

Introduction

Brazil has made great strides towards its goal of “Education for All” in the last two decades. Both the quality of education and the equity of its distribution have improved markedly. During the last ten years, the improvements have been so dramatic that this period is being referred to in the media and some academic circles as “The Education Revolution.” The story of how this great advance took place and the instruments and programs that were behind it are related in this report.

The Brazilian education system is highly decentralized. Brazil comprises 26 states and the Federal District, Brasilia and about 5,561 municipalities, the smallest administrative units. The Federal Government performs normative, redistributive, and supplementary roles. A Constitutional Amendment approved in 1996 by the Congress, established that compulsory *fundamental education* lasting eight years, would continue to be a shared responsibility of states and municipalities and a new funding system organized the financial contributions of each tier of government.¹

The “Education for All” commitments signed in Jomtien have, in fact, been integrated into the Government’s education policies and have contributed to an educational revolution in Brazil. The changes have been attributed to many factors, including the following:

- (i) growing mobilization of society for the right to education and improvement of public schools;
- (ii) more effective coordination of educational policies by the Federal Government;
- (iii) strengthening of joint actions among the three levels of government (federal, state, and municipal);
- (iv) reallocation of public funds for fundamental education according to the number of students actually enrolled;
- (v) consolidation of educational information and evaluation systems, and the use of their results for policy-making, implementation, and follow-up;
- (vi) media participation in the discussion of educational issues and social mobilization; and
- (vii) growing partnerships and cooperation with international agencies in the education sector in order to move education agenda forward.

¹ Thus municipalities would be responsible for day-care centers, pre-school education, and the first 4 years of fundamental education (primary education) , and states would be responsible for secondary education and higher education institutions. Technical vocational schools continue to be a direct responsibility of the federal Government.

Brazil's program of Education for All (1993-2003) has as its objectives universal primary education and reducing failure and drop out rates so that at least 80 percent of each age group completes primary education on time. It also aims to improve normal schools and teacher training; to restructure secondary education, including curricular reform; to improve the institutional performance of public universities; and to increase government spending on education until it reaches 6.5 percent of gross domestic product.

In 1996, in line with this spirit, the new National Education Law (*Lei das Diretrizes e Bases da Educação Nacional* (LDBE) defined the schooling sequence that prevails today:

- (1) preschool education for children up to six years of age;
- (2) eight years of fundamental education;
- (3) three years of secondary education; and
- (4) university or advanced professional education.

The education reform established the first eight years of schooling as the top priority of the national education agenda. The main goal is to provide universal access to education as well as to improve quality of education at the fundamental level.

With this objective in mind, the reform focused on:

- (1) equity in the allocation of public funds for education;
- (2) redefinition of intergovernmental transfer mechanisms through universal and transparent criteria;
- (3) better division of educational responsibilities among federal, state, and municipal governments; and
- (4) the development of social control mechanisms, as well as stimulating community participation in school management.

To further the education agenda, the current administration adopted important policies in the sector. The most important reform in education financing was the establishment of the FUNDEF (National Fund for Primary Education Development and Improvement of the Teaching Profession). To guarantee better quality education, national curriculum reform was undertaken at all levels and in all modalities. Innovations such as accelerated learning programs for both primary and secondary students were introduced to minimize the chronic problem of repetition and over-aged students.

The Textbook Program and textbook quality evaluation were also reformed. To increase the participation of parents in the decision-making process at the school level, a program of direct allocation of funds to schools through school/community associations was established. To encourage the poorest students to enroll and complete at least primary schooling, the Government recently expanded the *Bolsa Escola* Program (Minimum Income Scholarship

Program). This program was successfully tested in several states and has been expanded to all the regions of the country.

The core of the reforms implemented in the last seven years included evaluation and information. Two systems were consolidated to perform those activities:

- (i) the National Basic Education Evaluation System (SAEB); and
- (ii) the Integrated Education Information System (SIED).

Both provide information that support policy decisions and highlight the many issues in the implementation of education policies.

Improvements in key education indicators confirm the efficacy of substantial efforts by the Government in the education sector. By the year 2000, Brazil had almost achieved universal primary enrollment, and more than 50 million Brazilians were enrolled in the country's educational system. In 1999, 95.4 percent of all children aged 7 to 14 were enrolled in elementary schools, compared to 87.5 percent only 5 years earlier. Despite all the significant progress in Brazilian education, its ambitious agenda's objectives have not been fulfilled. Much more needs to be done to decrease large regional inequalities and to raise the quality of education at all levels.

The first part of this paper is a review of the major statistical indicators of education, including access, net enrollment rates, student flow, repetition and completion rates, education equity, and students' learning achievement. Then, the paper analyzes the management and evaluation instruments used by the current administration to implement the reforms. It also covers the driving forces that made such striking changes possible. Finally, the paper concludes by reviewing the major successes of the 1990s and the challenges that remain for the next decade.

I. Overview of the Evolution of the Major Education Indicators in the 1990s

Access. The education system in Brazil has significantly expanded enrollment in recent decades. From 1970 to 2000, 32 million additional students were added, two-thirds of them during the last two decades, a period characterized by low GDP growth, economic instability, tight budgets, and conflicting demands. The creation of a number of new school places equivalent to the population of a country the size of Argentina remains an astonishing accomplishment. Table 1 shows students' enrollment in the Brazilian education system in all demographic census years from 1970 to 2000.

Table 1 – Number of Students in Brazilian Education at All Levels

	Total	Preschool	Primary	Secondary	Higher
Enrollment in Thousands of Children					
1970	17,814	374	15,895	1,119	425
1980	28,130	1,335	22,598	2,819	1,377
1991	39,823	5,284	29,204	3,770	1,565
1996	46,453	5,714	33,131	5,739	1,869
2000	50,439	3,835	35,718	8,193	2,693
Growth in Thousands of Children					
1970 -1980	10,316	961	6,703	1,700	952
1980 -1991	11,693	3,949	6,606	951	188
1991 -1996	6,630	430	3,927	1,969	304
1996 -2000	3,986	-1,879	2,587	2,454	824
1970 -2000	32,625	3,461	19,823	7,074	2,268

Source: INEP. Educational Census

Despite the significant increase in school enrollment, the growth in the school age population during the same period was a critically relevant issue. If most of the school system's expansion took place to keep up with expanding populations of school-age children, it may mean that the average Brazilian does not have much better access to school today than 30 years ago. Table 2 shows that in 1970, there were almost 60 million people under the age of 25 in Brazil. Thirty years later, there were an additional 27 million in the same age group. This means that an important part of the 32 millions students added to the system merely kept pace with the country's population growth.

Table 2 – Individuals by Age Bracket in Census Years and Gross Enrollment Rates

Population by Age Bracket (in thousands of students)					
	0-25	0-6	7-14	15-18	19-25
1970	59,355	19,476	19,732	8,484	11,663
1980	72,745	22,503	23,007	11,148	16,088
1991	82,227	23,377	27,612	12,206	19,033
1996	83,547	22,084	27,585	13,656	20,223
2000	87,229	23,141	27,125	14,454	22,509

Gross Enrollment Rates					
1970	30%	2%	81%	13%	4%
1980	39%	6%	98%	25%	9%
1991	48%	23%	106%	31%	8%
1996	56%	26%	120%	42%	9%
2000	58%	17%	132%	57%	12%

Source: IBGE Demographic Census, with undeclared ages corrected by IPEA.

