed.	4,423	418	10.58
U. de Playa Ancha Cs. Ed.	n.i	n.i	—
I.P. de Santiago	3,698	197	18.77
I.P. Osorno	2,820	182	15.49

Source: Consejo de Rectores. Anuario Estadístico, 1990.

- (1) I.P. de Chillán and I.P. de Valdivia are not considered.
 (2) Enrollment, years 1983-1987; graduates, years 1985-1987.
 (3) Output figures present steep fluctuations.

Appendix Table 10
Chile: Income Composition of Public Sector HE Institutions, 1990
(in million pesos)

Institution	Total Income		Treasury Disbursements(1)		Public Tuition Fees Payments by Students(2)		Other Sources(3)	
	\$	%	\$	%	\$	%	\$	%
U. de Chile	27,363.1	100	8,381.1	30.6	3,856.2	14.1	15,125.8	55.3
U. Catól. de Chile	28,175.9	100	5,676.0	20.1	5,792.9	20.6	16,707.0	59.3
U. de Concepción	8,252.0	100	3,954.0	47.9	1,861.0	22.6	2,437.0	29.5
U. Catól. Valpar.	5,378.6	100	2,164.2	40.2	1,638.4	30.5	1,576.0	29.3
U.T.F. Santa María	2,812.6	100	1,918.2	68.2	705.8	25.1	188.6	6.7
U. de Santiago	6,732.9	100	3,047.5	45.3	1,924.5	28.6	1,760.9	26.1
U. Austral Chile	3,647.9	100	1,917.6	52.6	1,125.0	30.8	605.3	16.6
U. Católica Norte	3,616.2	100	1,172.4	32.4	457.0	12.6	1,986.8	54.9
U. de Valparaíso	2,351.1	100	1,079.8	45.9	811.1	34.5	460.2	19.6
U. de Antofagasta	3,372.3	100	758.7	22.5	538.0	16.0	2,075.6	61.5
U. de la Serena	1,298.6	100	797.7	61.4	163.2	12.6	337.7	26.0
U. del Bío Bío	2,737.4	100	1,128.9	41.2	1,121.4	41.0	487.1	17.8
U. la Frontera	2,755.4	100	1,014.6	36.8	867.8	31.5	873.0	31.7
U. de Magallanes	943.4	100	333.8	35.4	335.2	35.5	274.4	29.1
U. de Talca	1,620.3	100	728.1	44.9	616.9	38.1	275.3	17.0
U. de Atacama	1,136.6	100	450.3	39.6	275.1	24.2	411.2	36.2
U. de Tarapacá	2,167.7	100	1,084.0	50.0	551.6	25.4	532.1	24.5
U. Arturo Prat(4)	1,114.7	100	211.4	19.0	214.7	19.2	688.6	61.8
U. Metropol. Cs. Ed.	2,712.7	100	1,127.5	41.6	820.3	30.2	764.9	28.2
U. Playa Ancha	1,016.0	100	396.7	39.0	356.2	35.1	262.2	25.8
I.P. de Santiago	1,653.8	100	563.1	34.0	565.9	34.2	542.8	31.7
I.P. Osorno	902.2	100	377.9	41.9	281.9	31.2	242.4	26.9
Total	111,761.4	100	38,283.5	34.3	24,880.1	22.2	48,614.9	43.5
US\$	366.5		125.6		81.6		159.4	

Source: Based on Ministerio de Hacienda, Dirección de Presupuesto, Balances Presupuestarios, 1990.

- (1) Considers "aporte fiscal directo", "aporte fiscal indirecto", "Pagaré universitario" and "recuperación de crédito fiscal universitario".
- (2) Includes direct payment of tuition fees both at the undergraduate and postgraduate level.
- (3) Includes service contracting with public and private bodies, research funds, venta de activos, renta de inversiones, recuperación de préstamos, endeudamiento, donaciones, otros ingresos y disponibilidades en caja.
- (4) Income for tuition fees has been estimated.

Appendix Table 11

Chile: Socioeconomic Background of Students Entering 1st Year in Public and Private Universities, 1990

Father's Occupation	Public Universities	Private Universities
Managers, entrepreneurs, administrators, professionals	16.6	33.4
Specialized employees, technicians, middle-size entrepreneurs	24.2	23.5
Clerical and salesworkers	25.0	18.3
Small proprietors and self-employed artisans	15.0	14.6
Skilled manual workers	9.8	5.1
Semi and unskilled manual workers	5.8	2.8
Personal (domestic) services and housewives	3.6	2.3
Total	100.0	100.0

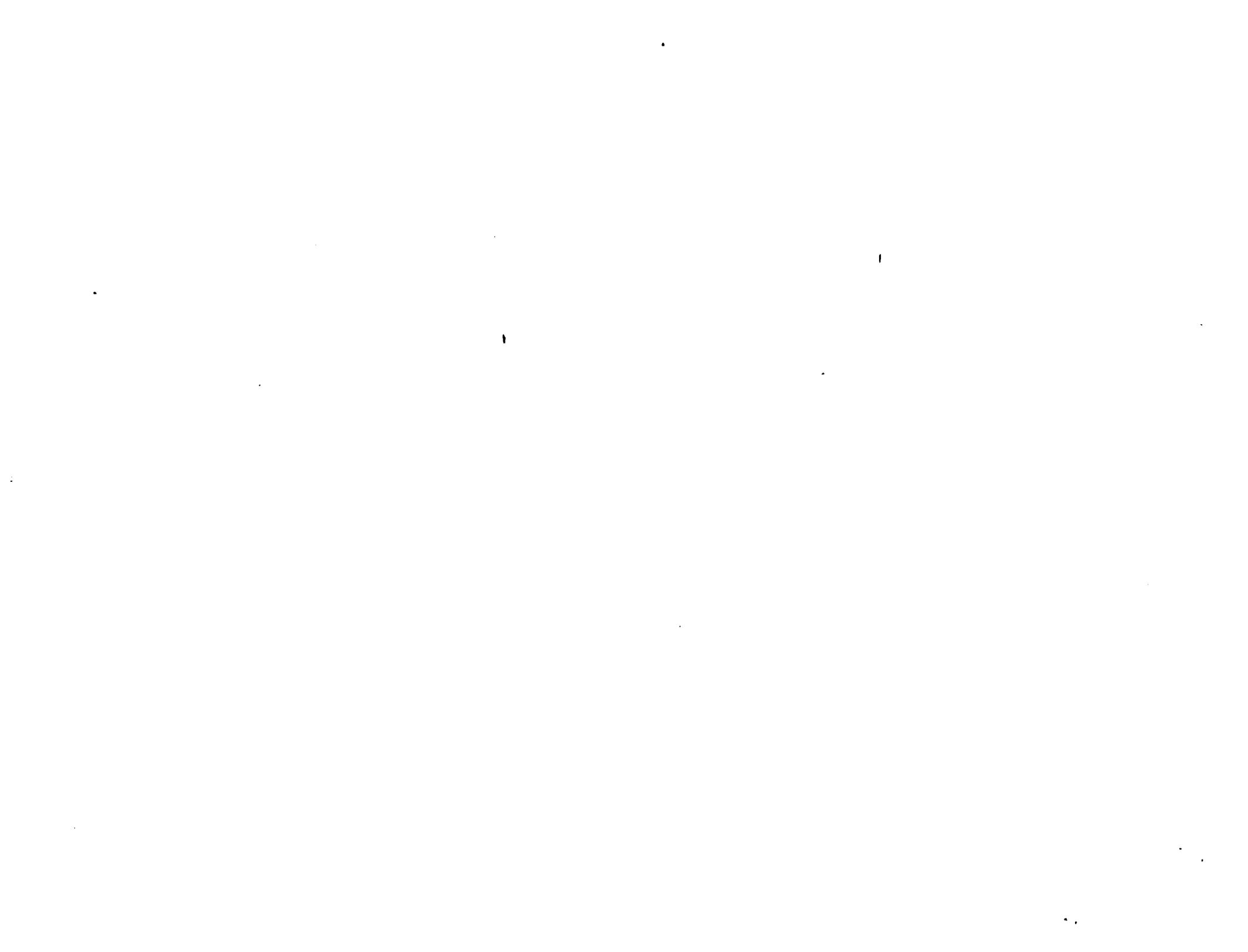
Source: Universidades Chilenas, Proceso de Admisión: 1989-1990.

HIGHER EDUCATION IN BRAZIL: ISSUES AND EFFORTS AT REFORM

Laurence Wolff, Douglas Albrecht and Alcyone Saliba

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OVERVIEW OF THE HIGHER EDUCATION SYSTEM IN BRAZIL

Structure and History

Higher education in Brazil currently enrolls about 1.6 million students, 97% of which attend undergraduate programs. As Chart 1 shows, enrollments have grown during the last thirty years from less than 100,000 in 1960 to 1.6 million by 1989, which is equivalent to 12% of the school age population and about 58% of secondary school enrollment. First-year undergraduate enrollment is equivalent to 74% of secondary school graduates in the previous year. About 60% of total enrollments are in private institutions, of which one third are in private universities. Federal institutions, most of which are universities, account for 22% of enrollments. State institutions enroll 13%, with the vast majority in Sao Paulo and Paraná. Municipal institutions, also mainly in the Southeast and South, enroll 5% of students.

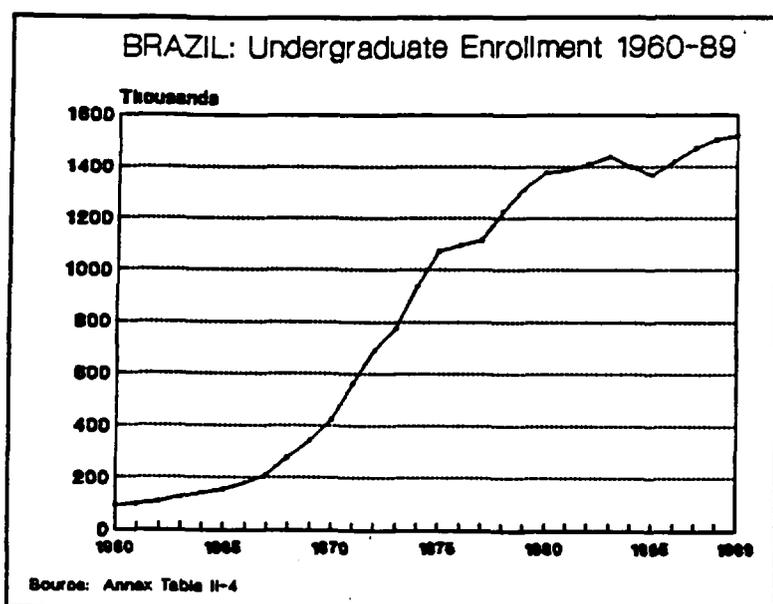


Chart 1

By 1989 Brazil had 93 universities, of which 35 are federal, enrolling over 300,000 students, 39 are private, enrolling over 300,00 students, and 19 are state or municipal, enrolling about 150,000. In addition to universities, the Brazilian higher education system includes multiple-faculty institutions that offer programs in more than one knowledge area (such as social sciences and technology) and single-faculty institutions that offer programs in only one knowledge area (such as social sciences). Over 80% of the higher education institutions¹ are of the single-faculty type. Within these two categories, most of the single-faculty institutions and nearly all of

the multiple-faculty institutions are private. Chart 2 summarizes the current enrollment breakdown by governing authority and institutional type.

¹ The Ministry of Education (MEC) statistics counts each "isolated" faculty as an institution, although, in the private sector, several "isolated" faculties may be under the control of a single governing board and, thus, actually constitute a single institution. It is estimated that the total number of private non-university institutions would decrease by as much as 50% if the governing board were the inclusion criterion.

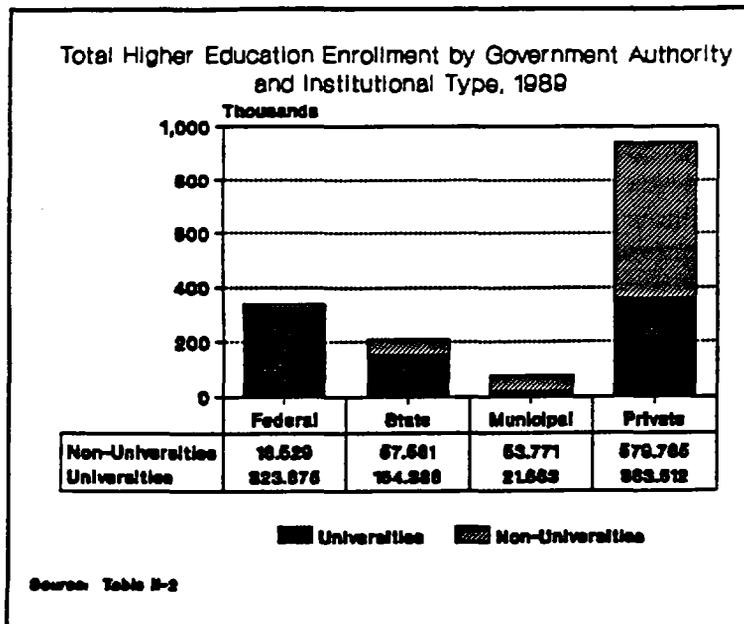


Chart 2

Assuming a five-year average for completion of a program by students, and given that the 1985 freshman enrollment was around 400,000, 50% is a rough estimate of the graduation efficiency rate in Brazilian higher education. This rate is relatively low considering that Brazil requires competitive entrance examinations (vestibular) for all higher education institutions.

In the mid-1960s the Brazilian Government decided to meet the social demand for higher education by encouraging the establishment of more private institutions, mostly of the non-university type, and opening new federal universities, mostly in the capitals of the poorer states, where none existed before. The implicit policy goal was to consolidate a relatively elite public university system, offering undergraduate and graduate instruction free-of-charge to the country's best students and emphasizing research, while creating a private sector providing mass education. However, while federal institutions generally offer better instruction than private institutions, only a few of them undertake significant amounts of research. While Brazil was pursuing this model, other Latin American countries, such as Argentina and Mexico, were opening the doors of public higher education to nearly all secondary school graduates and creating mass public education systems paired with small private systems.

Between the mid-1960s and mid-1970s, Brazilian higher education exhibited continued fast growth, averaging around 20% per year. Although all sub-systems grew in student enrollment, private enrollment increased most rapidly. In 1965, 38% of total enrollment was in federal institutions, 17% in state, 1% in municipal, and 44% in private; by 1983, these proportions had changed to, respectively, 24%, 10%, 6%, and 60%. By 1989, federal and municipal enrollment shares had decreased to 21% and 5%, while the state and private shares had slightly increased to 13% and 62%. Since 1983 enrollment in federal institutions has declined slightly, while state and private institutions have grown steadily.

Brazil's education system is highly differentiated by region. In the poorest region, the Northeast, roughly 4% of the age cohort attend higher education, compared with 10% do in the richest region, the Southeast. The public sector predominates in the North and Northeast, while the private sector holds the

Programs of study range from 4 semesters, such as in pedagogical programs that prepare elementary school teachers, to 12 semesters, such as in professional programs that prepare medical physicians. Degrees are offered in teaching, vocational areas, by discipline, by profession, for example), and for military or religious careers.

Almost two thirds of students are enrolled in the broad field of arts, social sciences and humanities. Exact sciences (11%), engineering and technology (10%), and health sciences (12%) enroll about one third, with agriculture holding only 2-3% of the enrollment. In 1989 the system produced over 220,000 graduates, about half from universities.

majority of the enrollment in the other regions, especially in the Southeast, where it has more than two thirds of the students. There is little federal and very strong private (90% of enrollment) presence in Sao Paulo, where nearly all of public higher education enrollment is in state schools.

Although federal and state institutions charge small fees for student services, and also contract specialized services (research, training, technical assistance, and health care) to public and private agencies, the constitution specifically prohibits the charging of tuition. Therefore public universities are mainly financed directly with government funds. In contrast, private institutions are financed mainly through tuition and fees, although some private universities receive government funds (mostly for graduate programs and research) and contract services to public and private agencies. Students attending private institutions can also benefit from public funds by applying for educational loans and/or scholarships.

Federal expenditure on federal universities² in 1988 averaged US\$7,930 per student, about fifty times more than expenditure at the primary and secondary levels (roughly US\$150 per student). This level of spending is higher than that of other Latin American countries and it is similar to that of many developed countries. The average for Chilean public institutions is US\$1,700 and for Venezuela is US\$1,625. Unit expenditures in private institutions range from about US\$4,500 in the best Catholic universities to a low of US\$500 in some non-university private institutions. Table 1, which summarizes enrollments and estimates costs by sector, shows that total public spending in higher education is equivalent to 1.3% of GDP and accounts for approximately 80% of total spending in higher education in Brazil. These figures do not include spending on research in universities by agencies outside the Ministry of Education, which is equivalent to another 10-15%.

In Brazil a large share of total public spending on education goes to higher education. Only 2% of total public education enrollment is in higher education, but an estimated 23% of total public (federal, state and municipal) education spending is directed to this level. The Ministry of Education alone spends about 60% of its budget in its federal institutions, which serve only 22% of higher education students.

