

Growth of Educational Opportunities in Brazil during the 1980s and 1990s

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Grade participation rates represent the proportion in an age cohort that has already entered a specific grade in the education system. Participation rates can be used to monitor education system coverage of the school-age population and to build a grade transition matrix showing promotion, repetition and dropout rates in each grade. In this study, Brazilian demographic census and survey data are used to construct a historical series of grade participation rates for the years extending from 1980 to 2000.

Figure 1 reports participation rates for selected grades in Brazil between 1982 and 1997. The first reported year shows that by 1992, the Brazilian education system had extended its coverage to 92% of the population in the most recently educated age cohort of that year. The proportion entering the first grade of elementary school increased to 96% of the population by 1997. In the first grade, participation rates are rising slowly because they are already close to saturation. Further increase in coverage requires that enrollments be extended to isolated rural areas of low population density. Rural areas are responsible for most of the increase in first grade participation rates, rising from 80% in 1982 to 90% of an age cohort in 1997. Urban participation rates in the first grade remained essentially unchanged, rising from 96 to 97%, over the same period.

Although universal access to elementary school has been virtually assured for more than twenty years, achieving universal access to any of the higher grade levels in Brazil has proved to be an elusive goal. Thus, in 1982, only 73% of an age cohort entered the fourth grade of elementary school and as recently as 1997 this percentage had risen to only 83%. Mindful that the education system enrolls many different cohorts at any given time, it still would still not be entirely misleading to conclude that at the end of the century roughly 10% of a cohort would abandon school before entering the fourth grade of elementary school. Participation rates are increasing more rapidly in the fourth than in the first grade. Consequently, the tendency is for

dropout in the initial grades of elementary school to decline over time. However, the rate of this decline is seen to be excruciatingly slow.