While gross enrollment is a poor indicator in the analysis of any given level of education, it can be used as a way of viewing aggregate performance in terms of providing access. In other words, by using gross enrollment rates, one could break down growth in total enrollment into demographic growth and improvement in access² (see tables 2 and 3).

Table 3 is best interpreted using Table 2 as a starting point. If we ask ourselves “What would be the growth in enrollment from 1996 to 2000 necessary for 0-25 gross enrollment rates to stay constant at their 1996 levels?” the answer is given by multiplying the enrollment rate in 1996, 56%, by the increase in the 0-25 population from 1996 to 2000 of 3.6 million individuals. The resulting two million school places represent the growth that would be necessary for 0-25 enrollment to stay constant at 56%. The additional 1.9 million school places represent better access. With this simple simulation, we are able to condense the interplay of demographics and enrollment into a single number.

² This is easily calculated using the following identity: (1) $M = m P$ where M represents total enrollment, m represents gross enrollment rates, and P stands for relevant population. By differentiating (1), we have: (2) $\Delta M = m \Delta P + P \Delta m$. While the first term, $m \Delta P$, represents enrollments keeping pace with population growth, the second, $P \Delta m$, shows how much of the total growth is due to higher gross enrollment rates. The second term is shown on Table 3, both in thousands of students and as a percentage of enrollment change.

Table 3 – Growth in Enrollment Leading to More Educational Opportunity

	0-25	0-6	7-14	15-18	19-25
In Thousands of Students					
1970-1980	6,297	903	4,065	1,349	791
1980-1991	8,026	3,897	2,083	683	-64
1991-1996	5,991	722	3,955	1,521	206
1996-2000	1,939	-2,152	3,140	2,118	613
1970-2000	22,254	3,370	13,243	5,672	1,546
In percent of Total Growth					
1970-1980	61%	94%	61%	79%	83%
1980-1991	69%	99%	32%	72%	-34%
1991-1996	90%	168%	101%	77%	68%
1996-2000	49%	115%	121%	86%	74%
1970-2000	68%	97%	67%	80%	68%

The main result is that in spite of rapid demographic growth, there was steady growth in educational opportunities, albeit from a low baseline – enrollment rates were very low in 1970.

The results, however, differ widely by education level. For example, in primary and secondary schooling, the 1996 to 2000 period was the most successful in expanding access. The numbers show that, in spite of rapidly increasing population in the 15 to 18 age bracket, 86% of the increase in enrollment resulted in better access to secondary schooling. While not much higher, this is higher than any during of the other three periods.

For primary schooling, the relevant age group lost population from 1996 to 2000. This means that in order to keep enrollment rates constant, total enrollment would have to drop by 553 thousand and all of the 2.5 million places created were improving access, in addition to the 553 not lost (this is why the percentage is greater than 100%). In this case, demographics was playing in favor of school enrollment (although this makes the achievement of universal access no less important a feat).

In higher education, although most of growth led to better access, the 1996 to 2000 period is little better than the previous years and gross enrollment rates are still pitifully low at 12% of the 19 to 25 year-old population.

In preschool education the picture is different: Table 1 shows that, in spite of slightly increasing population, enrollment actually declined from 1996 to 2000 by 1.8 million places³.

³ Since growth was negative and the number of school places leading to more access was even more negative, one over the other is positive and large.

This is probably due to the shift in responsibility for this level of education from the states to the municipalities and constitutes one of the important challenges for the beginning of the 21st century⁴.

Net enrollment rates. An analysis of the evolution of net enrollment rates in Brazil provides a better picture of the strong effort made by the Government in increasing education opportunities. Gross enrollment is a poor indicator because high gross enrollment may be due to a large number of over-aged students in the system (as is the case in Brazil)⁵. Thus, an increase in gross enrollment may be an indicator of too many students failing to progress satisfactorily. A growth in net enrollment, on the other hand, means more access to the educational system⁶. Table 4 and Figure 1 show the evolution of net enrollment rates from 1981 to 1999.

Table 4 – Net Enrollment Rates

Year	Primary		Secondary
	1 st to 4 th	5 th to 8 th	
1981	74%	31%	15%
1985	83%	34%	15%
1990	86%	40%	17%
1995	92%	50%	24%
1999	97%	62%	35%

Source: PNAD micro data.

Net enrollment rates in 1st through 4th grades increased from 74 percent of the 7 to 10 year-old population in 1981 to 97 percent in 1999. This increase in net enrollment rates is due both to greater access to schooling for school-aged children and to a decrease in repetition rates, which reflects a more efficient education system. However, different levels of education follow different patterns. The 1st to 4th grade net enrollment rates increased strongly in the early 1980s, slowed in the later part of that decade, and then increased rapidly to almost 100 percent during the 90s. Today, enrollment in 1st to 4th grades is nearly universal and the 3 percent of children still not enrolled in school are those either living in isolated areas and/or those with special educational needs. Although 5th to 8th grade and secondary enrollment are still very far from being universal, both show more or less the same pattern: slow or very slow growth in the 1980s and then much faster growth in the 1990s.

⁴ Part of the fall in preschool enrollment is not real but mere reclassification of children into primary school. Most of the fall, however, does represent lower access to that level of education.

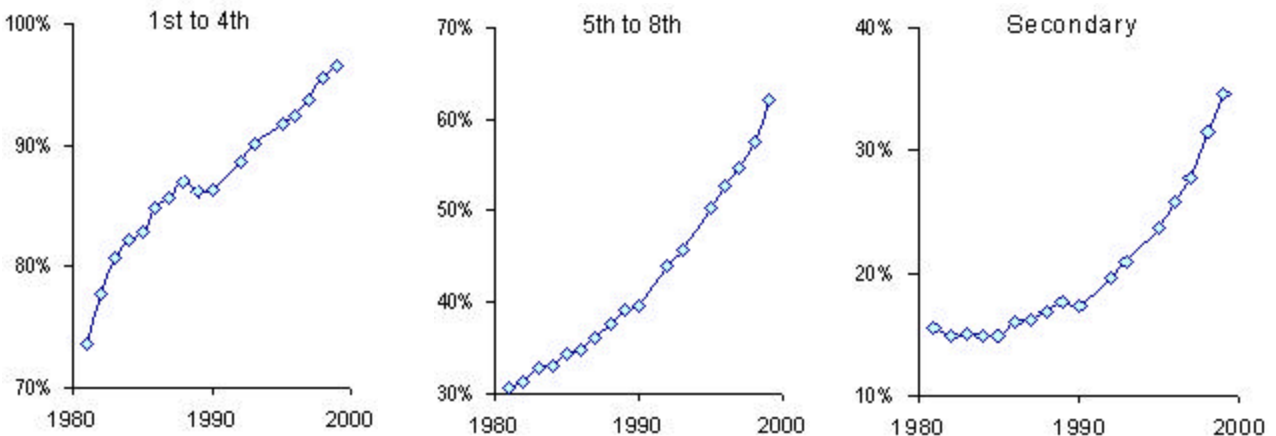
⁵ In this section, the *Pesquisa Nacional por Amostragem de Domicílios* (PNADs- Household surveys) was used. These are national surveys carried out annually with a very large and trustworthy sample. The questionnaire is also very stable and does not change much from year to year. This makes the PNADs very high reliability surveys.