Assuming that enrollment in graduate education as well as percentage of faculty with advanced degrees are proxies for output quality, it is possible to differentiate several tiers of higher education institutions in Brazil. On this basis, as well as on the basis of informed judgments by relevant observers, the two state universities of Sao Paulo (USP) and Campinas (UNICAMP) are in a category by themselves. These are by far the highest quality institutions in Brazil and boast significant graduate programs (26% of the enrollment in graduate education in Brazil is in these two institutions). Undergraduate education is also considered by far the best in Brazil. Science and engineering constitute major portions of enrollment. Total enrollment in these two institutions is around 50,000.

² Figures are based on official exchange rates. Excluding university hospital and pension costs, the unit costs would be about US\$6,000. See page III-11 for a more detailed discussion of unit costs.

Enrollment and Estimated Cost by Higher Education Sector, 1989					
Sector	Enrollment	%	Estimated Unit Cost in US\$	Estimated Total Cost in US\$ billion	Total Cost as % of GDP
Federal	340,203	(22)	7,930	2.7	0.9
State	211,946	(13)	4,000	0.8	0.3
Municipal	75,434	(5)	2,000	0.2	0.05
Private	943,276	(60)	1,300	1.2	0.4
Total	1,570,860		3,200	4.9	1.7

Source: Enrollment: Annex Table II-2.
 Costs: Federal costs are based on Paul and Wolyneć. State costs are pro-rated estimates based on Paul and Wolyneć and on case studies undertaken by Rogerio Vahl. Municipal costs are estimates based on Vahl. Private costs are based on Vahl and on case studies in Rio de Janeiro undertaken by Edson Nunes. Because of volatile exchange rates, as well as incomplete data, these estimates should be considered indicative only. They not include expenditures for scholarships, research and salary supplements for researchers, all of which are estimated at US\$551 million, and which go to individuals and to public and private universities and research institutes.

Table 1

Another tier is formed by a relatively large number of public and private universities that provide undergraduate education of varying quality. Only a few of these institutions have significant graduate programs: the federal universities of Rio, Minas Gerais, Santa Catarina, Sao Carlos, Rio Grande do Sul, and Pernambuco, as well as the Catholic Universities of Rio and Sao Paulo (PUC-Rio and PUC-SP) enroll 7% or more of their students in graduate programs. Total enrollment in these somewhat research oriented institutions is around 92,000 in the federal universities and around 45,000 in the private institutions. Enrollment in the remaining federal universities, several of which are reported to be of reasonable quality (that is, those without significant graduate education) is around 215,000. Other state institutions of similar quality enroll 140,000. The remaining private institutions can be divided between universities (enrollment 310,000), which generally offer undergraduate education of reasonable quality, and faculties which offer low quality, mostly evening, courses in the social sciences and law, mainly for a lower middle class clientele (enrollment 580,000). Table 2 is a breakdown of enrollments by these tiers of higher education in Brazil.

Equity and External Efficiency

<u>Enrollment by Type of Institution - 1989^{1/}</u>	
Two High Quality State Universities (USP and UNICAMP)	50,000
Six Federal Universities with Research and Graduate Orientation	92,000
Two High Quality Catholic Universities	45,000
Other Federal Institutions	268,000
Other State and Municipal Institutions	218,000
Other Private Universities - Confessional and Community	191,000
Entrepreneurial	188,000
Private Non-University Institutions	<u>519,000</u>
Total	1,571,000

^{1/} In descending order of perceived quality.
Source: Authors' estimates, based on MEC statistics.

Table 2

and pedagogy. For Brazil as a whole about 8% of the adult population has attended higher education institutions. The student profile of the more prestigious private institutions (some Catholic universities) is similar to that of the public institutions. Table 3 provides a summary of recent studies on the socio-economic status of higher education students.

As can be expected the earnings of those with post secondary education of any sort are high. Data from the 1980 census shows that the income of those with 13 or more years of schools is more than fifteen times those with five years of schooling and more than 180 times the income of those with less than three years of schooling.

Several studies have documented that the vast majority of students in all higher education institutions, both public and private, are from the middle or upper classes. Public institutions have students of the highest socioeconomic status. A recent survey of income of parents of federal university students shows the following breakdowns (1989) in terms of minimum salaries: 0-3 minimum salaries, 18% of students; 4-10, 37%; and 11 and above 44%. This compares with an estimated 10% of the general population earning more than ten minimum salaries.³ Socio-economic class within higher education varies by subject studied. A study (Paul, 1991) shows that over 30% of enrollees in day engineering, biomedical studies, and law in a private institution in Sao Paulo had fathers with higher education, compared to 13% in teacher training and 16% in night courses in law and social sciences. Fully 61% of students in the federal university in Ceara studying civil engineering had fathers with at least an undergraduate degree. This compares with 20% or less for areas such as literature, nursing, geography,

³ Meyer (1982), Farret (1985), Saliba (1990), Gomes (1990), and Paul (1991) have documented these income inequalities. Estimates of income distribution in the general population are from Camargo, et al. (1990). The top decile of the labor force earned an average of 17.1 minimum wages in 1989. The second decile earned an average of 5.6 minimum wages.

Background of Entering Students for Several Brazilian Institutions		
	Father with Higher Education	Attended Public Secondary School
University of Mogi das Cruzes (Private Institution in Sao Paulo)	21%	58%
Day classes in Engineering, Biomedical Sciences and Law	34%	41%
Day classes in Teacher Training	13%	62%
All night classes	17%	62%
Federal University of Ceara	33%	20%
Engineering, Medicine, and Data Processing	53%	12%
Administration, Geography, Nursing, and Literature	15%	31%
State University of Ceara	20%	32%
Catholic University of Ceara	31%	10%

Source: Paul, 1991.

Table 3

Studies show differences in earnings between graduates from low and high prestige courses of study but little difference between public institutions and the higher prestige private institutions (Paul, 1991; Velloso e Bastos, 1984). A tracer study undertaken by MEC⁴ provides some additional understanding on the relationships between the labor market and higher education output. Overall there is insignificant unemployment among all higher education graduates. However, only one-third to one-fourth of higher education graduates are youths who have never worked. These generally attend the best institutions and then enter their chosen profession. The more typical graduate, especially in the lower quality private institutions, lives in the Southeast, is about 30 years old, worked for several years after graduating from secondary school, and then decided to go to school in the evenings. Most of these graduates continue

⁴ Reported in Claudio de Moura Castro (1990).

in the same job they had while studying, possibly with some salary increment or some modest increased aspirations because of their degree. These people are paying for low-cost courses and getting modest perceived benefits from them.

There is little information on private and social rates of return to education in Brazil. One study (Psacharopoulos, 1985) reports private rates of return of 25% for secondary education and 14% for higher education and social rates of return of 24% and 13%. A more recent study (Leal and Werlang, 1989) reports private rates of return of 16% for both higher and secondary education, 12% for full primary education, and 16% for four years of primary education during the period of 1982-86.

Graduate Education and Research

Graduate education is a small but important part of the higher education system. Current enrollment is estimated at about 50,000, the bulk of which is in master's programs. Roughly one third of the graduate students are pursuing a degree in the "hard" sciences (including technology). About half of the graduate enrollment is in federal institutions and one third is in state institutions, nearly all (97%) in the state of Sao Paulo. There are more than 1,300 master's and doctoral courses, or an average of 40 students in each degree program. Graduate education has recently grown rapidly, and is of relatively high quality compared to undergraduate education, to a great extent because of a relatively effective competitive funding system operating outside MEC's regular funding of higher education institutions.

The funding mechanism for graduate education and research in both the public and private sectors is based to a great extent on open competition and peer review. Public and private universities and non-profit research institutes get funds for graduate education and research. These funds may not appear in their budget if they are received through "foundations". The most important Government agency financing (and undertaking) science research is the Council for Scientific and Technological Development (CNPq). The CNPq provides funds for researchers in the form of salary increments and also provides support in the form of research grants, usually to individual researchers and for relatively small amounts. Along with its grant program, CNPq administers eleven separate research institutes and a large scholarship program (at present, there are 30,000 scholarships inside Brazil and 3,500 overseas).

The Agency for Financing Studies and Projects (FINEP) is a public corporation which acts both as a conventional research foundation and as a development bank lending funds for technological innovation in Brazilian industry. FINEP was set up in 1967 to develop Brazil's engineering industry. FINEP has 700 staff, more than 100 with doctoral or masters' degrees, and in 1988 supported 1,840 projects split almost equally between scientific research and technological development. FINEP also functions as the Executive Secretariat for the National Scientific and Technological Development Fund (FNDCT), a major government source of grant funding for infrastructure, new buildings and new equipment in university based science and technology research. Funding for FNDCT in 1992 as well as for CNPq was severely reduced because of Brazil's ongoing economic difficulties.

The Agency for Training of High Level Personnel (CAPES) of the Ministry of Education and Culture (MEC) coordinates graduate education in Brazil. CAPES's principal instruments of support have been grants and fellowships for study in Brazil and abroad for individuals preparing for careers in university teaching and research (in 1989, CAPES supported around 14,000 students at Brazilian universities and 2,000 students in North America and Europe). CAPES certifies and rates all graduate programs in terms of overall quality and provides support to 700 graduate courses (two-thirds of all the

courses in the country). It also runs a program to help build up institutions so that they can offer new courses. In 1989 CAPES' total budget was equivalent to US\$200 million.

Private Higher Education

Private higher education has existed for over a hundred years in Brazil. Its participation in the overall system increased during the late 1960's and 1970's, when the military regime, confronted with strong pressures for increased enrollment in public institutions, as well as political opposition centered in the public institutions, resolved to permit the opening of large numbers of new private institutions. During that time higher education, both public and private, increased rapidly, but the greatest increases were in private non-university institutions.

Since the 1970's, a majority of students have enrolled in private institutions. In the 1960's and 1970's private higher education grew at 15% per year, much faster than the secondary system, with the result that a more heterogenous clientele, including students with deficient preparation, now attend private institutions. Growth over the past six years has only been 2% per annum as a result of the economic downturn as well as continuing restrictions by CFE on opening of new programs.

The private sector in 1987 comprised 72% of the institutions, offering 67% of the first year openings, enrolling 60% of the students, and supplying 67% of graduates. Compared to public institutions, the private sector emphasizes undergraduate education and humanities, social services, and teaching. It has 75% of the student enrollment in humanities, 66% of languages, 57% of exact sciences and technology, 14% of agricultural sciences, 43% of health sciences, and 51% of arts. For teacher training the private sector has 67% of teaching programs, with 69% of students and 75% of graduates.

Although the private sector concentrates on undergraduate education, it is also an important partner in graduate education: 11% of programs, and almost 20% of students. However 60% of private sector graduate enrollment is concentrated in two universities, the Catholic Universities of Rio and Sao Paulo (PUC-RJ and PUC-SP). In comparison, about one third of the federal universities have no graduate education, and 50% of graduate enrollment in federal institutions is concentrated in three universities, in Rio, Minas Gerais, and Rio Grande do Sul. CAPES' program of peer evaluation and rating of graduate programs shows that graduate education in the private institutions is of quality comparable to that of many federal universities. Private graduate education receives more than 10% of the funds allocated by the government agencies CAPES, FINEP, and CNPq and supplies 15% of theses and dissertations.

*Private Universities.*⁵ PUC-Rio and PUC-Sao Paulo enroll 25,000 students, offer high quality undergraduate and graduate education, and produce research. PUC-Rio has a student teacher ratio of 10:1, which is similar to that of federal universities; 17% of its enrollment is in graduate education. PUC-Sao Paulo has 15% in graduate education and a 16:1 ratio. These two institutions were founded many decades ago, have large numbers of graduate students, student-teacher ratios lower than in many other private but higher than in public, some full-time faculty, and costs higher than many other private but lower than public ones.

⁵ This section draws (though not exclusively) on comparative case studies, undertaken by Vahl (1990), of four community universities, including 2 Catholic universities (PUCs).

In private universities other than PUC-Rio and PUC-SP, 80-90% of teachers do not have graduate degrees; only about 15-20% are full time; 63% are hired on hourly bases for teaching only (no research expectation) and receive salaries of about US\$ 200 per month. In contrast, in public universities 55% of teachers did not have a graduate degree in 1988; and 77% were full time. With regard to student flow, the ratio of 1985 first year openings over 1989 graduates was 78%, compared to a public university ratio of 63%. Private universities use facilities, libraries, and laboratories, and use them more than twice as intensively as public institutions. FTE student/teacher ratios are 24:1 and unit costs average about US\$1,000 compared to 8.8:1 and around US\$8000, respectively, in federal institutions.

*Private Non-University Institutions.*⁶ A large number of the non-university institutions offer all levels of schooling, from pre-school to tertiary education, thus maximizing the utilization of their facilities and direct administration systems. They usually do not have campuses, simply occupy buildings, sometimes in more than one location, often offering night courses only in buildings operating as secondary schools during the day. Some have good facilities but the majority do not. Many single-faculty and multiple-faculty institutions aspire to university status, because of higher prestige and relatively more autonomy. The vast majority of these institutions are located in Sao Paulo and Rio.

Income from tuition accounts for 50% to 96% of an institution's budget, with an average of approximately 80%. The federally-funded student loan-program brings in 5-30% of the budget, with an average of about 13%. Other sources of income are provision of services, such as health services in hospital-schools and at-large education programs contracted by local corporations for the training of their employees, as well as the investment of tuition money in the capital market. Since these institutions do not keep detailed accounts it is difficult to reconcile income and expenditure. Many institutions award partial or full tuition waivers to students in financial difficulty. Waiver levels vary from 5% to 45%, averaging 10%. About a third of the scholarships provide 100% discounts, the rest vary from 15% to 90%, with about a third falling at the 30% discount rate level.

One group of private institutions is that of "community" institutions, which see themselves as non-governmental public entities providing social services. This group actually consists of two types of institutions, both sharing the same mission, but with distinct affiliations. The most traditional sub-group is that of the confessional institutions, founded and administered by consortia of religious orders, generally in existence many years prior to the 1968 reforms and consequent expansion; many of them are university, but not all. A smaller and newer sub-group of community institutions is that of secular institutions, all universities founded and administered by community-based groups with no religious affiliation. Total enrollment in confessional institutions was around 225,000 in 1989 (25% of total private enrollment).

A second group, the majority of private institutions, can be defined as "entrepreneurial" institutions, which consider themselves as educational enterprises seeking a profit to all intents and purposes. Many general directors of these schools are their own founders. Their background is diverse, from teachers to retired army generals to lawyers. Some were established by elite families (such as UNIFOR in Ceara, Mackenzie in Sao Paulo, and SBI in Rio de Janeiro), others are owned by business partnerships capable of cost-effectively delivering low-cost programs (such as UPIS in Brasilia and Objetivo in Sao Paulo). Total enrollment in 1989 in entrepreneurial institutions was around 700,000

⁶ This section draws on case studies of 16 higher education institutions of the state of Rio de Janeiro undertaken by a team of researchers led by Laura Dantas of SBI.

(about 75% of total private enrollment). However, unlike in the primary and secondary education sectors, the law governing private higher education does not allow institutions to be profit-making. Nevertheless, owners figure out creative ways to capture profit.

Demand for Private Higher Education. Considering that public institutions have higher prestige and charge no tuition, they are almost invariably the first choice of students. Private higher education becomes the choice when: (i) the student is unable to gain admission to a public institution; (ii) the student is a full participant in the labor force and, thus, cannot afford to attend daytime classes; (iii) the local public institution does not offer the course of study desired by the student; and, in some cases, (iv) the student sees the private institution as better quality in selected courses of study. Once the first-order decision is made to seek admission in the private sector, a second-order decision is often required, because most locations have more than one private institution. The profile of students in the best Catholic universities is similar to that of public institutions. However, most of the low quality, non-university institutions are attended by older, less prepared students, most of them working full time, and staffed by less prepared teachers, sharing low intellectual demands on each other the ("pacto corrupto"). The widespread perception (largely unmeasured) is that the majority of these schools are "diploma mills" offering formal credentials but very little content. Hard data on this overall impression, through studies of learning or income after attending these institutions, is not available.

Several factors account for the phenomenon of people paying for low-quality private higher education. First, there is demand overflow; demand for higher education outweighs supply by at least 2:1, but the ratio of applicants by opening is as high as 60:1 in high prestige programs, such as engineering, dentistry, and medicine, at some institutions. Second, where higher education (and even education in general) has a high scarcity value, acquiring even low-quality higher education is better than acquiring no higher education, especially in a labor market where the majority have a less than primary level educational attainment. Third, the public sector of the labor market is dominated by credentialism, in which career ladders for civil servants are defined by credentials and seniority (as well as patronage). Hence, the Government actually encourages low quality private higher education by assigning an intrinsic value to the diploma. Although the private sector of the labor market is generally more interested in skills than in credentials, it still has to comply with regulations which are created by trade associations and mandated by the public sector. For example: the law regulating the profession of journalism states that corporations producing any form of publication (such as client newsletters) must employ certified Brazilian journalists, whether they need them or not, an artifice of the journalists union to guarantee jobs for its members; companies often work around the legislation by hiring a card-carrying journalist who receives token compensation for agreeing to have his/her name on the company's masthead, but who does not do the work. Similar legislation exists for many other professions. Such labor market regulation guarantees that investment in any private higher education pays off, given that students attending private institutions receive diplomas with the same nominal certifying value as one obtained from a high quality (public or private) institution.

ISSUES IN HIGHER EDUCATION

This section seeks to document the main issues and problems of the current higher education system in Brazil. It covers the key areas of the costs, governance, and management of federal higher education, the relationships between the federal government and private higher education, and overall financing of the higher education system.

Costs of Federally Funded Higher Education

There is much controversy within Brazil on whether or not the costs of higher education are excessive. Based on comparisons with state and private institutions in Brazil as well as through some international comparisons, it can be concluded that, while federal institutions emphasize higher cost programs in science and technology, and some of these institutions provide significant programs of graduate education, overall the unit costs of these institutions are significantly higher than private institutions in Brazil providing similar programs. The main factors accounting for such high unit costs are the low student/teacher and student/non-teaching staff ratios. There are only minor differences in expenditures between research and graduate oriented federal universities and purely undergraduate institutions; nor are there any economies of scale among federal institutions. In addition physical facilities in the federal institutions surveyed are grossly under-utilized.

International Comparisons. Because of Brazil's rapid inflation and extremely variable exchange rates, it is difficult to arrive at reliable dollar estimates of unit costs. In the years 1988 and 1989, in particular, the difference between the official exchange rate and the parallel exchange rate (more than 40% in 1988) makes reliable international comparisons difficult. Estimated average unit costs in federal institutions in 1988 are US\$7,930 per student, based on work undertaken by Jean Jacques Paul and Elisa Wolyneck (1990), which simply divides MEC's budget per institution by the number of students and which uses official exchange rates prorated on a monthly basis during 1988.⁷ Francisco Gaetani and Jacques Schwartzman (1991) argue that these unit costs would be about 40% lower if the parallel rather than the official exchange rate were used, which would put the federal institutions in a more favorable light in international comparisons. Gaetani and Schwartzman also argue that unit costs would be reduced by an additional 25%, to about US\$6,000 if the costs of university hospitals (about 10% in many institutions) as well as the costs of payments to retired teachers (15% for some institutions) were discounted from the overall budget. However, retirement costs may be considered a part of wages. However, even making the exchange rate adjustment suggested by Gaetani and Schwartzman, Brazil's unit costs are equal to about half of those in the USA, Japan, and Australia, and are significantly higher than those of its Latin American neighbors.

Because the main determinant of costs in higher education world-wide is teaching, which normally accounts for 70% of higher education costs, the use of student-teacher ratios, which are not subject to problems of exchange rates corrections and are relatively stable over time, provide another way of doing cross-country comparisons. Full-time equivalent (FTE) student-teacher ratios in Brazil's federal

⁷ Unless otherwise noted, this report relies on the official exchange rate.

institutions average 8.8:1, compared with 12.1 students per teacher in US private institutions, and 17.4 students per teacher in US public 4 year institutions⁸.

Another element of importance is the ratio of students to non-teaching personnel. While no international comparisons are available, the current students to non-teaching staff ratio in Brazilian federal institutions is 3.9:1 (it was 5.1:1 in 1980). In short, despite the usual caution attached to international comparisons, Brazil's federal system is undoubtedly one of the high cost systems in the world, once one takes into consideration Brazil's salary levels. The main determinant of these high costs is the large numbers of teaching and non-teaching staff compared to students.

Comparisons within Brazil. The overall FTE student teacher ratio in federal institutions is 8.8:1, compared to 10:1 in state universities and 29:1 in private universities. A review of the data shows the following:

- Federal institutions vary greatly in student teacher ratios, from about 4:1 to about 12:1. A few small specialized institutions in agriculture and medicine have around 4:1 ratios.
- In terms of student-teacher ratio, there are no economies of scale among the 23 universities. In fact several of the largest institutions, such as the Federal Universities of Pernambuco and Paraíba, have student teacher ratios of less than 7:1, and the largest institution, the Federal University of Rio, has a student teacher ratio of 8:1.
- The highest student teacher ratios in federal institutions appear among the youngest institutions. While this may in part be a result of a lack of graduate education, it may also be a result of an inadequate ability to lobby MEC to authorize new positions.
- The state university of Sao Paulo (USP), the largest and best institution of higher education in Brazil, has a student teacher ratio of 10:1. UNICAMP, with the highest percentage of enrollment at graduate level (31%) has a student teacher ratio of 7:1, and UNESP also 7:1. Most of the other state institutions have student teacher ratios of 10:1 or above.
- Graduate education, which requires lower student teacher ratios than undergraduate education, affects the student teacher ratio in UNICAMP, with 31% of enrollment at the graduate level, and USP, with 25% of enrollment at the graduate level. Among federal institutions only the federal universities of Rio and Minas have more than 9% of their enrollment in graduate education (18% and 9%).
- The highest unit costs are in the Federal University of Viçosa, which is a specialized agricultural institution. The three universities in Rio also have among the highest unit costs. The lowest unit costs are in institutions in the North and Northeast with little graduate education.

Paul and Wolynck (1990) estimated that unit costs in federal institutions are 60% higher than the unit costs of the University of Sao Paulo (USP), in spite of the fact that 25% of USP's enrollment is in graduate

⁸ The argument made by Francisco Gaetani and Jacques Schwartzman that comparisons with American institutions are inappropriate, because much teaching in the US is done by teaching assistants, results in only marginal adjustments when student-teacher ratios are based on FTE rather than headcount.

education, and USP is considered the highest quality institution in Brazil. But Gaetani and Schwartzman have argued that more than 9,000 students in USP reported as full time graduate students are in fact not engaged in full time study or research. After eliminating these students and taking out funds for retirees, he argues that the difference is only about 13%. However, in a separate paper, Paul (1989) has noted that there are also significant numbers of "ghost" students in federal institutions. The conclusion, even after accepting Gaetani and Schwartzman's revisions, is that the highest quality public institution in Brazil, USP, does not appear to be particularly cost efficient but nevertheless has lower unit costs than the major federal institutions with which it is compared.

Institutional case studies undertaken by Rogerio Vahl break down expenditures in 1989 by budgeting categories, by faculties, and by departments for two federal universities, Minas Gerais (UFMG) and Santa Catarina (UFMG). The average unit cost of the two federal universities studied is US\$10,000 (1989 data). The nominal student teacher ratio is 6:1. Full-time teachers are required to teach 8-14 hours (compared to 24 hours in the private institutions) per week and are expected to prepare classes and undertake research during the rest of the time. The top salary for a full professor is around US\$2,300 per month in the federal institutions (compared to US\$1,600 per month in the private universities surveyed). The number of non-teaching staff in the two federal institutions is equivalent to about 25% of student enrollment (compared to 5% of enrollment in the private institutions). The average salary of the non-teaching staff is roughly US\$1,000 per month in the two federal institutions (compared to \$300 in the private institutions).

Vahl sought to break down costs by program of study. Since universities do not keep systematic records of this sort, only rough estimates, covering teaching costs only (but not maintenance and materials), are possible. The following are the average cost breakdowns in the two federal institutions: science and technology, \$9,447; biomedical sciences, US\$11,985 (e.g., medicine US\$11,844, dentistry US\$13,059, nursing US\$11,755); and humanities and social sciences, US\$6,854 (e.g., law US\$6,681, mathematics US\$7,290, pedagogy US\$9,863). The cost differential between the hard sciences and the social sciences and law, is about 1.5:1, compared with a USA differential ranging from 2 to as much as 5:1. It suggests that the incentive system is such that there are no rewards for making savings in potentially low cost programs. In fact federal universities rarely use the combination of very large lectures accompanied by smaller classes common to the USA.

Another element of interest is that of space utilization. The two federal universities surveyed by Vahl provide 28 square meters per student, compared to 6 square meters in the four private universities surveyed. More importantly, the former has an average of 1.6 seats for every student enrolled in the system compared to 0.8 in the private institutions. Assuming that classes can take place eight hours in a day (a reasonable expectation, with classes running 8-12 a.m. and 2-6 p.m.), and students attend about four classes of one hour per day, on average seats in the two federal institutions are utilized about 30% of the time, compared to 85% utilization in the comparable private institutions. Based on this analysis, the physical facilities in the two federal universities surveyed are adequate to serve about twice the number of students currently being served without initiating any night classes.

The argument has been made that the higher unit costs of the federal institutions are a result of higher quality staff, many of whom undertake research, of programs in science and engineering, and of graduate programs. It is certainly true that the two federal institutions surveyed do undertake research and extension and do have many programs in higher cost areas such as medicine and engineering. On the other hand, PUC-Rio and PUC-SP which are the two private institutions which are acknowledged to be among the highest quality institutions in Brazil, with high percentages of graduate students, and with input and output quality

measures similar to the two federal institutions surveyed have much lower unit costs. Available data (from Tramontin and Braga, Vahl and Paul) are shown in Table 4⁹:

<u>Costs and Quality in Two Federal and Two Private Universities</u>				
	<u>UFMG</u>	<u>UFSC</u>	<u>PUC-Rio</u>	<u>PUC-SP</u>
Percent Graduate Students	11	10	17	15
Percent Staff with Doctorate	20	18	30	15
FTE Student Teacher Ratios	8:1	8:1	10:1	16:1
Student/non-teaching Staff Ratios	3:1	4:1	11:1	14:1
Unit Costs in US\$	9,179	7,852	4,535	2,089

Source: Vahl, Tramontin, Paul (1990)—

Table 4

Unit costs in the two federal universities are twice as high as PUC-Rio and about four times as high as PUC-SP, which have equally high quality staff and major graduate programs. It should be noted that PUC-SP focusses on the social sciences and has very little enrollment in medical or hard sciences. Therefore its unit costs should be compared with estimated unit costs of over US\$6000 for the two federal universities in humanities and the social sciences (Vahl). PUC-Rio's enrollment profile is similar to the two federal institutions surveyed, since it has a very strong science and engineering program (but no medical school), much of it supported by grants from FINEP. In short the two best private institutions in Brazil offer programs similar to those of the two federal institutions at less than half their costs.

It should be noted that the two federal institutions surveyed are among the oldest and best federal institutions. In contrast, the Federal Universities of Ouro Preto, Mato Grosso, Juiz de Fora and Espirito Santo have negligible graduate enrollment and are reported to undertake little or no research but have FTE student teacher ratios of 9:1 or less and unit costs ranging from US\$6500 to US\$9000.

Governance and Management of Federal Institutions

The system of governance and management of federal higher education encourages high costs and discourages efficiency, quality, and diversity. Under the current system federal institutions have little autonomy of decision making and the federal government has inadequate knowledge of the performance of these institutions.

⁹ For purposes of comparability, data from Paul for 1988 on student teacher ratios and unit costs is used for the four institutions. Data on the other items are, for the federal institutions, from Vahl, and for the private institutions, from Tramontin and Braga.

Personnel Policy. The federal universities themselves have no policy with regard to personnel. All permanent staff are contracted by the universities but paid by the federal government through the Civil Service System according to civil service rules. However universities are permitted to contract personnel on a temporary non-civil servant basis. No university is permitted to establish its own plan of positions and salaries, nor to establish its own criteria for promotion, nor to establish salaries for administrative/technical personnel on the basis of market factors or productivity. Without a doubt this lack of flexibility leads to low motivation on the part of faculty. Universities are not permitted to hire staff, since the federal government sets overall hiring policy, and recently has enforced freezes on hiring. Furthermore the universities cannot fire staff except under the strict limitations of federal law for civil servants.

The "Law of Isonomy" of 1987 regularizes employment of all teaching and non-teaching staff in federal universities on a national basis. The law establishes 354 non-teaching (technical/administrative) categories as well as the regulations for teaching staff advancement in the career ladder (that is, being promoted from auxiliary, assistant, and associate to full professor). The law includes salary relationships for all positions. It requires payment of the same salary for each category throughout Brazil. Under the law promotion may be gained through getting higher degrees (masters or doctorates) or through time of service. A teacher can reach the associate rank solely on the basis of time of service. The law requires evaluation of professional output only for entering the profession and for becoming a full professor. In no case are advanced degrees required (advanced degrees were required before 1987). Among those currently at the associate level, 23% have doctoral degrees and 53% have master degrees. Without the requirement for advanced degrees, these percentages will fall and many full professors will not have advanced degrees. Legally a teacher cannot be fired because his academic work is deemed mediocre or weak. Furthermore, if a teacher were fired, there would be no assurance that a replacement could be hired, since such decisions are subject to the ongoing federal hiring regulations.

Academic Decision Making. While the law states that federal universities have "didactic, administrative, financial and disciplinary autonomy," in practice there are many restrictions. The internal statutes of each university must be approved by the Federal Council of Education (CFE). The area of greatest autonomy is in the area of teaching and research, where, since the end of the military dictatorship, the universities have been quite free. The CFE, besides accrediting all universities and faculties, establishes the minimum curriculum for each course in all public and private institutions in accordance with national standards. On average the minimum curriculum covers 94% of the total of the credits needed to obtain a diploma. Within Brazil scores of professions require a valid higher education diploma to operate either publicly or privately. With the exception of law, there are no objective national examinations for entrance to a profession, which is solely determined by the holding of a valid diploma. Sao Paulo is currently experimenting with a professional examination for medicine. Universities are highly constrained when making innovations in courses, since they must obey the federal guidelines on minimum curriculum. Furthermore, while the universities are permitted to increase or decrease the number of students per course, they are presently prohibited from contracting new professors and generally they are prohibited from firing any teachers, nearly all of whom are civil servants with tenure. Finally the University level Council of Teaching, Research and Extension, composed of representatives of all teaching levels, must approve the closing down or extinction of any course. This practice helps explain the existence of faculties and/or departments with a large number of teachers and a very small number of students in areas where demand is down.

Internal Management. The federal universities are formally managed by a university council, consisting of the rector and his staff, representatives of the main academic bodies, and representatives

of students and society as a whole. A council of overseers includes representatives of academia, the overall community (including the private productive sector), and MEC. Other councils are related to teaching and research. There are also councils on teaching and for each department and faculty.

The rector of the university is selected by the President of the Republic from a list of three presented by the university and can be rector for only one term. Since the end of military rule, most universities have a popular election in which all students, teachers, and administrative personnel vote. The candidate with the highest vote total is sent up to the President as the first on the list. Until recently, with few exceptions, the President selected the first name on the list. Students and faculty have gone on strike when the second or third on the list has been selected. The democratic election of rectors has in some campuses resulted in the election of highly qualified and dynamic rectors. However, there is a strong tendency for the process to become highly politicized, with resulting political battles between various parties. In addition many candidates find it necessary to make commitments to their constituencies which at a later time make it very difficult to introduce tough requirements or measures to increase cost-effectiveness, such as requiring students to attend classes or eliminating excessive numbers of non-teaching staff¹⁰.

The rector of the university selects his technical administrative staff from among existing faculty and staff. These staff do not act as managers but rather as interlocutors between faculty, students, technical personnel, the rector, and the government. There is no permanent planning staff in the university. The staff who work with the rector generally handle only short term budgeting problems. There is no institutional planning mechanism. Therefore institutional planning occurs by accretion based on the interests and strengths of the various departments and faculties. The office of the rector has no authority or capacity to make difficult decisions in resource allocations between programs. To a great extent this lack of central planning is a result of history. Universities have never had a strong centralist tradition and they have grown as accretions of independent faculties¹¹. In addition the proliferation of large numbers of committees with overlapping jurisdictions has made it difficult for university leadership to take any controversial decision.

Effects on Quality. The lack of evaluation of teachers and subsequent awards or punishment based on such evaluation, as well as the "credentialism" in the system brought about by the requirement for diplomas, leads in both public and private institutions to what has been described as the "pacto corrupto" between students and teachers. For many students, obtaining a degree is more important than learning. For the teacher, the "pacto" means he does not have to prepare challenging lectures, carefully correct tests and exams and/or spend his time working with and advising students. The "pacto" is most common in programs of lower social prestige as well as in night classes. In fact, given the nature of the system,

¹⁰ The most flagrant example of politicized election of a rector was reported by various Brazilian newspapers. In this case the rector of the Federal University of Rio de Janeiro (UFRJ) hired, through temporary contracts, large numbers of administrative personnel who supported him and helped to ensure his re-election—in spite of the fact that university by-laws did not permit a second term. After a year of turmoil the rector resigned and the situation was normalized.

¹¹ The case of the rector of the University of Juiz de Fora, also reported in the newspapers, illustrates the lack of power of the rector. This rector resigned after the University Council passed a resolution to increase the restaurant subsidy from 30% to 70%. With the passing of this resolution, the subsidy for the restaurant was equivalent to 82% of the university's discretionary funds for non-salary operating costs.

it is surprising that many teachers (to some extent in all areas but especially in the sciences, engineering, and graduate education) are dedicated and that quality is adequate.