⁶ Net enrollment may increase due to high repetition, especially if the age categories are wide, which is why we chose to divide primary enrollment rates into 1st to 4th and 5th to 8th, as well as using the traditional three year *tranche* for secondary enrollment. The exact formula is: net enrollment grades n to m = enrollment in grades n through m the appropriate age category / population in the same age category.

Because 1st to 4th grade completion is a pre-requisite for enrollment in later grades, and because of high repetition rates in those grades, it is not surprising that 5th to 8th grades and secondary education have lower net enrollment. Figure 1 displays the same indicators as Table 4, but shows that the great increase in 5th to 8th grades and secondary education is due both to increased access and to improved flow through 1st to 4th grades. This can be seen in to the fact that the improvement in age-grade distortion in 5th to 8th lags that in 1st to 4th. The improvement in secondary age-grade distortion, in its turn, lags 5th to 8th.

Figure 1

Net Enrollment from 1981 to 1999



Source: PNAD micro data.

In addition to demographic pressures and improvements in students progressing through primary school years more quickly, the return of young adults to school is another phenomenon putting pressure on secondary education. Many young adults, discouraged by the poor education system and their failure to progress, left school to enter the labor market. However, the labor market is becoming more sophisticated and requires more educated professionals. Thus, there is a growing awareness among those who drop out of school that their job opportunities are limited without a high school diploma. Though overall this is a positive trend, the phenomenon of young adults returning to school creates new challenges. The system must be able to create additional capacity, and it also must devise a suitable methodology to effectively address the educational requirements of this population. Responding to the increased demand for secondary education is rapidly becoming one of the more important challenges for state education secretariats.

Student flow and repetition rates. In Brazil, high repetition rates are the main factor in determining whether children will complete their education or leave school before graduating. There is ample evidence that students drop out of school after successive repetitions. For years, this was masked by the fact that many school-aged children started to attend school but were no longer doing so, leading to the conclusion that drop-out rates were the problem. This gave rise

to a plethora of theories about the factors that were responsible for making children leave school. These included child labor, family obligations, and poverty. During the 1980s and early 1990s, studies by Sergio Costa Ribeiro showed that these children dropped out school only after multiple attempts to pass a grade. It was not only the child’s social condition that was responsible for school failure, but a prevailing “culture of repetition” among teachers who believed the best way to make children learn was to repeat the school year. The situation was so prevalent during the 1980s that for every school grade successfully completed, on average, another was attempted without success.

To show how dramatic repetition is, take the example of the year 1999. An average progression rate of 74 percent means that only 9 out of every 100 children that start primary school will finish its eight years without repeating. Additionally, at this rate, another 15 will repeat once and 36 will drag themselves to the end of primary school with multiple repetitions. This causes many to finish primary school at an age that make them unfit for regular secondary education. The remaining 40 will never finish the eight years of primary education. The situation at the secondary level is similar, but dropout rates are higher because these older children are more likely to be attracted to the labor market. (Table 5 shows the evolution of flow rates from 1996 to 1999.)

While repetition rates remain high, they have fallen considerably due to a series of programs developed during the last seven years. The programs mainly attempt to improve teachers’ classroom teaching along with education intervention to change the “culture of repetition.” Student flows have started to improve, though slowly.

Table 5 – Student Flow Rates From 1996 to 1999

	Completion	Repetition	Drop-Out
Primary			
1985	58%	36%	6%
1990	60%	34%	6%
1995	65%	31%	4%
1996	69%	27%	5%
1997	73%	23%	4%
1998	74%	21%	5%
1999	74%	22%	5%
Secondary			
1996	72%	23%	5%
1997	74%	19%	7%
1998	77%	17%	6%
1999	75%	19%	7%

In addition to pushing students out of school and inhibiting learning through demotivation, repetition has also a strong negative impact on education financing. A passing rate of 74% means that 28% of students in a specific grade are repeaters⁷. This means that the total cost of education, including teacher salaries, infrastructure, school meals and other programs have to cover 28% more students, compared to the situation if no students were retained. If education financing is fixed at a given percentage of total public revenues, this means that the per student education budget is diminished by almost one-third. In other words, with lower retention rates, there would be more money per student available to improve classroom education.

Student flow rates depict how children are progressing through school, but they suffer from two shortcomings. First, these rates are difficult to accurately calculate⁸. Second, they do not show the situation of the students presently in the school. As the name suggests, flow rates are a flow variable, but not a stock variable. Age-grade distortion is a good indicator of how distorted the education system is due to constant student repetition and, thus, it is the appropriate stock variable. The definition of age-grade distortion we use here is the percentage of children enrolled in school that are two years or more above the expected age for their grade level⁹.

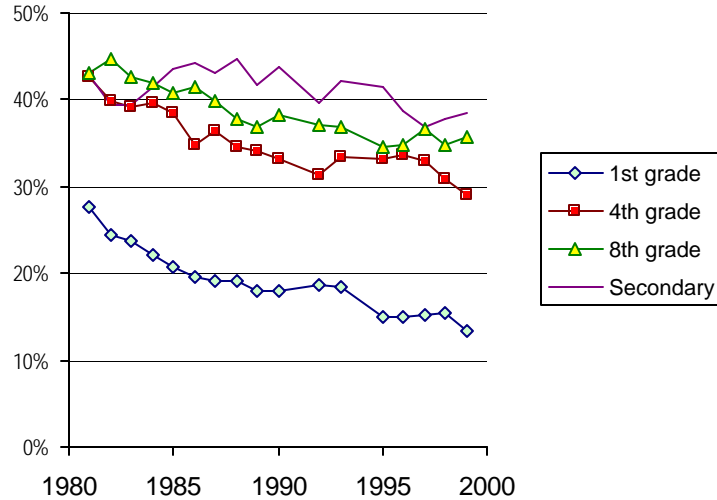
Figure 2 shows the evolution of age-grade distortion for 1st, 4th, and 8th grades of primary education, as well as for the 3rd year of secondary education. It is a positive sign that the figures for these negative indices have been declining in the last two decades. To reduce age-grade distortion has been a major objective of the present education administration, and several programs are being implemented to solve this problem. In the last five years, the age-grade distortion in the 1st and the 4th grades has dropped particularly fast (Figure 2).

⁷ This can be calculated using the standard exponential decay formula: Percent repeaters = $1 / (1 - \text{repetition rate})$.

⁸ Calculating student flow rates is a difficult task involving complex demographic models. This is because there are no administrative records that follow the same individual from one grade to the next and all calculations must be indirect. Due to this, there have been heated debates over the correct way to undertake these calculations.

⁹ An equivalent definition is the percentage of children two years or more behind their expected grade level, given their age. Still another way of expressing age grade lag is the average lag, given age or grade. All tell more or less the same story.

Figure 2
Age Grade distortion from 1981 to 1999



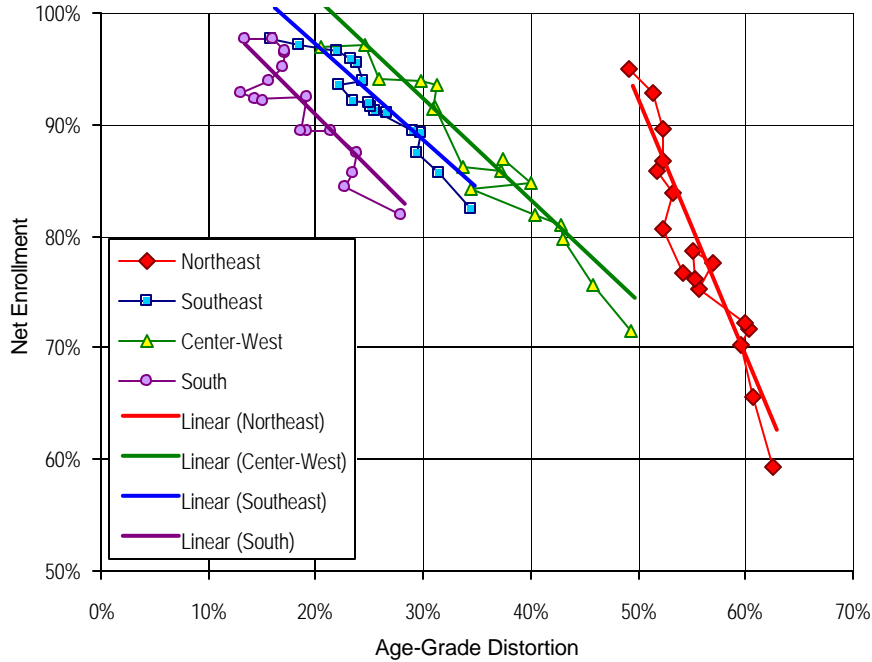
Source: PNAD micro data.

Education equity. Another important education achievement in the last seven years has been the reduction in education inequality in Brazil. The differences between enrollments of children from low-income levels and those from high-income levels have been decreasing. In 1992, school enrollment of students from low-income families was 22 percentage points lower than for those from middle/high income levels. In 1999, the enrollment of children from the most disadvantaged population increased 18 percentage points, an increase nine times greater than the enrollment increase for students of middle/high income levels. Therefore, the enrollment gap between these two groups has decreased to 6 points.

Despite the efforts to provide education to the most disadvantaged children, inequality of education persists among the Regions. This is true mainly in the Northeast. While all other Regions attained almost universal enrollment levels in the 1990s and devoted their efforts to correcting age-grade distortions, enrollment in the Northeast reached 90 percent only in 1998 and 1999. Additionally, age-grade distortion has been falling slowly but was still close to 50% in 1999. Figure 3 shows the situation by Region. Net enrollment rates for 1st to 4th grade are on the vertical axis while age-grade distortion rates at 4th grade are on the horizontal. This figure clearly shows the divergence between the Northeast and the other Regions of Brazil.

Figure 3

**Co-Evolution of Net Enrollment (1st to 4th) and Age Grade Distortion (at 4th)
by Region From 1981 to 1999**

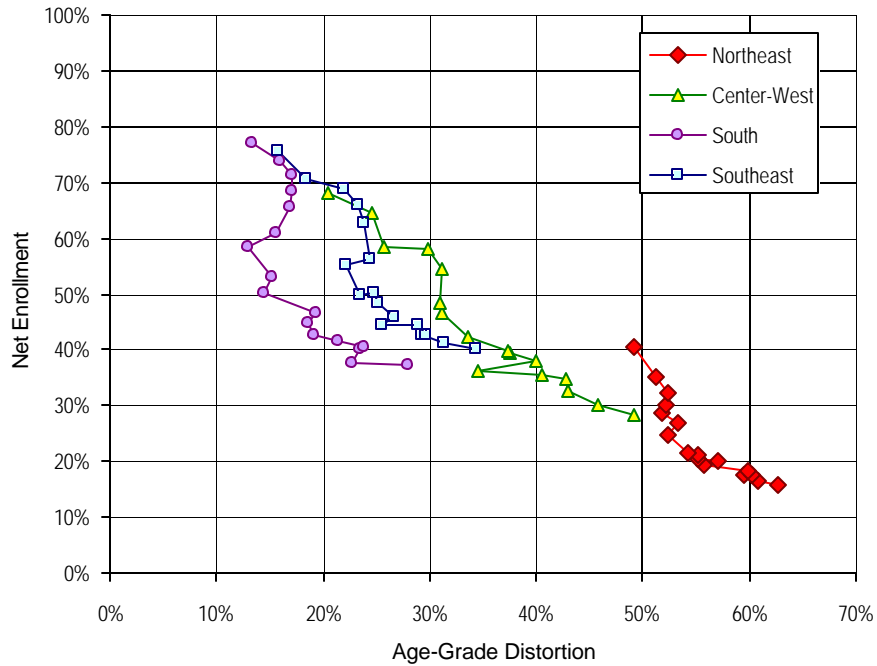


Source: PNAD micro data.

The analysis of enrollment versus age-grade distortion at the next level of education (5th to 8th grade) also shows the disadvantaged situation of the Northeast. Figure 4 shows the same relationship between the evolution for 4th to 8th grade enrollment and 8th grade distortion. Once again, the Northeast lags far behind. While the other three regions move towards 80 percent enrollment and 10 percent distortion, the Northeast is improving but its targets seem closer to 50 percent enrollment and 40 percent distortion.

Figure 4

Co-Evolution of Net Enrollment (5th to 8th) and Age Grade Distortion (at 8th)

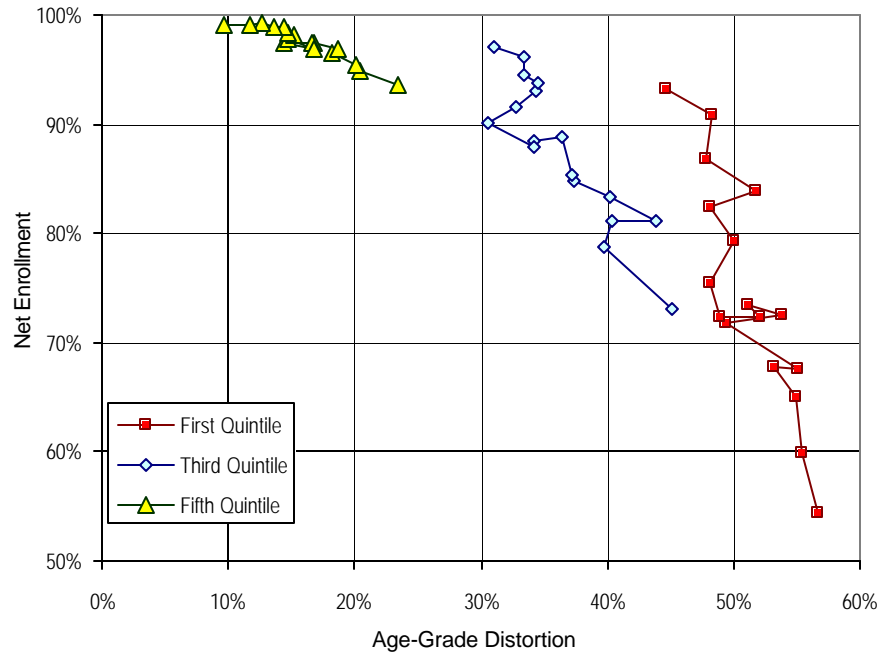


Source: PNAD micro data.