*Financing of Higher Education*¹²

Public Financing of Federal Institutions. MEC is the main funding source for federal universities, providing approximately 85% of the income of the federal universities. MEC's total budget for higher education in 1989 was around US\$3 billion, of which US\$2.5 million went to federal universities. The way MEC determines each institution's budget has an important impact on the behavior in each institution. Additional funding, especially for graduate education and research, is provided by other government agencies, as well as by private industry and by local government. A few federal universities (e.g. Brasilia, Minas Gerais) have their own endowment (patrimonia), usually in the form of real estate which can be sold or developed.

The budget of federal institutions can be broken up into two basic components, salaries for staff, who are civil servants, and much smaller discretionary budgets which institutions use to fund everything else. Personnel payments are made directly through the National Treasury and do not enter the budget of the institution, since MEC has complete control over them. Overall 94% of payments from MEC go to personnel and 6% finance other costs and to capital. The university has no control over the 94% since they are simply based on payment to staff. The 6% of budgets which institutions can control covers utilities, travel, materials and equipment, maintenance, restaurant, and library. Ordinary maintenance generally accounts for 70% of these funds.

At the beginning of each fiscal year, each institution is budgeted only a portion of its expected requirements. Each institution receives these funds on the basis of "historical criteria", e.g., the percentage of the total budget it received the previous year. The first payment is made on March 1, with inflation corrections. After six months, MEC provides a supplemental budget. Universities are not permitted to spend funds which have not been budgeted, so it is very difficult to plan the purchase of materials on a yearly basis. Furthermore, the universities are not allowed to keep funds in interest bearing accounts, so in a high inflation period the real value of their funds is rapidly eroded. Purchases must therefore be made on an emergency basis. While universities have a fair amount of flexibility in determining how to apply non-salary funds, they appear to exercise little or no controls on use of these funds by staff. For example universities have no internal control on use of energy, telephones, copy machines, etc.

The budget negotiations between the federal universities and MEC generally result in budget increases. But the number of staff and faculty members, the physical capacity of institutions and the allocations for non-salary expenditures are made without any reference to what is expected of the institutions. The five year period between 1983 and 1988 exemplifies the problem. During this period, budgets rose while enrollments fell an average of 7%. Institutions received extra funds but decided to maintain their elite status. The extra per student funding could have been used to improve teaching or research quality, but there is no indication that this has been accomplished. Furthermore, a significant part of the non-salary budget is used to provide extra student subsidies, such as discounted meals, health services and other welfare services.

¹² This a description of the financing system as of January 1991.

The determination of budgets without any consideration of cost or of output results in waste. Public money has been used to purchase teaching and physical capacity that is not being used. Since the budgeting is done without any attention to outputs or costs, the funding increases have not resulted in perceived quality improvements.

Sources of Funds for Federal Institutions, Including Cost Recovery. Public higher education institutions are legally prohibited from charging tuition. They do, however, charge a variety of small fees for services to students as well as to the community and industry. Overall the two federal institutions surveyed in depth get 80-85% of their funds from MEC. The remaining 15% comes from service fees charged to students (graduation fees, restaurant charges, etc.), contracting agencies (e.g., in-service training programs, technical assistance and studies provided to government and industry), health authorities (reimbursements for health services provided by university hospitals), and research donors (CNPq, FINEP). Because they are subject to complex civil service regulations regarding use of funds, many universities have established independent "foundations" to manage more efficiently non-MEC funds, especially those coming from FINEP, CNPq, CAPES, and PADCT for research and graduate education. The budgets of these foundations have been growing and they are providing an important element of flexibility.

Traditionally public institutions subsidize medical and restaurant services provided to students. The average restaurant subsidy in UFMG was 48% and in UFSC was 70%. The average yearly subsidy in the two institutions per student was US\$31. It has been reported that the subsidy at the University of Juiz de Fora was 70% in 1989.

The legal prohibition against charging tuition reduces both the efficiency and equity of the higher education system. Since students do not pay for their education, they have little incentive to complete their course-work in a timely manner. Because students in Brazil's public institutions are disproportionately from the upper economic classes, the government spends far more of its money for the benefit of the rich rather than the poor. Since the provision of basic social services such as primary education and health care are not effectively reaching the poor, funding higher education only from the broad tax base results in a regressive transfer of funds from poor to the rich.

Public Financial Support of the Private Sector. Until the end of the 1960s, the federal government provided a significant amount of direct public support to private, especially Catholic institutions, covering as much as 50% of the costs of these institutions in some years. In the period 1970-1980 this amount changed to around 10% of expenditures. In the early 1980s, the Government effectively ended all direct support of private institutions. However, in the period 1986-1989, the Government again indicated its willingness to support "community" institutions, increasing to 7% of the total expenditures of about 20 community institutions in 1987. In 1989-90 such direct support has again fallen to almost nothing. The Government continues to support graduate education in a few private institutions through FINEP, CAPES, and CNPQ. Of particular note is FINEP's long term support of science and engineering in the PUC-Rio, which has helped make it the best private institution in Brazil.

The Student Loan Program. Recently the main source of public financial support to private institutions has been the provision of subsidized student loans. In 1976, the Brazilian government implemented the first student loan program to provide financial support for students to pay fees and maintenance costs in private and public institutions. Established by the Ministry of Education, executed by the Caixa Econômica Federal (CFE, or Federal Savings Bank), the Programa de Crédito Educativo (PCE, or Education Credit Program) has since provided loans to 712,688 students. Although presently

PCE funds are available for the payment of tuition by (undergraduate only) students attending private institutions, during the first phase (1976-83) of PCE funds were also directed to stipends, so students attending private as well as public institutions benefitted from the credit line. The program has experienced severe financial problems since early 1980s and it has been reformulated twice.

Eligibility was prioritized according to a household income formula adjusted for the number of dependents. Loan money was intended to meet tuition costs at private institutions, and the accommodation, food and book expenses for the most needy students in both public and private institutions. Because resources were plentiful in 1976, loans were granted to almost everyone who applied. Once students were awarded a loan in a given year, they were automatically eligible for loan renewal for a period equivalent to the average length of course-work, with a one year automatic extension, if necessary. The repayment terms included a fixed nominal interest charge of 15% (while the annual inflation rate averaged almost 100% during the period 1976-83). Students were granted a 1 year grace period and repayment was to be no longer than the period of the loan itself.

The student loan program was administered by the Caixa Economica Federal, and losses were to be paid to the Caixa by the Ministry of Education. The Caixa, a banking structure with branches throughout the country, was regarded as the most appropriate body to administer the program since it had extensive experience with private lending. Furthermore, it was believed that the Caixa's control over credit ratings would be a significant deterrent against default.

By 1983, the program was essentially bankrupt. As inflation exceeded 100%, the nominal interest rate of 15% on the loans implied that the loans had a subsidy of around 90%. This was so high that students found themselves obliged to pay only nominal amounts per month. The amounts were so low that many did not bother paying back their loans, nor did the Caixa pursue them since the costs of recovery outweighed the value of outstanding debt. When administrative costs and default losses are included in the financial assessment of the program, it is clear that the loans were more expensive than outright grants.

Despite the collapse in 1983, a strong demand remained for educational credit. The PCE's effectiveness as a means to bring relatively poorer students into the education system, particularly the private sector, led the government to reformulate it. The first task was to secure a financing source for the program. The government dedicated a fixed percentage of annual income from the federal lottery to the new loan program. In an attempt to make the program self financing, both the eligibility criteria and the terms of repayment were altered. Support was restricted to needy students in the private sector, for the purpose of paying fees only, and credit was limited to the maximum official length of course-work. Between 1987 and 1989, PCE granted approximately 40,000 loans to new students each semester. Table 5 summarizes the experience of those three years.

During the second phase of PCE, the terms of repayment were tightened somewhat, but a large subsidy remained. Considering the high inflation rate of the period and the (modified) repayment terms, the interest subsidy on the program amounted to over 55%. This subsidy level was a substantial reduction over the previous one, but not enough to make the program financially viable.

A few other reforms were introduced in the second phase of PCE, including the requirement for a loan guarantor and the payment of an up-front insurance fee. Both these changes were believed to be important steps to minimize losses through default and evasion. Nevertheless, the program continued being financially unsustainable because of the high interest subsidy. Hyperinflation exacerbated program

losses and the insufficiency of dedicated lottery income again brought the program to the verge of bankruptcy in 1989, when the program was again reformed.

Two important changes have been made to reduce the interest subsidy. First, the interest charge will be 6% above the BTN (a new indicator of inflation). Second, the period of repayment has been cut in half, to equal the period of borrowing.

<u>PCE Phase</u>	<u>No of Years of Loans Disbursed</u>	<u>Average Nominal Interest</u>	<u>Annual Inflation</u>	<u>Real Interest Rate</u>	<u>Repayment Period</u>	<u>Interest Subsidy on Loan</u>
Phase I	5	15%	77%	35.0%	5	90%
Phase II	4	306%	391%	-17.3%	2	55%
Phase III	4			1.0%	4	8%

All loans are assumed to be \$1,000 per year, adjusted for inflation. Subsidies are calculated by using a real discount rate of 3% and include a grace period of 1 year. For Phase II and III loans, the ORTN and BTN adjustments used by the Government to calculate interest rates are assumed to be 96% of the inflation rate. Inflation rates used are averages over the period of the loan programs. Since Phase III is being initiated, no inflation rate is assumed. These figures include NO consideration of losses due to default, or of the administrative costs involved with the program.

Source: Authors' calculations based on Calhau (1990).

Table 5

The current PCE structure has an estimated interest subsidy of 8%. There are other more significant subsidies covering default and administrative costs. Therefore, the program will require continued infusion of public funds. In addition, it remains to be seen how effective the Caixa Economica will be at collecting the loans from graduates. The requirement of a loan guarantor, the control that CFE has over other access to credit, and CFE's experience in education lending suggests that default problems may be containable. The essential problem now confronting the PCE is that it has no money to make initial loans. The current allocations from lottery income are insufficient, either for start up loans, or to repay the losses that will result from the remaining subsidy, default and administrative costs.

The central problem of the first two stages of PCE were huge subsidies because the interest charges on debt was far below the rate of inflation. The interest subsidies on the loans have been 89.7%, 55.4% and 8.0% of the three loan programs respectively (Table 5). Thus, the most serious problem seems to have been corrected. In order for the program to continue as planned, however, it will be necessary for the government to provide access to initial capital funds and a commitment to provide funds for about 25% of the annual lending.

The PCE has facilitated access to higher education for many students from lower income backgrounds. However, two important factors have reduced access to loans among the neediest students: (i) the lack of funds available to sustain the losses of the program has meant that there has been less overall credit available, and (ii) poorly conceived target restrictions, particularly the absence of a firm limit on who is eligible for a loan has meant that the program has not been as effective in reaching the neediest students as it could have been. During the first few years of PCE, many loans were made to wealthier students in the public sector to support their living expenses. The eligibility restriction on loans to students in private institutions was certainly a targeting improvement, but it is not yet clear that the targeting is as effective as it could be.

A third factor that will become increasingly important is existence of adequate mechanisms to minimize losses due to default. The Caixa's requirement of a guarantor and its ability to bar access to other credit are powerful tools that will certainly minimize the problem. There are still several important details, however, that need to be addressed. Requiring a guarantor may imply that those who need loans the most will be unable to receive them. The repayment policy may force too many graduates into default unnecessarily, as a result of the rigid policy of categorizing anyone 60 days late in payment as in default. Studies have consistently shown that the inability to pay due to temporary shortfalls in income has been one of the major causes of high default rates in the US loan programs. It has also been shown in other countries, particularly in Sweden, that allowing any graduate whose income falls below a threshold to defer payments (while still accruing interest charges) is an effective way to minimize default.

A fourth issue pertains to the quality of education that public credit is supporting. While some private institutions are of high standards, a wide range of institutions are being subsidized (and indeed survive) through the loan scheme. The PCE has enabled some of Brazil's worst institutions to have access to public subsidies that were necessary to their survival. Other institutions have used the loan funds to increase their hidden profits rather than improving the quality of education. Ensuring that public subsidies are used by institutions to promote quality improvements should be a major task of reforms, as discussed later. Another issue would be the extent to which the public is adequately informed of PCE.

*Relationships between the Federal Government and Private Higher Education*¹³

The various arms of the Government regulate private institutions through a multiplicity of often conflicting rules, regulations, and instruments, especially those related to establishing new programs and to regulating tuition, which are, in theory, supposed to ensure minimum levels of quality and public accountability but which generally have had the effect of discouraging public accountability and encouraging low quality. Nunes and others have documented these problems. This section summarizes the legal background as well as actual practice.

Legal Background. By law the CFE establishes the conditions and limits for the existence of Brazilian institutions of higher education, both public and private. The CFE authorizes programs of study and sets first year enrollments in all institutions of higher education. Two years after such authorization, the CFE "accredits" them, that is, gives them a more or less permanent right to exist. Legally the CFE provides greater autonomy to universities than for isolated faculties, although in practice the difference is minimal in authorization of new programs and increasing enrollments. The CFE authorizes the

¹³ The following discussion is based on a consultant report prepared by Edson de Oliveira Nunes, Laura Dantas, and Violeta Maria Monteiro.

establishment of universities which must fulfill more rigorous criteria than isolated faculties. The CFE authorizes the minimum curriculum necessary for all "recognized" courses, which normally accounts for 95% of all course work. The CFE also has the obligation to review the quality of higher education institutions and to require their disbanding if necessary, and is supposed to review all institutions after ten years. The Government has the right to regulate tuition at all private institutions and has exercised this right through the CFE, MEC, the Ministry of Finance and other Government agencies. By law all private higher education institutions must be non-profit, with ultimate authority in each institutions held by a "Maintaining Authority" or "Council". In fact, many higher education institutions are profit making in all but name and many are run by individual "entrepreneurs" with a council under the direct control of the entrepreneur. The constitution of 1988 permits direct public support of "community, philanthropic, and confessional" institutions. This possibility is provided for in all the constitutions since 1946. Tax laws exempt private institutions from paying certain social costs of employment and also permit tax deductions for tuition payments.

Actual Practice. A review by Nunes et al. (1990) of legislation issued since 1960 shows that the various laws and decrees regularly require that new programs of study should be created only in areas where there are identified "shortages" in the labor market in relationship to national or regional development needs, although these are never systematically defined. Other laws and decrees since the 1960s have at times emphasized "social needs", "non-proliferation" of professions, emphasis on quality, and emphasis on research and extension. In reality, formal and systematic criteria for establishment of new institutions have never been established and the CFE's authorization of private institutions has been based on ad-hoc criteria. As one member of the CFE has stated, the CFE basically legitimizes existing courses. However the delays and uncertainties are such that private institutions hire "despachantes" whose job is to ensure that their requests for approval are reviewed favorably and in a timely manner. The CFE has also never terminated any course for cause and has never reviewed any institutions after ten years as mandated by law. A review of the data on the percentage of requests approved by the CFE shows a wide variation in the percentage of approvals. In the period 1971-1974, for example the CFE approved on average 85% of more than 1000 requests for new courses. During the period 1978-1981, the CFE approved only 20% of more than 1000 requests. After 1982 the CFE again returned to a policy of approving over 80% of such requests. In January 1991, the Minister of Education announced he would not approve requests for 3000 new programs of study because the Government needed to put more "rigor" into its criteria for accreditation. The CFE's own data confuses the number of "authorized" and "recognized" courses and also contradicts the data on courses prepared by MEC's statistical office (according to the CFE there are 6,435 programs of study, while MEC statistics report only 4,288 such programs).

The history of federal regulation of tuition in private institution is also one of lack of transparency and changing regulations which have made it difficult for these institutions to plan. Nonetheless over the long run Government control of tuition has not discouraged entrepreneurs from continuing to expand their offerings and from all evidence higher education in the lower quality institutions is a lucrative operation. In 1989 a report by IPEA stated that the use by the Government of homogenous criteria for tuition increases had particularly put the confessional institutions in a dilemma since they were unable to keep quality up. The system therefore expressly encourages expansion of lower quality institutions. Historically the CFE has been responsible for establishing the "formulas" for tuition increases. An expected tuition level is specified on the request that is submitted to CFE, based on number of openings, number of teachers, teaching load, etc. Once CFE approves this price level, changes cannot be made without CFE's approval (inflation adjustments are also subject to Government approval).

In the period 1987-89 a variety of contradictory decrees were issued under the Cruzado and Bresser plans. In the last two years responsibilities have become blurred, with the CFE, MEC, and the Ministry of Economy playing major but unclear roles. In 1990 there were twelve Government decrees on tuition. Most recently the Government has required private institutions to negotiate and reach agreement with students and staff on the amount of tuition increases. If agreement is not reached then the federal government decides on such increases. Private institutions have had to hire lawyers solely to deal with the federal government on getting permission for such increases.

New Proposals. Recent proposals for a new "Basic Education Law" may worsen a difficult situation with regard to federal regulation of private education. The draft law proposes to establish a new National Education Council (CNE) with 28 members each of them specifically representing a segment of society, as well as a National Forum of 60 members which would provide advice on national policy. The CNE's structure would make it very difficult to act decisively, since it would need to balance politically the concerns of each pressure group represented on it. The new draft law proposes that the CNE would determine "criteria for allocation of federal funds among higher education institutions"—but it does not provide a mechanism for the CNE to implement such criteria and budgetary control would still remain with MEC.