When the same phase diagram is drawn according to income group, the inequality is even more pronounced, though there is still some convergence. The richest quintile, represented by triangles, started out with very high enrollment. Thus it shows that progress has been limited because, by definition, net enrollment can be no higher than 100 percent. Almost all its progress has occurred in the correction of age-grade distortion, which, by 1999, was less than 10 percent. By comparison, the middle and lowest quintiles have made most of their progress in enrollment. Both are reasonably close to 100 percent. Progress of the lowest quintile is especially striking: from 1995 to 1999, its enrollment rate increased from 82 percent to 93 percent. This becomes even more impressive when compared to the lack of progress in either variable from 1986 to 1992 (Figure 5).

Figure 5

**Co-Evolution of Net Enrollment (1st to 4th) and Age Grade Distortion (at 4th),
by Income Quintile**



Source: PNAD micro data.

Students' learning achievement. Since 1995, education authorities have been able to rely on an excellent standardized testing system, the National System for Evaluation of Basic Education (SAEB). This testing system's greatest strength is the exam itself. By using item response theory, the Ministry of Education's Research Institute (INEP) constructed a test that is highly comparable, both between points in time and among grade levels. SAEB's main shortcomings are its small sample size, that it covers only some grades, and that it is administered only every two years. This means that test results are available for 1995, 1997, and 1999. (Testing was carried in 2001, but results are not yet available.) The test is administered only to 4th and 8th grade students in primary school and the third, and final, year of secondary education. Nevertheless, SAEB allows for tracking student learning of language skills and mathematics¹⁰. The results of SAEB are worrisome. They show that students are not learning anywhere close to what they are expected to learn, given their grade levels. This demonstrates that there is a quality problem in Brazilian schools.

Between 1997 and 1999, test scores declined in all states in the country. Particularly worrisome is that the scores in the mathematics test (in which performance was already dismal) fell much more than in the Portuguese test. These results come in the context of a good deal of

¹⁰ There is also a science SAEB, but many analysts do not find the exam satisfactory as science is a very broad discipline. Also, the fact that there is no science in the fourth grade SAEB limits its use in comparisons.

positive innovation in education, by state and municipal secretariats, as well as the Federal Ministry of Education. As will be seen later, there has been considerable investment in modern teaching instruments, such as videos and computers, positive changes in fundamental education financing, and overall better management of the education sector. All this seems to have had small impact on the quality of education.

Various explanations have been offered for this drop in test scores. One of the less worrisome is that increases in net enrollment and reductions in repetition have resulted in a pool of less well-prepared students taking the test. While plausible, this explanation has not yet been tested. The drop in test scores also occurred in private schools. Another explanation is that the test score drop is due to recent changes in curriculum at all levels, and that schools and teachers, both public and private, are still adapting to the new content. Finally, some observers offered explanations blaming lower test scores on the decline in moral values, television and video games, neo-liberalism, or drugs, but there is little evidence to back these theories.

The Ministry of Education is aware that many issues need to be resolved to take full advantage of the achievement tests. While their results are worrisome, the application of SAEB has had a significant positive impact by establishing a culture of evaluation. This then produced a growing awareness of the need to improve the quality of education in the country on all levels. The culture of evaluation also has spread to the state education systems. With technical and financial support from Bank-financed projects, a significant number of states are establishing systems to monitor the quality of education.

In any case, due to the recent availability of data, scientific analysis of test scores is only a fledgling pursuit in Brazil. The use of standardized tests to measure students' achievement can help identify measures that can guide reform. The next challenge is to use those measures to improve teaching and learning.

To achieve its major goal of quality education for all, parallel to other reforms, the government has focused on teachers as one of the key determinants of student learning. Career Plans (Planos de Cargo e Carreira), new Curriculum guidelines to support teachers' training programs, and promoting assessment and evaluation, are some of the reforms aiming at improving teacher quality and performance. There has also been the recent establishment of a new type of Teacher Training Institute (Institutos Superiores de Educacao-ISE). However, based on international experience that shows only a systematic approach can achieve the learning results expected by all of Brazilian society, Brazil has a enormous challenge. This includes the development of a sound multi-pronged strategy for supporting teacher development and incentives that would focus on the key goal of "learning for all children."

However, it should be highlighted that today the debate in education, for the first time, centers not on inputs, but on outcomes such as learning – the prime objective of schools.

Higher education. Higher education is a complex issue involving teaching, research, extension (community outreach programs), and powerful interest groups. This administration has made progress on the lower levels of education, but Brazilian higher education today still produces little value considering the large amount of resources devoted to it. The country has nurtured an

industry that is technologically well-developed in an era of globalization and rapid technological change. This sector increasingly demands highly skilled labor. Furthermore, the public sector requires vital input in the form of teachers, doctors, nurses, and administrators to improve public service and promote further social development. However, the higher education system has not proven responsive to this increasing demand. The shortage of highly trained employees has fueled high and rising rates of return¹¹ to higher education over the last decade that have led to a more unequal income distribution.

Although it is not the focus of this report, there are a few important developments that should be mentioned. As was seen in the section on access, total enrollment in higher education has grown faster than the relevant age group but the gross enrollment rate remains a mere 12 percent. The situation is further complicated by the fact that much of the expansion has occurred in private universities, many of which offer low-quality education. Tables 6 and 7 document this fact.

Table 6 – Higher Education Enrollment by Affiliation

	Total	Federal	State and municipal	Private
Enrollment				
1980	1,377	317	176	885
1985	1,368	327	230	811
1990	1,540	309	270	961
1995	1,760	368	333	1,059
2000	2,693	483	404	1,806
Growth in Enrollment				
1980-1985	-10	10	55	-74
1985-1990	172	-18	40	151
1990-1995	220	59	63	98
2000-1995	933	115	71	747
Percent of Growth by Affiliation				
1980-1995		13%	41%	46%
1995-2000		12%	8%	80%

Source: INEP

¹¹ High rates of return to university education mean that those that possess university degrees earn much more than those that do not.

Table 6 shows enrollment by affiliation from 1980 to 2000. Private university enrollment increased to 67 percent in 2000. This in itself is no cause for concern, as there is no *a priori* reason that public schools be better than private. (In other levels of education, the opposite is true.) What makes it worrisome are the results of the 1997 testing of 822 university level courses by the Ministry of Education (Table 7). According to the Ministry's criteria, A and B ratings are considered reasonable, a rating of C is poor but acceptable, and prevalence of D and E ratings over a long period of time means that the course should be discontinued and the Ministry has the responsibility of shutting it down.

Table 7 – Grades Received By Courses by Affiliation

	Federal	State and municipal	Private
	Number of Courses		
A	49	26	25
B	47	31	72
C	49	52	217
D	8	19	126
E	19	13	66
SC	0	1	2
Total	172	142	508
	Percent by grade		
A	28%	18%	5%
B	27%	22%	14%
C	28%	37%	43%
D	5%	13%	25%
E	11%	9%	13%

Source: INEP

As shown in Table 7, despite the existence of some excellent and good courses in private universities – 5 percent of them are considered excellent and another 14 percent good – the majority of the courses are mediocre or worse.

Tables 6 and 7 suggest that the quality of most of the new school capacity in higher education is substandard. Brazil has an urgent need for greater numbers of capable college graduates due to its advancing technical progress. Both the slow expansion of higher education enrollments up to 1995 and the low quality of the added college capacity are major problems. If these trends continue, they create a significant challenge to the ability of the country to successfully compete in the global environment.

II. The social and political context of the education reforms

The education reforms of the 1990s come in the context of social policy reform at all levels. The same principles that have guided reform in health, social assistance, and urban infrastructure have also guided the reform in education, where, perhaps, they were applied with the greatest commitment and success. These principles have been:

- (i) decentralization to reduce the waste of resources;
- (ii) social control;
- (iii) formula-driven monetary resource transfers to reduce “clientelism;” and
- (iv) accountability of results rather than control of inputs and processes.

These principles find themselves only partially in harmony with the prevailing view of social policy during the 1980s that stressed decentralization and social control but concentrated on inputs and processes and ignored results. This view is well expressed in the Constitution of 1988, which calls for strong decentralization. It establishes many citizenship rights (particularly universal rights, such as education), but tends to ignore how much these rights will cost or where the money will come from. Perhaps as a result, the 1980s also saw large amounts of education funds that were distributed unwisely, dominated by the lobbying capacity of different groups rather than national needs and priorities.

The Federal Government has applied the above four principles with varying degrees of effort and success on different levels of education. Often, on one level there was the clear emphasis on one principle while at a different level there was emphasis on another. For example, in fundamental education, clearly the first three (decentralization, social control, and formula-driven transfers) were paramount but the Federal Government maintained a reasonable control on inputs and processes.

As mentioned before, since 1994, the Ministry of Education has made fundamental education its number one priority. Because primary education is a constitutional responsibility of state and local governments, the Ministry concentrated on normative, redistribution, and supplementary actions. In this effort, it has been extremely effective. The main instruments used by the Ministry in its reform of education policies as well as the major policies that illustrate both the use and the limits of these instruments will be discussed in the next section of this paper.

III. Management and Evaluation Education Reform Instruments

The Ministry has used several kinds of instruments creatively: administrative tools and management as well as evaluation. On both fronts, it has made considerable progress over the past eight years. The administrative and management tools have, in many cases, already improved education statistics. Evaluation, on the other hand, is a process that naturally takes more time to bear fruit. While the evaluation system now in place is complete and requires minor adjustments, it is difficult to attribute any education improvements directly to this instrument.

Administration and management

The Ministry of Education's main administrative and management tools have been decentralization to states, to municipalities, and even to schools; formula-driven monetary transfers; and social control mechanisms. These instruments have been applied with varying degrees of effectiveness. Without a doubt, formula-driven transfers and decentralization were effective in drastically reducing corruption and politics of badly distributed education funding. The Ministry applied both these tools effectively.

Social control, on the other hand, was for the most part implemented in the form of supervisory councils at all levels. The results are not clear. In some programs, supervisory councils played a key role. In others, they served as mere formalities, and the role they have been playing is not clear; nor is their composition or effectiveness. In some municipalities, supervisory councils include social organizations and different political groups and are real forums of debate and control. In many others, however, these councils consist basically of the mayor and his/her friends.

Several programs implemented by the Cardoso Government have contributed to changing the education profile of the country in recent years. This document selected four programs to be analyzed. The Ministry's most important programs illustrate the way these principles were applied in practice:

- (i) the School Lunch Program,
- (iii) Direct Transfer to Schools (PDDE);
- (iv) Education Maintenance and Development Fund (FUNDEF); and
- (v) the Textbook Distribution Program.

The School Lunch Program

Designed to replace the federally purchased and distributed school lunch, this program was the first large, decentralized, formula-driven program in education. It was redesigned to its

present form under the Itamar Franco administration, and the School Lunch Program was a harbinger of programs to come. Its immediate objective is to provide one healthful meal to each student per school day. The target population is pre-school and primary school children of the public and non-profit private schools in Brazil. The program's ultimate objective is to assure supplementary nutrition to help improve school attendance and learning.

The operating principle of the School Lunch Program is simple: it transfers to the states and municipalities a fixed sum per child per school day. The states and municipalities then either buy the food and distribute it to the schools or transfer the funds to the schools so that they can buy the food. Councils at the federal, state, and municipal levels supervise the whole program, though with unknown effectiveness.

The school lunch program itself, however, is close to being a unanimously acclaimed success. Both nutritional and educational analysts have praised it and concluded that it has been effective in improving school lunches across the country. The main criticism it has received is that the value per student is too small.

The School Lunch Program was also the proving ground for the two administrative and management principles that have guided educational reform: decentralization and formula-driven monetary transfers.

Direct transfers to school program (PDDE)

The PDDE is the most complete example of the new philosophy. It is formula-driven, requires social participation, and it is decentralized. If the School Lunch program were a proving ground, the first road test for decentralization and formula-driven monetary transfers after the Fernando Henrique Cardoso administration took office was the PDDE. Brazil has a 2.5 percent Constitutional tax on wages, one-third of which is transferred to the Federal Government. (The remaining two-thirds stay in the states where they are collected.) Knowing that these funds were poorly used, the Ministry decided to use these resources to start applying the new philosophy of decentralization.

Direct School Transfers is possibly the Ministry's most decentralized program. Using a formula-driven approach, it sends money directly to schools so they can spend it according to their needs. This stands in stark contrast to previous transfers that were almost always negotiated politically. Notwithstanding, only schools meeting the following criteria are eligible:

- (i) enroll more than 150 students (smaller schools are not considered capable of the planning required to use this money).
- (ii) have a bank account in which the funds can be deposited (it is not acceptable for the Education Secretariat to centralize the funds and spend them on the schools' behalf); and
- (iii) have a school council, together with the school principal, to oversee and define how the school funds should be used.

All eligible schools receive a minimum of R\$ 500 (approximately US\$ 208), which increases proportionately with enrollment up to a maximum of R\$ 15,000 (approximately US\$ 6,250).

The idea of the program is not only to provide schools with resources but also to empower the community to better spend them. By requiring that schools actually spend the money and that they have school councils to do so, the project attempts to shift power from the education secretariats to the communities.

Educational Census figures show that 69 percent of 1st through 4th and 84 percent of 5th to 8th grade students study in schools that receive Direct School Transfers. A Ministry study has shown that, for the most part, schools have used the resources for small repairs and supplies, with items such as pedagogical materials and training in a distant second. This may be because of the small amount of the funds (R\$ 500 for 150 students is a mere R\$ 3 -- US\$ 1.25 -- per student per year). Alternatively, this may also be because schools, even when they are relatively autonomous, are not yet accountable for student performance. Though this program is too small to amount to a revolution in education, almost all analysts, even those vigorously opposed to the Cardoso Government, have praised it.

National Fund for Fundamental Education Development and Improvement of the Teaching Profession (Fundef)

The most important policy action by the Ministry of Education in the past eight years has been the creation of a large fund with its resources earmarked for primary education and distributed according to a specific formula. The Federal Government proposed to Congress a Constitutional amendment that would create the FUNDEF.

FUNDEF is a fund composed of 15 percent of the Value Added Tax and 7.5 percent of the Income and Industrial Taxes. This makes it by far the largest of any program in the Ministry's portfolio. This money is to be used only in fundamental education, and it is distributed according to enrollment. At least 60 percent of it must be used for paying teaching and support staff salaries.