Private Sector Reactions. A lobbying organization for the private sector of higher education was formed in 1982. The Brazilian Association of Maintaining Bodies (ABM) has over 140 *mantenedoras* representing over 200 institutions (or about one third of the private sector). It defends the principle that education is neither a pure enterprise activity nor a purely social service activity. It lobbies government for reform in public policy towards the private sector, with the following agenda: (a) less regulation: let (public and private) prices be defined by market; give institutions freedom to create/close programs, increase/decrease first year openings (in one case of a Rio-based medical school, MEC wants to decrease number of openings from 150 to 50, due to pressure from the Medical Association), to change curriculum timely; (b) public funds for research and community services; (c) profit provision. The present situation is hypocritical: the school is treated as an industrial enterprise, in terms of duties—for example—it gets no special financial credit terms from banks; but when the school sets prices, then it is treated as a special enterprise; (d) change the public role from that of "concessionaire" of privileges to that of "gauger" of quality and "guardian" of public interest (make sure that there is "truth in advertisement"); (e) explicit, consistent and transparent public policies; and (f) expediency in processing requests: 3 years turn around time from CFE is commonplace!

HIGHER EDUCATION REFORM***The Need For Higher Education Reform in Brazil***

Increasingly, world wide economic success is based on ability to incorporate new technologies into industrial processes rather than on the simple exploitation of natural resources. The increasing knowledge content of production means that human resource development at all levels will become the fundamental source of economic development. Brazil is far behind in its investment and output in primary and secondary education. Innovation and discipline on the factory floor will come from workers, not just from managers. Not only is Brazil's current public investment in primary and secondary education inadequate and inefficient, but there is a lack of public awareness of the importance of a cost-efficient primary and secondary sector.

Inequities of income between the rich and poor are higher in Brazil than in most other countries at its income level. Brazilian society will need to bridge this gap, not only for social and humanitarian reasons, but also because a modern economy requires a broad base of educated manpower. A social development policy should therefore be a fundamental element of the Government's economic reform program, with its strongest focus on providing a quality primary and secondary education to the majority of Brazil's citizens as well as on expanding basic health services. A broad base of an educated citizenry will be essential for Brazil's internal tranquility as well as to ensure international competitiveness.

The fundamental definition of quality in education should be that of "value added"--in the sense that an educational institution takes the raw material it receives--the student, whatever his or her native ability or prior knowledge--and provides a product in the form of a graduate whose abilities to reason, solve problems, and communicate have been increased to the maximum extent possible. As more and more economic development becomes knowledge-based, it becomes fundamental to ensure that the population increases its stock of knowledge. A high value added institution in higher education could well be one which accepts very poor students, or those with inadequate preparation, and educates and develops their capacity so that they become productive members of society. Many U.S. community colleges should therefore be considered of high quality, since they provide good remedial and/or technical education to young men and women with inadequate preparation. Institutions such as the University of Ijuí in southern Brazil appear to be providing this kind of education. But, in general, the current system in Brazil encourages excessive credentialism as well as what is called the "pacto corrupto," where students and staff may have an unwritten agreement to demand little in the way of teaching and learning.

Brazil also needs to strive to establish institutions which add directly to the stock of human knowledge of the world, similar to the great research universities of the United States and Europe. Developing countries must strive for similar excellence in those areas where their resource endowments are such that they could benefit from increased knowledge. For example, Brazil especially needs middle and high level expertise to enable it to exploit in a sustainable manner its rich endowment of physical resources and its diversified flora and fauna. Brazil also needs to keep pace with world wide developments in economics, management and other social sciences to strengthen management of its own society. Finally Brazil, as well as other countries, needs to have an education and research system which will retain its best scientists and researchers within the country so that they can serve their country's needs. There is a world market in ideas--the fundamental building blocks of technological advances, which developing countries need to be capable of tapping into. While it is difficult to measure directly Brazil's position vis a vis the world, in 1984 Brazilian scientists published about 1000 articles in scientific

journals of international reputation, a number which, while higher than any other Latin American country, amounts to less than .04% of the 230,000 scientific articles published in the world in 1984. Using a larger data base—the number of books and papers produced by Brazilian authors in the social sciences, arts, humanities, science and technology, Brazil in 1986 produced about 7000 of such documents out of a world total of 1.2 million. Furthermore, it is striking that Brazil's two world-class universities are the state-run universities of Sao Paulo and Campinas while the federal universities, many of which strive for this excellence, have relatively small numbers of graduate students and only islands of higher quality research in the federal universities of Rio, Sao Carlos, Minas Gerais, Pernambuco, Santa Catarina, and Rio Grande do Sul.

There is a growing awareness in Brazil of the need for reform of higher education, especially at the undergraduate level, as the burden on federal government budgets of federally funded higher education continues in a period of financial stringency. For the Government to follow through on its objectives, it is essential to begin to treat higher education with an insistence on efficiency and cost-effectiveness as in other sectors of the economy—through reducing control and regulation, increasing the cost-effectiveness of public expenditures, and re-defining the role of Government so as to meet only those social needs which cannot be met by the private sector. Government will need to mobilize its most progressive and farsighted citizens to implement a program of reforms which will in the short run adversely affect the fortunes of pressure groups and lobbies but in the long run will ensure meeting the nation's goals of long term social and economic development.

The Government's Higher Education Reform Program, September 1991-August 1992

The overall compression in government spending, declining real wages in universities as a result of fiscal constraints, continuous strikes by faculty and students, and the impossibility of improving quality under the current system clearly put Brazilian higher education in crisis. Beginning in September 1991, the Government began to put forth an important package of reforms.

The program of reform was a comprehensive attempt to make Brazil's higher education system more efficient, effective and equitable and to improve the quality of output with the same level of funding. The reform especially sought to change the relationships of Government to public and private institutions, through establishing new systems of autonomy, accountability, evaluation, certification, and financing of both public and private institutions.

Reforming the Student Loan Scheme. The objective of the reform of the loan program was to establish a transparent and sustainable student loan system, to ensure that federal funds could assist the largest numbers of students at the lowest cost to Government, and to utilize loans as a cost effective means of encouraging increased quality in the private sector. After four months of discussion, Congress passed a law making MEC responsible for establishing the regulations for the student loan program, and mandating a minimum of US\$50 million per year for the program. This is a major step forward, since it integrates the loan program into national higher education policy.

Reforming the Financing of Federal Higher Education. The Government's long term objective was to provide financial autonomy to federal higher education institutions, as a means of ensuring that institutions operated efficiently and effectively. The main instrument of financing would be a funding formula encouraging improved efficiency and quality. The formula, reproduced in Annex 1, had the following explicit objectives: (a) to increase student teacher ratios by 25%, as well as to similarly increase student non-staff ratios; (b) to increase enrollment in public institutions with no increase in staff, as a

means of achieving the targeted reduction in unit costs (it was ascertained that the institutions had more than adequate physical capacity to enroll more students); (c) to encourage upgrading of faculty by giving extra weight to faculty with advanced degrees; (d) to encourage more timely completion of studies by providing funding on the basis of graduates rather than enrollments; and (e) to ensure adequate maintenance and support services. An additional set of funds would be made available, on a competitive basis, for specific institutional development projects. The formula was designed to be a dynamic instrument, changing over time. Institutions would be subject to audit to ensure the reliability of their statistical reporting which formed the basis of the formula.

Formula funding would help to break the culture where accountability was absent. To get the most Government funds, institutions would need to move towards the parameters set by the formula. However, they could make their own specific trade-offs among elements such as salaries, maintenance, equipment, student teacher ratios, and teaching standards. In principle the institutions could also seek outside funds from students, graduates, and the private sector if they wished to maintain standards higher than those which formed the basis of the formula.

Through early August, MEC was using its formula to allocate portions of the discretionary funds directly under its control. In 1993, it planned to allocate all of these funds (about 10% of the higher education budget) on the basis of the formula. Based on the formula, a number of institutions already moved to increase enrollments (many through night classes that facilitate access for lower income students) and to increase staff qualifications. The implementation of the formula would carry with it a variety of risks that institutions will not behave as expected. MEC would need to review carefully implementation, and revise the formula as needed.

MEC also introduced several laws which would explicitly provide financial autonomy to higher education institutions through making them "autonomous public institutions" not subject to normal civil service regulations. Passage of one of these laws would be a major step forward in giving federal institutions the capacity and responsibility to manage their own affairs. Parallel to this, MEC was seeking to permit all federal institutions to establish associated private foundations which would give them even further flexibility to seek new sources of funding and to provide additional services to government and industry. Twinned with autonomy would be a new system of accountability that has until now, been absent from the system.

Over the long run, MEC was seeking to replace the law of "isonomy", which provides a single salary and promotion policy for all higher education teaching staff, as well as civil service protection, with a new system under which teaching and non-teaching staff would be employees of the institutions where they work. In principle, this would allow institutions to develop differentiated programs and to manage their funds more effectively. Passage of legislation of this sort would be difficult and time consuming. As an intermediate measure, a law which establishes a "floor" for salaries which higher education institutions could supplement with their own funds was submitted to Congress. On this basis MEC hoped to enable institutions to be free to establish their own set of salary incentive. Passage of laws on financial autonomy and on isonomy will be essential for full implementation of the funding formula.

Evaluation of Higher Education. MEC initiated work on a long term plan for evaluation and certification of undergraduate higher education institutions and programs, to be mainly carried out by peer review committees and with a minimum of bureaucracy. The main objectives of the plan would be to provide publicly available information on the quality of public and private institutions, so as to help

inform students' decisions on attendance, as well as to partially tie public funding to the results of these evaluations, as a means of encouraging increases in quality. MEC would begin with evaluations of medical education followed by teacher education.

Deregulating Professions. MEC planned to introduce legislation to deregulate a large number of professions, with the exception of the traditional areas of health services, law, structural engineering, teaching and accountancy. Deregulation would help to end the pervasive "credentialism" of higher education. Professional associations are expected to oppose vigorously these proposals.

Changing the Selection Process of Rectors. MEC was planning to introduce legislation leading to indirect election of rectors through election by the university council. This would enable institutions to carry out needed restructurings.

Diversifying Funding Sources. Many of the laws described above would encourage institutions to diversify their sources of income. For example, financial autonomy would free institutions from excessively strict civil service regulations. Current regulations, for example, do not permit institutions to deposit funds into interest bearing accounts. The establishment of private university associated foundations would also encourage diversification of income. Permitting institutions to use their own funds to top off teachers' salaries would also function as an incentive for universities to seek additional sources of revenue. Implementation of the funding formula would make institutions more aware of the trade-offs in expenditure categories and may lead them to reduce subsidies in the provision of services.

Recovering Costs in Public Institutions. The Minister of Education floated numerous ideas on ways and means of asking students in public institutions to pay for a portion of their education, either now or in the future. These included a "parent" tax, a graduate income tax, and encouraging institutions to charge for miscellaneous services such as diplomas or parking. The graduate tax idea was perhaps too easily dismissed on the grounds that the current fiscal reforms seek to overhaul the tax structure to simplify it and reduce the number of taxes. Another idea, currently being implemented in Minas Gerais, is to establish a scholarship fund which better off students would be required to contribute to, and which would then be provided to needy students attending the same institution. Given the political uncertainties, and in order not to jeopardize the implementation of the other reforms, MEC was not seeking a constitutional amendment which would permit the charging of tuition in public institutions. Furthermore, MEC believed that reforms in financing would enable it to achieve a 25% savings in unit cost expenditures in higher education, without reducing quality.

The reform program thus put forward was significant. Its focus was to improve the efficiency and effectiveness of the current public intervention in higher education. The strategy was two-fold: first to improve the governance and oversight of the system, by providing institutions with greater autonomy and introducing new mechanisms of accountability – through evaluation and a new funding formula. Within this new autonomy and accountability relationship, public finance would be used to stimulate quality and efficiency. A funding formula for public institutions would promote efficiency, while the student loan program would be used to promote quality in private institutions.

The resignation in early August 1992 of the Minister of Education and his team put the reform process on hold. It remains to be seen whether reform will be taken up again at a later time.

REFERENCES

- ABM, "O Ensino Privado e o Poder Público," in Estudos, No. 2. Brasília.
- ABM, "O Ensino Superior Particular," in Estudos, No. 1, Brasília.
- Albrecht, D., and Ziderman, A., (1991) "Deferred Cost Recovery for Higher Education," Washington: World Bank.
- APICE, (1989) Efectos Sociales y Económicos del Crédito Educativo, Bogota: APICE.
- Brazil, (1988) Constituição da República Federativa do Brasil.
- Brazil, Ministério da Educação, (1989) A Isonomia no Contexto da Política de Recursos Humanos das Instituições Federais de Ensino Superior, Brasília: SESU/MEC.
- Brazil, Ministério da Educação, (1990) "A Educação no Brasil na Década de 80," Brasília: MEC.
- Brazil, Ministério da Educação, (1990) "Organização das Principais Idéias Contidas nos Documentos Apresentados pelos Grupos de Trabalho Instituídos pelo Ministério da Educação," Brasília: SENESU/MEC (mimeo).
- Brazil, Ministério da Educação, (1990) Sistema de Acompanhamento e Avaliação: Resultados da Avaliação por Área do Conhecimento - 1978-8, Brasília: CAPES/MEC.
- Brazil, Ministério da Educação, (1985) "Uma Nova Política para a Educação Superior. Relatório Final da Comissão Nacional para a Reformulação da Educação Superior," Brasília: MEC (mimeo).
- Brazil, Ministério da Educação, (several years) Sinopse do Ensino Superior, Brasília: SEEC/SG/MEC.
- Brunner, J, (1990) "La Educación superior en Chile: 1960-1990: evolución y políticas," document presented to the meeting of the Regional Project for Comparison of Higher Education Policies, Buenos Aires: FLACSO.
- Clark, B. R., (1990) "Basic Categories in Cross-National Understanding of Higher Education," paper prepared for the Ford Foundation meeting on Higher Education in Latin America, November 15-16, 1990, New York.
- Castro, C. de M., (1990) "Specialized Education for General Jobs: The Market for Higher Education in Brazil," International Journal for Educational Development, 10(4):245-252.
- Cunha, L. A. (1990), "Public Policies for Higher Education in Brazil," Higher Education Policy, 3(2):21-25.
- de Souza, E. M., (1980), Crises e Desafios no Ensino Superior do Brasil, Fortaleza: UFC.

- Divonzir, A. G., et al. (1990) Educação e Cultura - 1987: Situação e Políticas Governamentais, Série IPEA No. 128. Brasília: IPEA/IPLAN.
- Durham, E. R., (1989), A Autonomia Universitária: O Princípio Constitucional e suas Implicações, Document 9/89. São Paulo: NUPES/USP.
- Durham, E. R., (1988) "O Ensino Superior: Contribuição ao Debate sobre os Fundamentos de uma Nova Lei de Diretrizes e Bases," Paper presented at the 46th meeting of the Conselho de Reitores das Universidades Brasileiras, March 1988, Florianópolis, SC.
- Durham, E. R., and Schwartzman, S., (1989) Situação e Perspectivas do Ensino Superior no Brasil: Os Resultados de um Seminário, Document 3/89, São Paulo: NUPES/USP.
- Farret, M.M.L., (1985) Expansão e Elitização do Ensino Superior no Distrito Federal, Unpublished Master thesis.
- Gaetani, F., & Schwartzman, J., (1991) Indicadores de Produtividade nas Universidades Federais Document 1/91, São Paulo: NUPES/USP.
- Gomes, M., (1990) "Personal Background of the Brazilian University Student," preliminary results of Ph.D. dissertation.
- Guia do Estudante 90, São Paulo: Editora Abril.
- Guimarães, E. A., (1989) "A Evolução dos Custos e das Mensalidades das Instituições Privadas de Ensino Superior," (mimeo).
- Heyneman, S. P., & Etienne, B., (1988) Higher Education in Developing Countries: What, How, and When?, EDI Working Papers, Washington: The World Bank.
- IBGE, (several years), Anuário Estatístico do Brasil, Rio de Janeiro: IBGE.
- IDB, (1988) Economic and Social Progress in Latin America. Special Section Science and Technology, Washington.
- IPEA, (1990) Para a Década de 90: Prioridades e Perspectivas de Políticas Públicas IV, Políticas Sociais e Organização do Trabalho, Brasília: IPEA/IPLAN.
- James, E., (1979) "Product Mix and Cost Disaggregation: A Reinterpretation of the Economics of Higher Education," Journal of Human Resources, 12(2).
- James, E., (1989) Differences Between Public and Private Higher Education: An International Perspective (mimeo).
- James, E., (1988) Philippines Education Sector Review, Washington: The World Bank.
- Leal, C. I. S., & Werlang, S. R. da C., (circa 1989) "Retornos em Educação no Brasil: 1976-86," (mimeo).