FUNDEF's tax base is at the state level. In other words, all public schools within a state receive the same per student amount. However, given the large differences in wealth among the states, the Federal Government is responsible for supplementing the Fund to provide a minimum amount per student in states whose tax base is considered insufficient. The size of this supplement is in line with other Federal programs (as can be seen further on in this report).

FUNDEF takes a fixed proportion of money from state and municipal governments and then redistributes it, within each state, proportional to enrollment. Thus, all municipal school systems and the state school system receive the same amount per student. The Federal Government complements the Fund in those states whose tax base is too low to allow for a minimum level of resources. This level was established at R\$ 315 (US\$ 131.25) per student per year in 1998. With a minimum level of funding assured, state and municipal secretariats can proceed with medium-term and long-term planning for their education systems.

The FUNDEF is a well thought out reform that has provided funding and stability to schools. Its impact in enrollment has already been felt. This has been true particularly in the poorer rural public schools. It does, however, have one sizeable negative side effect. By making student enrollment at the primary level worth money, but excluding preschool, it created a very strong incentive against preschool enrollment. As a result, enrollment declined by nearly two million between 1996 and 2000.

Textbook Acquisition Program

The Textbook Acquisition Program provides a counter-example to the management principles above. It is a centralized, in-kind, and successful program. Any set of principles, good as they might be, should include flexible guidelines on how to run education programs and not handcuff managers from applying the best solution for each situation.

The Textbook Acquisition Program has spent about R\$ 100 million (US\$ 41.7 million) per year in the last few years. Its objective is to provide schools with on-time delivery of quality textbooks every year. Due to large economies of scale, all textbooks are bought centrally by the Federal Government and then distributed directly to the schools. It works the following way.

First, a commission of educators and specialists meets to judge all textbooks presented by publishers. This commission reads and comments on the books, and finally classifies them as acceptable or not. The list of acceptable books, together with the commission's comments, is passed on to schools. The schools are then given a budget figure within which they can decide which books to buy. Once the schools inform the Federal Government of their book preferences, the Government assembles all requests and orders the books from the publishers. Textbook distribution is completed through the mail. The textbooks are expected to last four years, although this guideline is being revised to allow for regional variation.

Monitoring and Evaluation Program

Perhaps one of the more important revolutions at the Federal level has been in monitoring and evaluating of the education system at all levels. In 1994, the only instrument available for these purposes was an annual Education Census, fraught with omissions and serious errors. Since then, groundbreaking steps have been taken to create an evaluation system composed of four parts:

- The Education Census. The Education Census provides the basis for distribution of resources by the FUNDEF. Now that student enrollment represents resources, incentives to fudge statistics have increased while the importance of their accuracy has never been higher. To ensure that the annual Education Census accurately reflects fundamental and secondary education information, new standardized software has been distributed to all state secretariats. A random sub-sample is revisited every year to combat fraud.

Additionally, various consistency checks have been implemented. The result is substantially improved data on enrollment, teachers, schools, and education programs.

- SAEB. As has already been described, SAEB is a standardized test comparable both between grades and between years that has been administered every other year since 1995. It is a sample of 4th, 8th, and 11th grade classrooms in Brazil. The objective is to test the aggregate level of students' achievement in the selected grades. This means that every student has a very short questionnaire, so as not to tire him or her, with standardized questions to ensure comparability. In short, it is a national standardized test put together with the best technology available and presents a picture of the quality of basic education every two years.
- The ENEM. In addition to SAEB, the Ministry also created the National Exam for Secondary Education (ENEM) to measure achievement of students from secondary schools. ENEM is a voluntary test that may be taken by anyone who has just completed high school. Unlike SAEB, the student who takes ENEM is provided with the score, and many universities are beginning to use it as part of their entrance process. The ENEM tests the individual student's learning achievements and not the classroom or school. ENEM coverage has expanded from 24 percent of all secondary graduates in 1998 to 74 percent in 2001.
- The *Provão* or "Big Test" (National Course Exam). Standardized tests are being used to evaluate higher education. This began in 1996 with the colleges of administration, law, and civil engineering. The testing has been expanded every year, and today (2002) it encompasses 20 degree programs ranging from psychology to physics. Like SAEB, the objective of the *Provão* is to evaluate the course and not the student and thus individual scores are not available. It should be noted that this test was implemented against considerable opposition from various lobbies and interest groups in higher education.

The establishment of this monitoring and evaluation system amounts to a revolution in the educational realm. Today, schools are not discussed primarily as a construction issue, nor even in terms of their enrollment numbers. Today, student learning and quality of schools are the more important issues. It is difficult to adequately express how much the academic and political debate has changed since the introduction of this monitoring and evaluation system.

IV. Education Budgets

Most of what has been done did not require significant additional budgetary outlays, but rather reallocations from higher education budgets and from mismanaged funds to formula-driven, decentralized transfers in fundamental education. While reducing "clientelism" is certainly a positive development, the wisdom of reducing resources for higher education is still an open issue. From 1995 to 1999, Federal expenditures in higher education fell from R\$ 8.7 billion (US\$ 3.6 billion) to R\$ 7.3 billion (US\$ 3 billion). It is important to note that this was a period of considerable expansion of both the economy and government expenditures. This is

one of the points for which the education policy of the Cardoso Administration receives the most criticism.

The other source of funds for educational reform derives from the virtual end of the discretionary negotiated transfer system. Negotiated transfers that made up almost all of Ministry transfers previous to the school lunch program have been cut back to very small levels in the Ministry's budget (although they have not quite been eliminated). This has freed funds for formula-driven universal programs.

The figures from these two sources of revenues were transformed into the programs described above. Table 8 shows Federal expenditures in each of these programs. The Table shows that all major Federal education programs run in the hundreds of millions of reais, adding up to R\$ 1.4 billion (US \$583 million). In addition, there are a handful of smaller programs running into the ten of millions, totaling about the same as one of the four big programs.

**Table 8 – Federal Education Programs:
Expenditure in 1998 in Millions of Reais**

Program	Expenditure
FUNDEF	424.9
School lunch	382.8
Textbooks	330.9
Direct Transfers	252.2

Source: Castro, Barreto, and Corbucci. *A Reestruturação das Políticas Federais para o Ensino Fundamental: Descentralização e Novos Mecanismos de Gestão*. IPEA Discussion text no. 745.

Table 8, however, understates the importance of the Ministry's financial intervention because it includes only the Federal supplement to the FUNDEF. In reality, most of what the Ministry of Education did when it suggested the FUNDEF was to redirect money from budgets of other levels of government. In 1999, the Fund amounted to R\$ 14.2 billion (US\$ 5.9 billion), much more than the entire budget of the Ministry of Education.

V. Driving Forces of Change

While it is natural to credit the changes in education to the Cardoso Government and its distinguished Minister of Education, Paulo Renato de Souza, that would be an oversimplification. The Cardoso Government's education team members deserve a great deal of credit. Their engagement, resourcefulness, and intelligence merits applause from all corners,

but educational reform both preceded and exceeded the vast accomplishments of the Ministry of Education. It should be noted that much of what was applied by the Federal Government from 1994 onward had been pioneered in the state of Minas Gerais from 1990 to 1994.

As in the majority of Latin American countries, the 1980s were a bleak decade for education in Brazil. Much of the political debate reduced education to a civil construction issue. A lot of money was poured into extremely visible buildings while critical issues were simply not addressed. In a situation like this, it becomes difficult to bring up a discussion of the important issues of school management, evaluation, and reduction of political patronage and favoritism.

It was in this difficult environment that Minas Gerais began an educational experiment including many of the elements that would be used to construct the Federal education policy from 1994 onward.

The three most important elements of the package were the following:

1. School directors were chosen through a process that combined examinations of technical knowledge with elections by the school community (teachers and parents).
2. State schools were given relative financial autonomy if they had school councils, and funds transfers were formula-driven.
3. Standardized Test Evaluation was undertaken on a universal basis.

While most of what Minas Gerais implemented is now relatively obsolete on a technical level – for example, the standardized tests used then were not very well designed by today's SAEB standards – the policies implemented in that state from 1990 to 1994 showed that a better approach to education was possible. It also provided an opportunity to road test many of the principles that were to become cornerstones of federal education policy.

Nevertheless, the question remains: What other elements were important in setting the stage for individuals and institutions to accept the changes of 1994–1998? The answer includes two key elements: (1) frustration with the performance of the education system that then allowed change to occur in search of improvement; and (2) economic stabilization after a high-inflation period.

One of the few advantages of prolonged economic failure is that it sometimes makes possible the discussion of topics that were previously considered unimportant or even taboo. This was the case in Brazil from the early 1980s to the mid 1990s. The development strategy that led to Brazil's economic miracle of the 1970s emphasized the accumulation of physical capital to the detriment of human capital. Partially as a result of this, education had been a minor concern; this allowed the sector to be dominated by favoritism and political patronage. Brazil fell far behind other countries of the same income level, such as Mexico or Colombia; it even fell behind countries with lower income levels, such as Peru. When this development strategy failed, the nation realized that failure to build human capital became vitally important in explaining generalized economic failure. While this took some time, by the mid 1990s the

stage was set for a re-evaluation of the role of education in the development of Brazil, as well as the reorganization of how education was managed.

The stage was set, but not all conditions had been met. From 1986 to 1994, the country was consumed by hyper-inflation. There were many negative impacts of inflation on public policy, such as transforming budgets into fiction, making planning largely a waste of time, and facilitating political patronage¹². Added to these was the fact that during the eight hyper-inflationary years, it was difficult to discuss anything but inflation. All other issues were secondary. Once inflation was under control in 1994, it became possible to discuss education, health, agrarian reform, and a host of other issues whose importance had been overshadowed by the need for macro-economic stabilization.

Nowadays a great majority of states in Brazil are following, with variations and improvements, the education policies adopted by Minas in the beginning of the 1990s, including Parana, Ceara, Bahia, Pernambuco, and Rio de Janeiro among others.

VI. Conclusions

Where does Brazil stand in 2002 with regard to education? There are both important successes and difficult challenges for the next four to eight years. We chose four of each to conclude this analysis of education in Brazil.

Successes

Enrollment. In quantitative terms, the greatest success of the last eight years has been putting children into school. Universal enrollment for 1st to 4th grades has been achieved. Enrollment in 5th to 8th grades and secondary school has jumped and is still increasing rapidly. In 1995, only one-half the kids aged 11 to 14 were enrolled in 5th to 8th grade education. In 1999, 62 out of every 100 were enrolled. Similarly, secondary net enrollment rates of youths aged 15 to 18 more than doubled, rising from 17 percent to 35 percent during the 1995-1999 period.

Student flow and improvements in completion rates in basic education. Another achievement worth highlighting has been improvement in student flow. Retention rates have dropped from 31 percent in 1995 to 22 percent in 1999. While 22 percent is still unacceptably high, the reduction means that the percentage of children finishing primary education without repeating increased from 3 percent to 9 percent. The percentage of primary school students that will never finish has fallen slightly from 41 percent to 39 percent. Because of the measures to decrease repetition, completion rates in the first four first years of fundamental education (grades 1-4) have increased from 48 percent in 1990 to 71 percent in 1999.

¹² High inflation makes political patronage easy because what is important is not *how much* money is transferred but *when* it is transferred. It is much easier for society to control budgets (how much money for each state) than their execution (when the resources are transferred).

Equity in basic education. Inequality in 5th to 8th grade enrollment and in student flow have both fallen considerably, as shown by age-grade distortion figures. There is still work to be done in increasing access to secondary schooling. Much of the improvement in equal access in earlier school levels will be transmitted to the secondary level in the next few years.

Change in mentality, particularly with regard to evaluation. Finally, a change in mentality is perhaps the most important change of the last few years. In the public mind, the consideration of education has gone from being primarily a civil construction issue to a complex learning process. Today, evaluation of quality and learning is accepted as a normal part of educational planning and debate. In other words, Brazil may still have far to go, but the country is finally moving in the right direction.

Challenges for this Decade

The forgotten preschool. One of the more important challenges of the incoming administration will be preschool education. In spite of ample evidence, both in Brazil and abroad, that shows enrollment in pre-primary education is fundamental to increasing learning, preschool enrollment remains low. Preschool education is under-funded and institutional roles are not clear. This is due to several reasons, including that FUNDEF does not fund preschool, that educators in Brazil traditionally did not consider pre-primary education to be education, and the multiplicity of agencies dealing with preschools. These include the Education Ministry and state and municipal education secretariats, the Health Ministry and health secretariats, and the whole social assistance network.

Adult education (particularly young adult education). While access to secondary school can be tallied as a success of the last eight years, the challenge of continued education for the many young adults who have left the system before finishing 8th grade remains daunting. Secondary school enrollment will swell due to improvements in early education, but the opportunity for educating the young adults who left school because of repetition and poor quality will be lost as they age.

Higher education financing and management. The Brazilian University System is a complicated mesh of corporate and private business interests, powerful lobbies, large federal expenditures, and heterogeneous quality. There are centers of excellence akin to First World graduate research facilities as well as low-quality “diploma mills” whose inadequate teaching has been extensively measured by *Provão* tests. The demand for higher education is also likely to increase rapidly as younger age groups progress further in the education system. If they are not accommodated somewhere in the higher education system, this will generate both social frustration and wasted opportunities.

Quality. This is, of course, the most daunting challenge of all. After decades during which the education debate was restricted to that of access, today there are mechanisms to ascertain the quality of education at every level (except preschool). However, there is little experience on how to achieve quality in education. Much of the past debate on teaching methods has been far more ideological than scientific, and almost none of it has been based on concrete measures of learning.

Another difficulty that will be faced by future education management teams in pursuing quality is that teaching as a profession has not been highly valued in Brazilian society. In addition, early retirement of teachers means that scarce resources must be divided with a growing body of retired teachers who must be paid the same or more than teachers still in the classroom. This means low salaries for teachers. The end-result is teachers who are poorly qualified and, thus, poorly paid, and often poorly motivated. It will be necessary to put in place the already approved reforms for teachers' professional development.

On the positive side, the innovations of the last eight years have laid the groundwork for investment in quality. FUNDEF has resulted in better paid teachers. Today a legal framework exists for the demand that more attention be paid to human resources and other inputs, given that all secretariats today have access to a minimum level of funding. The evaluation system that exists today means that quality can be measured and benchmarks can be set. Finally, the fact that access and flow are lesser problems than they were in the past will allow efforts to be progressively concentrated on school quality and learning.

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