- Leal, C. I. S., & Werlang, S. R. da C., (circa 1988) "Política Educacional no Brasil," (mimeo).
- Levy, D. C., (1986) Higher Education and the State in Latin America Chicago: The University of Chicago Press.
- Mendes, C., & Castro, C. de M., (eds.) (1984) Qualidade, Expansão e Financiamento do Ensino Superior Privado, Rio de Janeiro: EDUCAM/ABM.
- Meyer, V., (1982) An Analysis of Alternative Tuition Policies for Brazilian Public Higher Education, unpublished Ph.D. dissertation.
- OECD, (1989) Evolution des Modes de Financement de l'Enseignement Supérieur, OECD Monographs on Higher Education, Paris: OECD.
- OECD, (1988) Changing Patterns of finance in Higher Education: Japan, OECD Monographs on Higher Education Paris: OECD.
- Plank, D. N., Sobrinho, J. A., & Xavier, A. C. da R., (1991) Born Old: Why Brazil Lags Behind in Educational Development, unpublished draft manuscript.
- Paul, J-J., (1991) "Brazilian Higher Education: An Economic Approach to its Rationality," (draft mimeo).
- Paul, J-J., & Wolyneec, E., (1990) O Custo do Ensino Superior nas Instituições Federais Documento 11/90, São Paulo: NUPES/USP.
- Paul, J-J., & Ribeiro, Z. D., (1990) "As Condições de Vida e de Trabalho dos Alunos do Ensino Superior Brasileiro," (mimeo).
- Paul, J-J., & Ribeiro, Z. D., (1989) "Diversidade da Oferta e Estratégias dos Vestibulandos: O Caso de Fortaleza," in Cadernos de Pesquisa, Rio de Janeiro: Fundação Carlos Chagas.
- Psacharopoulos, G., (1987) "Education and Development: A Review," Research Observer 3(1), Washington: The World Bank.
- Psacharopoulos, G., (1985) "Returns to Education: An International Update and Implications," Journal of Human Resources, Winter, 1985.
- Psacharopoulos, G., Tan, J-P, & Jimenez, E., (1990) "El Financiamento de la educación en los países en desarrollo," in Docencia Post-Secundaria 18:2.
- Psacharopoulos, G., Tan, J-P, & Jimenez, E., (1986) Financing Education in Developing Countries: An exploration of Policy Options, Washington: World Bank.
- Roth, G., (1987) The Private Provision of Public Services in Developing Countries, EDI Research Papers on Development, Washington: The World Bank, .

- Saliba, A., (1990) The Vestibular Examination and Access to Higher Education in Brazil: Evidence from Brasilia, unpublished Ph.D. dissertation.
- Schiefelbein, E., (1990) "Chile: Economic Incentives in Higher Education", Higher Education Policy 3(3).
- Schwartzman, J., (1989) "A Selectividade Sócio-Econômica do Vestibular e suas Implicações para a Política Universitária Pública," in Educação e Seleção 19, Rio de Janeiro: Fundação Carlos Chagas.
- Schwartzman, S., (1990). "A Diferenciação do Ensino Superior no Brasil." Mimeo.
- Schwartzman, S., (1988). "Brazil: Opportunity and Crisis in Higher Education." In Higher Education, 17:99-119.
- Schwartzman, S., (1989). "Ciência, Profissões e a Questão da Autonomia. Documento 8/89. São Paulo: NUPES/USP.
- Tan, J-P & Mingat, A., (1989) Educational Development in Asia: A Comparative Study Focusing on Cost and Financing Issues, Internal Discussion Paper #51, Washington: The World Bank.
- Tramontim, R., & Braga, R., (1988) As Universidades Comunitárias: Um Modelo Alternativo, São Paulo: IPEA/IPLAN/CEC.
- Tramontim, R., & Braga, R., (1990) "Ensino Superior: Perspectivas para a Década de 90." Brasília: IPEA (mimeo).
- UNESCO, (several years), Statistical Yearbook, Geneva: UNESCO.
- US Department of Education, Annual Statistics (1989).
- Vahl, T. R., (1980) A Privatização do Ensino Superior no Brasil: Causas e Conseqüências, Florianópolis: UFSC/Editora Lunardelli.
- Veloso, J.R., & Bastos, V.L., (1984) "Ensino Superior e Subemprego: Um Estudo de Caso em Brasília" in C. Mendes & C. de M. Castro (eds), Qualidade Expansão e Financiamento do Ensino Superior (pp. 129-155), Rio de Janeiro: Educam/ABM.
- Winkler, D., (1990) Higher Education in Latin America World Bank Discussion Paper #77, Washington.
- Woodhall, M. (ed.), (1987) Financial Support for Students: Grants, Loans or Graduate Tax? London: Kogan Page.
- Woodhall, M., (1983) Student Loans as a Means of Financing Higher Education: Lessons from International Experience. Staff Working Paper No.599., Washington.
- The World Bank, (1986) Brazil: Finance of Primary Education, Washington.

The World Bank, (1989) Brazil: Issues in Secondary Education Report No. 7723-BR (green cover), Washington.

The World Bank, (1988) Brazil: Public Spending on Social Programs: Issues and Options, Report No. 7086-BR (gray cover), Washington.

The World Bank, (several years) World Development Report, Washington.

**ANNEX 1. PROPOSED FUNDING FORMULA FOR
BRAZILIAN FEDERAL HIGHER EDUCATION INSTITUTIONS**

Objective: Stimulate Quality and Productivity

I. Calculation of the number of Full Time Equivalent Undergraduate Students

$$N_s = N_{di} * D_c * 1.3 + (N_i - N_{di}) * D_c / 2 \quad (1)$$

N_s = Number of FTE undergraduate students

N_{di} = Number of students receiving and undergraduate degree

D_c = Duration of course

N_i = Number of new entrants

The coefficient of 1.3 assumes that a student completes the course in 30 percent more time than the official duration of the course.

The term $(N_i - N_{di})$ indicates the drop-out and the term $(N_i - N_{di}) * D_c / 2$ assumes that students who drop-out remain in the institution for a time equal to half of the duration of their course. It is also the equivalent of a linear drop-out throughout the length of the course.

II. Calculation of the ideal number of teachers per undergraduate student

TABLE 1

Area	Students/Teacher (R)
Engineering and Agricuilt. Sciences	9
Health Sciences	6
Natural Sciences and Biology	9
Humanities and Languages	12
Social Sciences	12

The ideal number of teachers per student, N_{dt} , is calculated using the number of FTE students in equation (1) for each of the areas in table 1 and dividing by the corresponding number of students per teacher.

$$N_{dt} = N_t/R$$

III. Calculating the Basic Number of Graduate Students

$$N_{ms} = 3 * \text{Number of Masters Theses} \quad (2)$$

$$N_{pd} = 5 * \text{Number of Ph.D. Theses} \quad (3)$$

N_{ms} = Basic number of Masters students

N_{pd} = Basic number of Ph.D. students

IV. Calculating the Ideal Number of Teachers for Post Graduate Programs

For each Masters Program, the ideal number of teachers, N_{mt} is:

$$N_{mt} = 2 + (N_{ms} / (Y * R)) \quad (4)$$

Where R is the ratio of students per teacher in table 1 and Y depends on the assessment by CAPES (the national evaluation organization of post graduate training and research) as shown in Table 2.

Table II

CAPES Assessment	Value of Y
A	0.5
B	0.7
C	1.0
D or not evaluated	infinite

To obtain the ideal number of teachers, N_{dt} for doctorate programs, the same method is used, substituting in (4) N_{pd} for N_{ms}

$$N_{dt} = 2 + (N_{pd} / (Y * R))$$

The ideal number of teachers for graduates is the sum of the teachers for masters level and for doctorate level of all programs. A program that does not have theses, or whose evaluation is worse than C or not evaluated, receives 2 teachers.

V. Ideal Number of Teachers for the Institution

The ideal total number of teachers, N_a is the sum of the teachers calculated for all areas of undergraduate studies plus the teachers calculated for the graduate programs with an additional 10 percent above the total.

VI. Calculation of the Number of Non-Teaching Staff, excluding those for hospitals.

1. Support staff dedicated to teaching (N_{TSM}):

$$N_{TSM} = (\text{Ideal Number of teachers in the area}) * Z \quad (6)$$

The ideal number of teachers in an area uses the values calculated for the undergraduate and graduate, supplemented by 10 percent, and Z is given in the table below.

TABLE 3

Areas	Staff/Teacher
Engineering and Agric. Sciences	1.1
Health Sciences	0.9
Natural Sciences and Biology	0.8
Humanities and Languages	0.15
Social Sciences	0.2

2. Staff for other activities:

$$N_{TSM} = 1.05(130 + 0.06 * (N_u + N_{pg}) + 0.07 * N_a + 0.0006 * \text{Physical Area}) \quad (7)$$

$N_u + N_{pg}$ = The calculated total number of FTE students (undergraduate and post graduate).

Area = Construction area in square meters of the institution.

The ideal number of staff is calculated:

$$N_r = N_{\text{full}} + N_{\text{fourras}} \quad (8)$$

VII. Budget Allocation, Excluding Resources for Hospitals

The budget can be divided as:

1. Salaries and benefits for active teaching staff
2. Salaries and benefits for non-teaching staff
3. Budget increase for with higher level degrees
4. Other recurrent costs and capital costs
 - Maintenance
 - Basic Expenditures
5. Transition (Adjustment) Budget
6. Institutional Development Projects

The budget will be calculated in the following form.

1. Salaries and benefits of teaching staff utilizing the average salary and the ideal number of teachers.
2. Salaries and benefits of non-teaching staff utilizing the ideal number of non-teaching staff and the average salary.
3. Budget increase for staff with higher level degrees.

$$T = ((E + 3M + 7D) / (G + E + M + D)) * (0.2 / 7) \quad (9)$$

T = Percentage budgetary increase

E = Number of teachers with a specialized (technical) degree

G = Number of teachers with a undergraduate degree

M = Number of teachers with a masters degree

D = Number of teachers with a Ph.D

In equation (9), if all teachers have Ph.D's, T=20%

The budget increase for staff upgrade is:

$$T * N_{\text{a}} * S_i$$

S_i = Salary of full time professor with doctorate

4. Other recurrent costs and capital costs

Maintenance: (US\$1.5) * Constructed Area in Square Meters

Basic expenditures: $0.2 * N_a * S_i$

5. Transition (Adjustment) Budget

The institutions whose budgets as calculated above are below the expenses for active personnel will receive a transitional allocation, negotiated case by case on the basis of an adjustment plan.

6. Institutional Development Projects

These will be allocated especially for projects of institutional development.

ANNEX 2. LIST OF CONSULTANT REPORTS¹

TITLE	AUTHOR(S)
Administração de Universidades Públicas: A Racionalidade da Ineficiência	Jacques Schwartzman
A Produtividade Interna das Instituições de Ensino Superior no Brasil	Jean-Jacques Paul
Aspectos do Perfil do Candidato/Beneficiário do Programa de Crédito Educativo no Brasil ²	Herbert Guarini Calhau
Crédito Educativo no Brasil: O Programa do MEC/Caixa Econômica Federal	Herbert Guarini Calhau
Evolução e Institucionalização do Ensino Superior Privado no Brasil: 1968-1990	Edson de Oliveira Nunes Laura Dantas Violeta Maria Monteiro
O Futuro da Educação Superior no Brasil	Simon Schwartzman
O Problema Administrativo das Universidades Federais Brasileiras: Questões-Chave	Pedro Lincoln Mattos
O Processo Decisório e a Problemática do Gerenciamento das Universidades Federais Brasileiras	Teodoro Rogério Vahl
Universidades Públicas e Privadas: Síntese Comparativa de Alguns Indicadores de Universidades Comunitárias e Universidades Federais	Teodoro Rogério Vahl

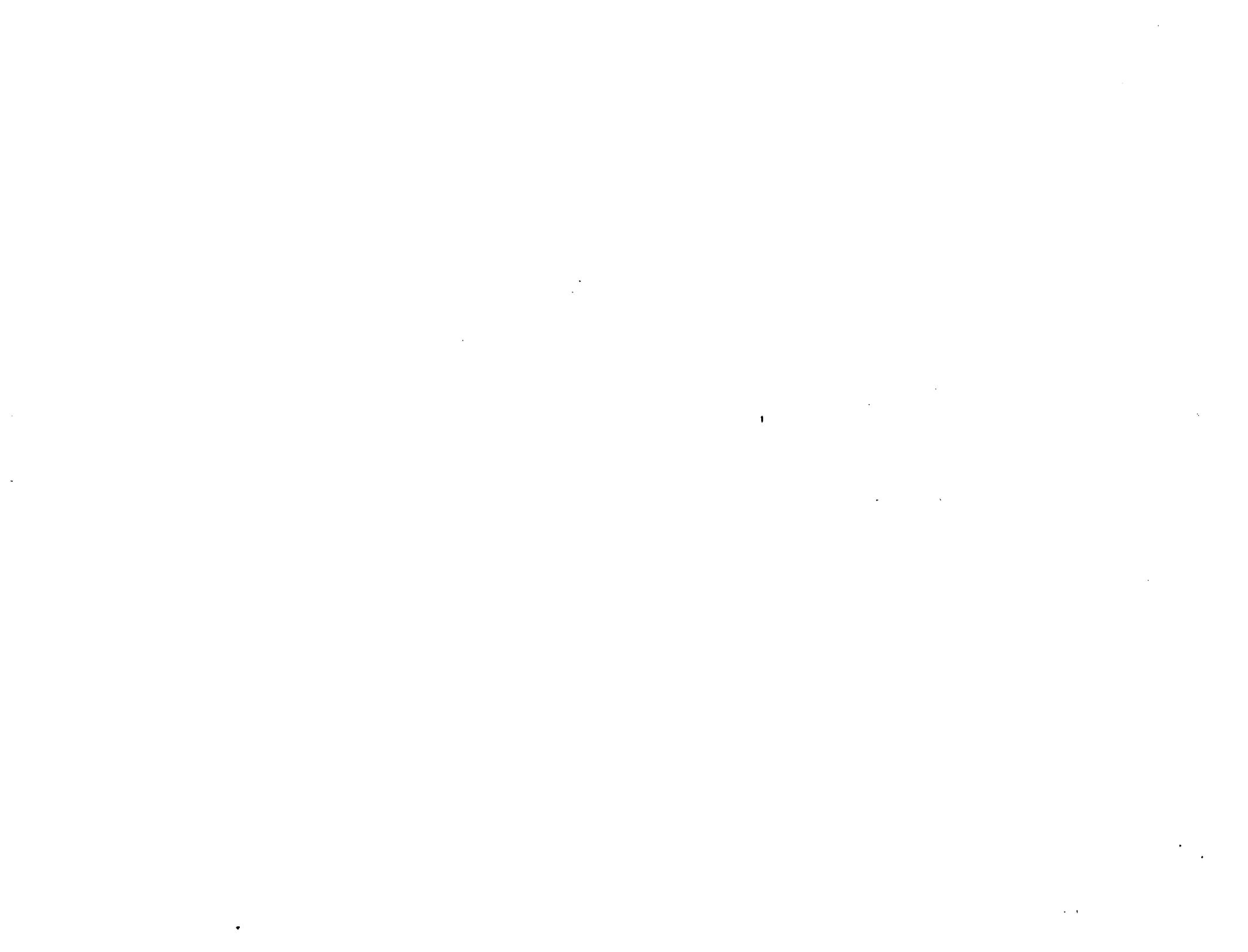
1. All dated 1990 and written in Portuguese (unless noted otherwise).
2. Also available in English.

HIGHER EDUCATION IN VENEZUELA: ISSUES AND OPTIONS FOR REFORM

Laurence Wolff and José Joaquín Brunner

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STRUCTURE AND ENROLLMENT

The Venezuelan higher education system includes 100 different establishments, classified in two broad categories: university institutions (enrolling 75% of students) and non-university institutions (enrolling 25%), which include technological institutes, pedagogical institutes, polytechnic institutes and junior colleges. Public institutions enroll 78% of students, compared to 22% in private institutions. Private education is more important in the non-university sector, where it accounts for 51% of enrollment, compared to only 12% in the university sector (table 1). The structure of the system is similar to Mexico, Central America, Peru, and Argentina, where the public education system dominates, rather than Colombia and Brazil, where the majority of students are enrolled in the private sector.

Table 1
Higher Education Enrollment, 1990-91

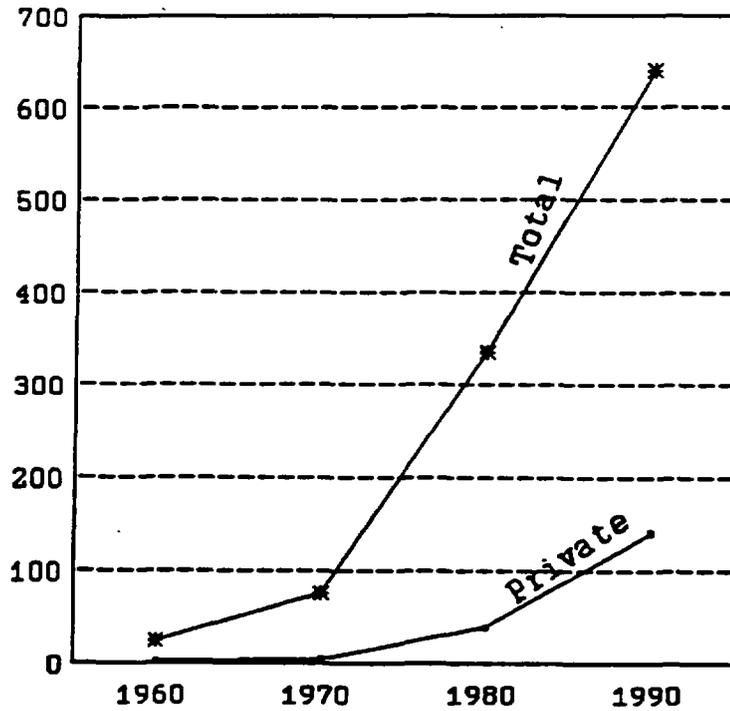
	Public	Private	Total
University	419,993	59,654	479,647
Non-University	78,928	80,551	159,479
Polytechnic	11,150	0	11,150
Technology Institutes	53,698	64,616	118,314
Colleges	14,080	15,935	30,015
Total	498,921	140,205	639,126

Source: OPSU

University institutions, both public and private, are overseen by the National University Council (CNU). The Department of Higher Education (DES) of the Ministry of Education (MOE) oversees all non university systems. The CNU, controlled by the higher education institutions themselves, is responsible for allocating the budget which is negotiated directly with the Ministry of Finance.

A striking aspect of the system has been the rapid growth over the last thirty years, as can be seen below.

VENEZUELA
 Enrollment Growth In Higher Education
 1960-1990



Private	→	2.634	4.736	38.869	140.205
Public		22.088	70.816	296.726	498.921
Total	*	24.722	75.552	335.595	639.126

Source: OPSU

Enrollment in 1960 was less than 25,000. This amount has increased rapidly to 639,000 in 1990. Private enrollment has grown from 2,600 to 140,00 during the same period, increasing its share of overall enrollment from 12% to 20%. Enrollment is equivalent to about 26% of the 20 to 24 age group. This figure is well above the 19% average for Latin America. Only Ecuador (33%) and Argentina (38%) enroll higher percentages, and Brazil (11%), Mexico (16%) and Colombia (13%) are significantly lower. In 1960 the corresponding gross enrollment rate was below 5%. However, the very high levels of repetition in Venezuela significantly inflate the gross enrollment ratios. Furthermore as much as 10% of enrollment in the public system is reported to be fictitious, i.e., to consist of students who rarely, if ever, attend classes.

Graduate enrolment has grown significantly. For the year 1987, enrollment was 11,881. The number receiving advanced degrees was 1,917. In 1987 437 graduate programs were officially registered, 51 of them Ph.D programs, 208 MA programs and 178 labelled "especializaciones". This means that the average size of such programs was an excessively low 27 students. Nearly half of the doctoral programs were offered by the Central University of Venezuela (UCV). There is little information on the quality of those programs.

Internal Efficiency

In 1988-89, the higher education system employed about 35,000 teachers. 65% of those employed in the public sector worked full time. In comparison only 13% of teachers in private institutions work full time. After accounting for part-time teachers, the FTE student teacher ratio in public universities is 16:1. This compares with over 35:1 in private institutions as well as in public non-university institutions. In the public universities the ratio varies between Simon Bolivar University, with a 7:1 ratio, and the University of Carabobo, with a 44:1 ratio. Table 2 summarizes these figures. If the 10% of the enrollment in public institutions reported to be fictitious is subtracted from the total figures, then the FTE student teacher ratio should be 14:1 rather than 16:1.

Table 2
Student-Teacher Ratios in Higher Education, 1988-89

	Enrollment	Full-Time Teachers	Half-Time Teachers	Part-Time Teachers*	FTE/Student Ratio	Nom. Student/Teacher Ratio
University						
Public	280,507	15,521	1,781	4,133	16.1	13.1
Private	56,825	784	412,212	36.8	16.6	
Public Pedagogical Institutes	52,976	1,654	175	2,894	21.5	11.2
Non-University						
Public	53,551	1,088	292	559	39.0	27.6
Private	64,672	307	222	4,155	44.4	13.8
Total	508,531	19,354	2,887	13,953	20.9	14.1

Source:

OPSU

*Part-time teachers estimated to be working one-quarter time.

International comparisons are difficult because some countries report only nominal student teacher ratios. The nominal ratios for neighboring countries are: Argentina (1985) 17:1; Chile (1984) 11:1; Colombia (1987) 9:1; Brazil (1988 public 9:1 (FTE) and private 30:1). Outside Latin America some figures are as follows: USA, public four year institutions 17:1; Spain 19:1; and United Kingdom 12:1. Therefore, Venezuela's public student teacher ratios are roughly in line with similar countries.

Table 3 provides an estimate of completion ratios in the higher education system:

Table 3
Completion Rates - Higher Education

	Entered 1983	Entered 1986	Completed 1989	% Completing
Universities				
Public Universities	53,300		14,096	26
Private Universities	4,807		4,191	87
Public Pedagogical Inst.	12,673		1,506	12
Non-Universities				
Public Polytechnic		1,964	622	32
Public Technology Inst.		13,312	3,051	23
Private Technology Inst.		13,892	5,722	41
Public Colleges		2,502	1,571	63
Private Colleges		2,977	1,656	56
Total	70,780	34,647	32,415	31

Source: OPSU

The graduation rate in the university subsystem—considering entrants in year x and graduates six years later—is estimated at 26% in the public universities, compared to 87% in the private universities. In the non-university sector, which mainly provides three year diplomas, the public completion rate is 29% compared to 45% in the private institutions. While in principle it should take only five or six years of schooling to produce one university graduate, in fact, after accounting for the years of repetition and dropout, it probably takes the subsystem around 16 years of schooling to produce a graduate, or about three times the ideal cost.

Another way of looking at the efficiency of the higher education system is to calculate the number of graduates as a percentage of total enrollment. On this basis the ratio of graduates in public institutions in 1989 to total enrollment was 1:15. The ratio of total graduates (both university and non-university institutions) to total enrollment in other countries in Latin America is as follows: Brazil 1:6, Costa Rica 1:13, Cuba 1:9, Chile 1:10, El Salvador 1:12, Mexico 1:10, Peru 1:46 and Uruguay 1:25.

The low internal efficiency of public higher education is a result of a number of ad-hoc policies which have become generalized. In spite of having a national entrance examination, most public institutions have a de facto open entrance system. They then seek to weed out students through failing

them in the first and second year of their studies. At the same time these institutions do not enforce regulations requiring failed students to leave the university. The result is that enrollments are severely inflated.

Output and External Efficiency

The higher education system graduated 210,577 new professionals and technicians during the period 1980-1988, with a yearly average of 23,400. Graduates from the universities have doubled during that same period, increasing from 11,500 to 21,100. Graduates from the non-university sub-sector have increased three times, expanding the proportion of graduates coming from this subsystem from 24.5% in 1980 to 35%. The distribution of graduates according to knowledge areas and its differences between public and private universities is as follows:

Table 4
Distribution of Graduates according to Knowledge Area, 1987

	Public	Private
Number	17,155	3,964
Percent	100	100
Basics Sciences	2.0	0.03
Engineering, architecture & technology	24.1	21.0
Agricultural sciences	6.5	0.4
Health sciences	21.9	2.5
Education	14.5	7.3
Social sciences and BA	29.3	67.9
Humanities	1.6	0.8

Source: OPSU

Compared to about ten years ago these figures show decreases in sciences and engineering and an increase in social sciences. Overall 11% of the total labor force has post-secondary education, compared to 5% twenty years ago.

The estimated private rate of return to students attending public institutions is about 12%. The social rate of return is about 7%, which reflects the public costs of providing free public higher education. This figure is considerably lower than the social returns at lower levels, which are estimated at 18% for primary education, 9% for general secondary education, and 11% for technical secondary education.¹ At the same time unemployment of higher education graduates was estimated at 6.7% in 1990, much lower than the figure of 11% among secondary school graduates.

¹ Psacharopoulos and Fiszbein.

HIGHER EDUCATION COSTS AND FINANCING

Table 5 below summarizes unit and total costs of higher education in 1990:

Table 5A
Annual Expenditures in Higher Education, 1989-90

	Enrollment 1989	Unit Cost (US\$)	Total (US\$)	% of Total
Public	386,638	1,625	628,165,158	89.2
University	332,091	1,747	580,215,582	82.4
Non-University	54,547	879	47,949,576	6.8
Private	140,205	543	76,067,900	10.8
University	59,654	600	35,792,400	5.1
Non-University	80,551	500	40,275,500	5.7
Total	639,106	1,802	704,233,058	100

Source: OPSU and mission estimates.

Table 5B
Unit and Total Costs in Selected Higher Institutions, 1989-90

	Enrollment	Total Expenditures (US\$)	Unit Costs (US\$)
Central University of Venezuela	52,268	133,840,849	2,561
University of Carabobo	45,854	57,323,658	1,250
Libertador Pedagogical University	64,924	55,386,809	853
Simon Bolivar University	7,144	32,274,263	4,518
Open University	54,410	15,336,365	282
Andres Bello Catholic University	11,000	148,850	650
Francisco de Miranda College (private)	3,900	1,714,248	440
Public Technology Institutes	53,689	31,927,470	595

Source: OPSU

Total public expenditures in higher education were equivalent to US\$628 million, while private expenditures were about US\$76 million. Thus Government contributes 89% of the total costs of higher education, while the private sector contributes about 11%. These figures do not include expenditures for loans and scholarships (discussed below). They also do not include expenditures for R&D, much of which goes to universities. About 3% of the income of public universities comes from the sale of goods and services, a significant portion of which may be purchased by public agencies.

The Fundación Ayacucho (FGMA) is the largest provider of loans and scholarships, providing in 1990 a total of 3,406 loans and 4,970 grants, with an average size of loans equivalent to about US\$4,600. Of these loans about one third are for study outside Venezuela and about a third are for undergraduate

studies. Currently FGMA recovers 1.5% of the real volume of its outstanding loans. FGMA's budget in 1990 was about B350 million, or US\$7.8 million, or about one percent of total public expenditures in higher education. A number of other institutions (BANAP, Educrcédito, CONICIT, PDVSA) provide smaller numbers of loans and scholarships. FGMA is planning to strengthen its management, expand the numbers of loans, and set new repayment requirements, with support from a recently signed World Bank loan.

In terms of unit costs, the estimated unit cost in public universities higher education in 1989 was US\$1,747. This figure has been decreasing significantly. Two years earlier it was estimated at US\$2,600 and the estimate in 1990 is approximately US\$1,200. Within the individual universities these figures vary significantly from a high of US\$4,500 for Simon Bolivar University, which is the best research oriented higher education institution in Venezuela, and CNU, which has a large research establishment, to the Pedagogical University (UPEL), at US\$850. The Open University, with students participating on a part time basis usually on weekends, has a unit cost of US\$280.

The private contribution to the financing of higher education in Venezuela consists mainly of tuition fees paid by students enrolled in private sector institutions. There is no comprehensive study of tuition fees in all private institutions. However, currently several of the larger private universities are charging about US\$600 per year and several non-university institutions about US\$500 per year. A small portion of expenditures of private institutions is covered by government through student loan schemes, as well as through grants and support for capital construction to a few of the higher quality private institutions.

Because of the low internal efficiency of public universities, the unit cost per graduate in public universities is estimated at 16 times US\$1,747, or \$27,952. This is more than three times the ideal cost of US\$8,735 if all students completed their studies in five years without repetition or dropout. This compares to a cost per graduate in private universities of about \$3,600.

Table 6 below summarizes the sources and uses of funds in public universities. It shows that public universities get 89.5% of their funds directly from government. An additional 6.3% comes from "deficit" financing, in which the universities borrow from future government allocations. Only 2.7% comes from sale of good and services. By law the public universities do not charge tuition and therefore this does not exist as a source of income.

Table 6
Public Universities
Sources and Uses of Funds, 1991

	(%)	US\$ (1000)
Direct Government Support	88.5	642,023
Other Government Support	1.0	7,254
Sale of Goods and Services	2.7	19,587
Other Income	1.5	10,882
Deficit Financing	<u>6.3</u>	<u>45,703</u>
Total	100.0	725,449
Uses by Program:		
Teaching	26.8	194,618
Research	4.6	33,172
Extension	1.5	11,044
Socioeconomic Protection (including pensions)	36.2	262,766
Academic Services	4.4	31,612
Financial Services	9.8	70,883
General Services	7.9	57,257
Physical Plant	2.0	14,688
Development	1.7	11,976
Administration	<u>5.2</u>	<u>37,433</u>
Total	100.0	725,449
Uses by Expenditure Category:		
Personnel	58.1	421,808
Maintenance	10.5	75,995
Debt Service	0.0	29
Equipment and Furniture	3.2	23,329
Support to Other Public Agencies	0.0	64
Construction & Capital Investment	0.9	6,865
Transfers	16.7	121,493
Investments	0.0	8
Other Financial Transactions	5.1	37,222
Other Undefined Expenditures	<u>5.3</u>	<u>38,637</u>
Total	100	725,449

Source: OPSU

Table 7 summarizes public higher education expenditure in Venezuela and neighboring Latin American countries:

Table 7
Public Higher Education Expenditure as a Percentage of
Total Education Budget and of GDP
Selected Countries

	% of Education Budget	% of GDP	Year of Data
Venezuela	35.3	1.24	1988
Costa Rica	39.9	1.72	1988
Mexico	31.7	0.67	1988
Bolivia	23.2	0.72	1988
Brazil	21.0	1.20	1989
Colombia	20.3	0.55	1987

Source: UNESCO and World Bank reports.

Compared to the rest of Latin America, the unit costs of Venezuelan public higher education in 1990 were higher than Argentina, Mexico, and Chile but lower than Costa Rica, Colombia and Brazil. At the same time Venezuela's total public expenditures as a percentage of the education budget, as well as a percentage of GDP are, along with Costa Rica, among the highest in the region and among the highest in the world. This is the result of a public higher education system which, while its unit costs are not excessively high, enrolls a very high share of the 20-24 year old population, comparable to that of many developed countries. In short Venezuela, like Costa Rica, has opted to utilize public funds to satisfy the continually growing social demand for education while at the same time it has sought, with increasing difficulty, to retain a reasonable level of quality in at least some of these public universities.

During the 70's, the proportion of the public educational budget devoted to higher education increased from 32% to 46% and then declined to 33% during the first six years of the 1980 decade. In 1987 the proportion of the public education budget going to higher education escalated to 54.5% and then dropped in 1988 to 38%.

EQUITY

Venezuela is unusual among many Latin American countries in that it collects detailed information on the socioeconomic status of students in higher education. Table 8 summarizes this information for 1986. The information which forms the basis of the table is self-reported by first year applicants who provided information on the education and occupations of their parents.

Table 8
Socioeconomic Status of Students Entering Higher Education, 1986 (%)

	Private Institutions	Public Institutions	Population as a Whole
High	22.3	5.9	1.0
Middle	38.6	21.7	4.5
Middle-Low	32.4	42.9	14.1
Workers	6.5	27.1	42.4
Marginal	0.2	2.4	38.0
Total	100	100	100

Source: Navarro

The table reveals that public institutions enroll a much larger percentage of the two lower socioeconomic groups than the private institutions—29% compared to 7%. Therefore to a great extent the current public system provides an avenue of access to higher education for large numbers of under-privileged young adults. However, at the same time overall enrollment in higher education is heavily skewed towards the higher income groups. A full 70% of the population as a whole is in the two lowest income levels, compared to 29% attending public higher education institutions. Put another way the chances of those in the two highest income groups attending public or private higher education are about twenty times greater than those in the two lowest income groups.

Thirty-four percent of students enrolled in public institutions attended private fee charging secondary schools. These students could at a minimum afford to pay similar fees in higher education. However, public institutions are legally not permitted to charge tuition, therefore heavily subsidizing those students recruited from the higher and middle income groups.

SCIENCE AND TECHNOLOGY

Venezuela's effort in science and technology is estimated at 0.7% of GDP, a figure which is higher than most other Latin American countries. As a matter of policy Venezuela has been increasing this percentage, which stood at 0.4% in 1984. Venezuela recently sought to further increase the amount of funds provided to science and technology, especially through a recently signed IDB loan of US\$92 million to CONICIT for support of science and technology research. In 1991 a total of B15 billion is estimated to have been invested in R&D by Government as well as by parastatal organizations. Of this amount approximately 11% is expended through university budgets, 73% is expended by autonomous public research institutions, and 16% is expended through the Consejo Nacional de Investigaciones Científicas y Tecnológicas (CONICIT). Table 9 shows the changes over time.

Table 9
Venezuela: Public Investment in R & D

	1978	1984	1991	1991
Universities	31%	22%	7%	11
Research Institutions	54%	72%	71%	73%
Planning and Supporting Institutions	15%	6%	21%	16%
Total %	100%	100%	100%	100%
Amount (Bs. mils)	600	1,361	12,300	15,250
As a Percentage of GDP		.4	.6	.7

Source: CONICIT (1991)

Several Venezuelan research institutions are of world-class quality. The most notable is the Center for Research and Investigation in Petroleum (INTEVEP), which gets a significant portion of all of Venezuela's R&D funds (30%). Other high quality institutions include the Venezuelan Institute of Scientific Investigation (IVIC) as well as research centers in agriculture and environment. In the last few years these institutions have significantly increased their share of the total government budget for R&D from 54% in 1978 to the current 73%.

CONICIT itself appears to be a well-managed institution utilizing a system of peer review for award of most research contracts. It has no research institution directly under its jurisdiction and is therefore a purely informational, planning, and financing agency. CONICIT uses the peer review system to recognize and categorize active researchers. It currently recognizes 6,000 researchers, of which only about 1000 are receiving special salary supplements (an average of 20,000 Bs per month) on the basis of their research productivity. CONICIT also has a program of approving graduate programs (masters and doctorates). CONICIT's new and major effort in financing R&D in Venezuela is being financed through the IDB loan, which focusses on the key areas of chemistry and chemical engineering, metallurgy, new materials, medicine, and environment. Agricultural research is being supported under separate funding and institutions. CONICIT has also set up a fund, equivalent to US\$200 million, to lend money for technological innovation in industry.

The weak link in Venezuela's effort in R&D is that of university-based research. The number of classified researchers represents less than 5% of the total number of faculty of the public universities, ranging from 22% in the case of the USB to none in the case of UPEL. 85% of these researchers are concentrated in three universities—UCV, ULA and USB. Currently CNU allocates only 3% of the university budgets to research. This percentage has been declining significantly since 1978, when it was equivalent to 7% of the university budget. The result is that many institutions are finding that their equipment is outdated. In addition, growth in enrollments and decreasing salaries relative to industry are making a research career within the university system far less attractive than it was a few years ago. Students have been responding to these trends. The result is that few students are studying the hard sciences (only 2% in 1990). The apparent deterioration of the quality of public secondary education may also be restricting entrants into science and technology careers.

MANAGEMENT AND BUDGETING

The Venezuelan public system is widely perceived to be in a crisis, with student and teacher strikes regularly closing institutions, often because of opposition to reducing subsidies such as bus transportation. Public institutions themselves are under severe budgetary pressures and the annual negotiations with the Ministry of Finance are becoming increasingly difficult.

Many of Venezuela's difficulties and problems with public higher education stem from the current way it budgets and oversees the university system. Under the current system the CNU reviews and approves plans, budgets, and policies of each university. However, the CNU is fundamentally a cooperative institution formed by the higher education institutions which it oversees. Specifically, votes in the CNU are as follows: each autonomous university has one vote; three votes are made available to the experimental universities and the private universities; one vote is provided to a representative of teachers; two votes to representatives of the Congress; two votes to students; and one vote to CONICIT. Overall some 40 people, some with partial votes, meet eleven times a year to decide on policy. Therefore the CNU is not a "buffer" institution which is independent of both Government and the institutions it oversees. Rather it is a cooperative management group controlled by the institutions. Therefore the CNU has a very limited mandate for insisting on improved efficiency or quality of the institutions it oversees. Its most hotly contested function currently is its ability to approve new programs and courses in both public and private institutions. About 80% of its work is administrative and only about 20% is related to policy.

The budgeting process normally begins in September, when each university makes a budget proposal based on technical guidelines provided by CNU, fundamentally related to numbers of students and numbers of staff. OPSU studies these proposals and, on the basis of technical criteria, normally questions or cuts the university's request. On average about 30% is cut by OPSU. Overall 80% of the budget is fixed on the basis of enrollments, and OPSU examines the remaining 20%. Because of budget constraints CNU has been strongly resisting requests by public institutions for authorization to increase intake of new students. Normally the CNU mandates a small percentage for non-teaching salaries, currently 3% for research and 0.75% for library expenses. The CNU does not utilize criteria of internal efficiency or faculty productivity for funding decisions, which are taken on an historical basis. However, the CNU recognizes that the more research-oriented institutions like the UCV and Simon Bolivar University should receive more funding per student than the less prestigious institutions. On this basis unit costs vary by as much as a factor of three among the various universities.

The CNU sends its proposed budget on to the Ministry of Finance, which recently has cut these amounts by about 30%. However, in the course of the year the universities go on spending on a monthly basis as if their full amount has been approved. By October of each year, the universities run out of funds and then request additional funds to complete the year. This request has generally been accepted, often after strikes, but the funds are considered to have been drawn from the following year. On this basis the universities are gradually accumulating an increased deficit into the following year which makes forward budgeting and planning increasingly difficult.

All universities are required to provide the same salary scale and rules of promotion to all staff. University teachers can retire at age 50 after 25 years of service. Large numbers of staff are currently

reaching retirement age and large numbers of vacancies in the older institutions are expected shortly. Pensions for all retired staff are included in the university budget under the rubric "socioeconomic protection". These currently account for 20% of the total budget of the universities. A few institutions (UPEL for example) are already unable to finance pension payments fully. Some institutions have worked out procedures by which teachers can retire but can continue to teach on a contract basis.

The CNU staff has prepared a proposal for more systematic review of institutional budgets. The proposed system would be based on a formula utilizing enrollments, number of sections, and numbers of professors. Using this formula the CNU would be able to put pressure on institutions to fully utilize its teaching staff, who are supposed to teach 12 hours per week. In addition a new parameter would be set for the ratio of non-teaching to teaching staff, which is an excessively high four non-teaching staff per teacher or one for every three students. The new parameters might be that of one half per teacher. Finally the proposal for research would provide a fixed amount allocated to each public university, which is expected to be 6% of the total yearly allocation to each university, and a variable amount that will take into consideration three productivity indicators: i.e., the ratio of accredited researchers working in each university to the total number of researchers in the corresponding science sector, the ratio of accredited researchers to FTE faculty in each institution and the ratio of postgraduates to postgraduate enrollment within each university.

These proposals are still under consideration. Other proposals include incentives for universities to diversify their sources of funds, including fuller cost reimbursement for services rendered to other government agencies and increased student payment for services such as food and transport, as well as transferring out of each institution's budget all payments related to pensions and health. While all of these proposals are a clear step in the right direction, they will not encourage increased internal efficiency of these institutions, especially with regard to students. Because of the collegial nature of the CNU as well as possible political opposition from students, it will be difficult to develop stronger formulas.

A Snapshot of Two Institutions

The Andres Bello University (UAB) is a private Catholic institution established in 1953. It now enrolls 9500 students in undergraduate education and has 1500 students in a variety of graduate courses, mainly non-degree. Currently enrollment is distributed mainly among administration, law, engineering, social communication, education, psychology and economics.

The institution was founded by the Jesuits who select the rector. However, the institution is managed by an independent council which must approve the proposed rector. The council includes both religious and lay representatives—two Jesuits, two bishops, the rector, one representative of each of the faculties, and three nationally-known persons.

The council decides on the budget and tuition. This year tuition charges will be B 3000 per month over a ten month period. Students in engineering will be paying B 3500 per month. This comes to about \$600 per year. The Government provided 10 million B's last year as a subsidy, equivalent to about 5% of UAB budget. A similar amount is expected this year. Currently 18% of all students receive partial scholarships from UAB's own funds. In the fourth and fifth years highly subsidized educational loans also from UAB's funds are made available to students. UAB has an active program of soliciting contributions from alumni, similar to that of U.S. private institutions. Such donations account for about 2% of operating expenses. UAB has also succeeded in getting contributions for capital construction from government and industry. The current construction program was 80% financed by government and 20% by private industry. The physical facilities are adequate in size and well maintained and manicured. UAB salaries are equivalent to public sector salaries but without the large amounts of fringe benefits. UAB employs one non-teaching staff member for every 60 students. Because of a lack of funds UAB does research only in the social sciences and in law and history.

UAB by all accounts provides an undergraduate education which is equivalent to the best public institutions. According to 1987 figures, 25% of entering students scored above 60 on the entrance examinations. 81% of entering students were in the middle or upper classes. The institution has 10,000 applicants for 2,000 spaces in the first year of education. Students at UAB seek to complete their studies in a reasonable period of time and enter the labor force. Based on enrollments five years earlier, approximately 33% of entering students graduate. However, there is little repetition and students who fail usually drop out. The cost per graduate is about US\$4,800. The total budget of US\$6.6 million results in about 1,100 graduates.

The University of Carabobo (UC) is a public university with problems which, albeit similar to those of other public institutions, appear to be more severe. UC currently enrolls 52,000 students, which makes it one of the three largest public institutions in Venezuela. However, it is estimated that at least 10% of these students do not attend classes. The physical facilities at Carabobo are extremely outdated and inadequate. It has 0.8 square meters for each enrolled student, a figure which is far lower than the internationally accepted figure of five square meters per student and is lower than any other institution in Venezuela. Physically most buildings are in deplorable shape with totally inadequate scientific and teaching equipment and a lack of library books. UC has been unable to resist pressures to accept large numbers of unqualified students. Only about 11% of entering students scored above 60 in the entrance examination. About 47% are in the middle or upper classes. The situation is such that only 17% of entering engineering students, of which there are 1000, passed the end of the first year examination. Similarly UC was accepting 800 per year into medicine, while the institution has agreements with the local hospitals to train a maximum of 100. There are 8500 students enrolled in the faculty of law. Until last year students were permitted to continue their studies no matter how they scored on the final examination and no checks were made on how many classes they attended.

About 19% of entering students eventually graduate. Because of high repetition rates, the system requires 22 school years to produce one graduate. Currently graduates from the school of medicine take an average of 9 and half years to complete the 6 year course. In education and engineering those who do complete the course average six years to complete the five year course. Overall, in UC the unit cost of US\$1000 translates into a cost per graduate of about US\$22,000, which makes it almost four times as expensive as UAB. UC's total budget is about US\$52 million and it graduates 3,000 students per year.

Faced with the problems, the rector of UC and the deans of the faculties have over the last two years taken the difficult step of reducing the number of entrants. In fact last year the law school accepted no new students, the engineering school accepted 700 rather than its allocated amount of 1000, and the medical school accepted 200 rather than its permitted amount of 1000. This was in the face of large scale student protests. A number of the schools are also sponsoring pre-entrance courses to help raise up the standard of entering students. UC is also finally beginning to enforce rules already on the books for student attendance, requiring students to pass at least 50% of the course work or to drop out. To improve administration, UC has established a private foundation to administrate the library and to provide a variety of information systems for students, faculty, and administrators. Finally the UC has received a agreement in principle from government that additional facilities will be built. The total costs would be in excess of US\$50 million. Currently the faculty of law is under construction.

Despite being one of the weakest public universities in terms of research, UC has attracted some funds from CONICIT for engineering research, especially in health and environmentally related areas. A total of 3% of UC's budget is allocated to research. In accordance with CNU guidelines, .75% is allocated to libraries.

OPTIONS FOR REFORM

To create an environment that will provide the necessary incentives to improve quality and efficiency in the public system, enhance faculty performance, and encourage self-assessment, a new set of transparent funding criteria and mechanisms will need to be introduced, based on how much the Government estimates the public system should cost rather than on how higher education institutions would like to spend such funds. As noted above the CNU is already discussing moving away from incremental funding through establishing a formula which combines different criteria for allocating resources to teaching, research and extension. However, the current attempt should be considered only a modest attempt at setting a formula which would provide appropriate signals for institutions to improve their efficiency; given the collegial nature of the CNU even these modest attempts may fail.

While the current proposed formula would help to regularize use of staff time, would reduce the number of non-teaching staff, and would put research support on a systematic basis, it would not deal with the most fundamental problem of public higher education, which is high dropout and repetition rates and the excessive time it takes for students to graduate. It is highly inefficient, both for students and for Government, for public institutions to accept large numbers of students and then to fail them repeatedly.

The simplest and most powerful formula to encourage improved efficiency would be one which finances institutions, at least partially, on its numbers of graduates. A model which could be considered would be that of the Netherlands, which has an automatic admissions policy. The proposed Brazil formula could also be adapted to Venezuela. In the Netherlands' funding formula, universities receive 4.5 years of annual unit cost funding per graduate and 1.5 years for dropouts—regardless of how long students take to complete their studies or at what point in their studies they drop out from the institution. The dual incentives are both to weed out poorly performing students early on, and to get people to graduate as quickly as possible. Other criteria should be based on performance and efficiency in the use of resources and should help ensure that institutions do not arbitrarily award degrees to get increased funding. The results of such changes would be a major reduction in the costs per graduate and a much higher social and private rate of return to investment in higher education.

The implementation of such funding mechanisms would require a change in the status of the CNU, which should become independent of the institutions it oversees. A majority of the CNU would consist of representatives of Government and society as a whole. "Buffer" institutions of this sort have been shown to work well in the United Kingdom, Netherlands, and the United States.

There is also a strong case for reducing the absolute amounts of public expenditure on higher education and for increasing the private contributions. The most straightforward way of achieving this aim would be to charge tuition fees to all students in public institutions and simultaneously offer subsidized loans and scholarships for the neediest students. At a minimum such fees could be equal to the current charges in private secondary schools which one third of public university students have attended, and loan and scholarships could be offered to the remaining two thirds of students. Venezuela currently has some small but relatively well organized student loan schemes (Fundación Ayacucho, Educredito) which could be expanded under this scenario.

As in most of Latin America there is very strong opposition in Venezuela to charging tuition in public institutions with their long tradition of free education. It has been argued that cost recovery could

also be achieved through a "graduate income tax" system, in which graduates of public institutions would pay, say, an additional tax equivalent to 2% of their income over a fifteen year period. An alternative currently under discussion in Brazil would add a portion of the costs of public higher education to the gross income reported on tax returns of parents of students attending public institutions, who would then be taxed at the current marginal rate. However both these alternatives require a better functioning income tax system than Venezuela's current system.

In addition, higher admission standards in public institutions will result in increased private sector growth. This is already happening under the pressure of reduced funding for public institutions. Under this scenario public universities would increasingly become higher quality, research and graduate education oriented institutions. This policy would also require expanded loan and scholarship schemes for needy students wishing to attend private institutions.

Increased funding on the basis of open competition for innovative research, teaching and extension programs should also be explored. The recent expansion of funding by CONICIT on the basis of open competition for research contracts is a strong step in the right direction but more can be done by CNU itself in areas such as extension and innovative teaching programs.

Along with funding mechanisms based on formulae, contractual arrangements, student fees and other similar provisions, it will be necessary to strengthen current initial efforts towards utilization of institutional self-assessment procedures as well as the use of external evaluations and accreditation. Such procedures, as well as the reporting to the public of results, can serve to guide resource allocation and to create further incentives for quality and performance improvements.

In addition to these system changes, Venezuela needs to examine closely the role of the higher education system in training and upgrading primary and secondary school teachers. The current system seems to be succeeding in providing bachelor's degrees to large numbers of currently practicing and future primary school teachers but with little discernible impact on student learning or reduced repetition or dropout. It may well be appropriate to reduce the requirements for primary school teacher certification from those of the five year bachelor's degree to a three year "certificate" while at the same time refocussing pre-service training on increased practice teaching through "sandwich" courses and supervised internships.

Another way that the higher education system can provide a service to the lower levels would be to undertake research on the results of the university entrance examination and then report the results of this research to secondary school teachers and school directors. This research could identify the higher order thinking skills in which students are deficient. The results would then be incorporated into in- and pre-service training programs.

CONCLUSIONS

The adoption of funding mechanisms based on formulas, contractual arrangements, student fees and other similar provisions would greatly enhance the already emerging trend towards the utilization of institutional self-assessment procedures and the continuous use of external evaluations and accreditation. Evaluation, at its simplest need not be linked to funding criteria but it can serve to guide resource allocation and/or create incentives for quality and performance improvements. Another policy option which would help ensure that higher education serves society more effectively would be reform of the

system of training teachers to emphasize increased practice teaching and to shorten the excessively lengthy period of training primary school teachers. In addition, the CNU could undertake research on why some students do better on the university entrance examinations, as well as remedial programs for underprivileged students doing poorly on such examinations.

REFERENCES

- Albrecht, Douglas and Zideman, Adrian, Funding Mechanisms for Higher Education: Financing for Stability, Efficiency and Responsiveness The World Bank, Discussion Paper, Washington: 1991.
- CONICIT, III Plan Nacional de Ciencia y Tecnología, Caracas: 1991.
- Navarro, Juan Carlos, "Venezuelan Higher Education in Perspective," Higher Education 21(2):177-8, the Netherlands: March, 1991.
- OPUS (Oficina de Planificación del Sector Universitario), CNU (Consejo Nacional de Educación Superior), Boletín Estadístico de Educación Superior no. 13, vols. I-IV, Caracas: 1990.
- Psacharopoulos, George, and Fiszbein, Ariel, "A Cost-Benefit Analysis of Educational Investment in Venezuela, 1989," The World Bank, A View From LATHR, Washington: 1992.
- Reimers, Fernando, "The Feasibility of Introducing Loan Schemes to Finance Higher Education in Latin America: The case of Venezuela," The World Bank, unpublished paper, Washington: 1990.
- UNESCO - CRESALC, Visión cualitativa de la educación superior en América Latina y el Caribe, Caracas: 1991.



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