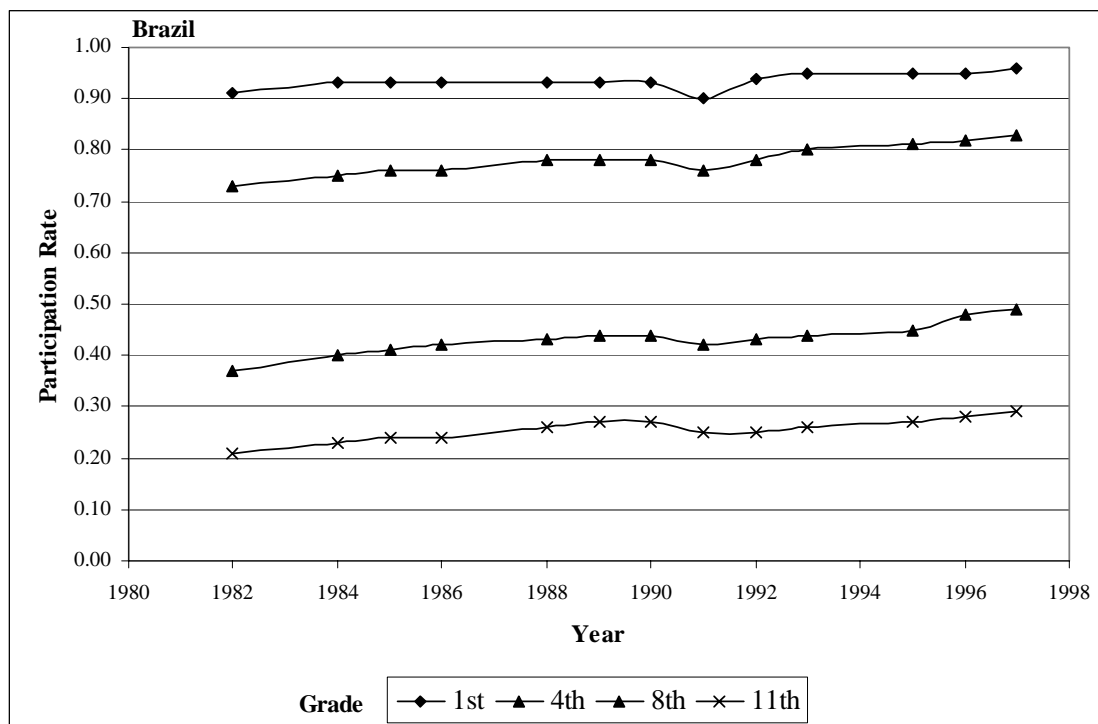


Figure 1: Grade Participation Rates in Brazil, 1980-2000

For those who complete four grades of schooling, the odds of successfully completing their basic education in the eighth grade is only about one in two. Figure 1 shows that approximately 37% of a cohort entered the final grade of first level schooling in 1982. By 1997, this percentage had risen to 49%. Half again as many will reach the final grade of secondary schooling in the eleventh grade, where the corresponding percentages rise from 22% in 1982 to 29% of an age cohort in 1997. Given the inertia of the education system, only about a third of the school-age population will complete their secondary education at the end of the century. About 12% of a cohort goes on to college, where participation rates have remained essentially unchanged since the early 1980s.

There is a natural tendency for participation rates to expand most rapidly around 50%. It comes as no surprise to find that the Brazilian education system is expanding its coverage most rapidly in the intermediate grade levels, toward the end of the basic education, in the sixth,

seventh and eighth grades. Grade participation rates are growing more rapidly in areas that have the greatest deficit in educational attainment. In percentage terms, grade participation rates are growing more rapidly in the rural areas of Brazil. However, in terms of the absolute number of enrollments, the increase in coverage is more expressive in the urban areas.

Grade participation in rural areas lags far behind that of urban areas. Thus, in rural areas, only 63% of an age cohort entered the fourth grade in 1997. Only 22% entered the eighth grade, and only 10% of a cohort entered the final grade of secondary education in the same year. Although grade participation rates are rising more rapidly in the rural areas, these areas continue face a formidable challenge in extending education opportunities to the rural school-age population and in retaining students long enough to successfully conclude their basic education.

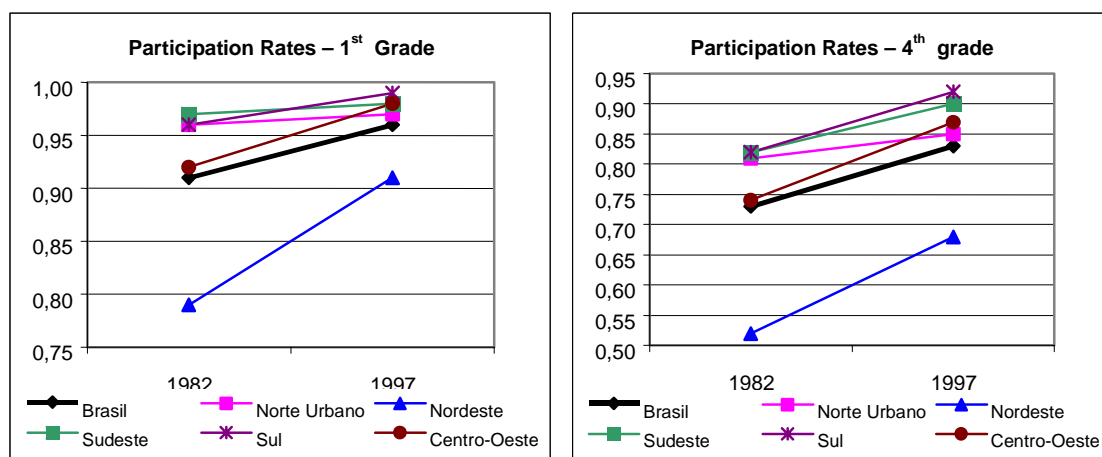


Figure 2: Regional Growth in Elementary School Grade Participation Rates

Regional disparities in educational opportunities remain unusually strong in Brazil, where participation rates provide insight into the nature of education system dynamics. In the more developed regions of the Brazilian Southeast, South and Center-West, grade participation rates in the first and fourth grades of elementary school are relatively high. By contrast, in the less developed Northeast, participation rates at these same grade levels is much lower. Participation rates will tend to grow most rapidly around 50% and slow as they approach saturation. Thus, in

the first and fourth grades, participation rates in the Northeast should have a natural tendency to expand more rapidly and appear to be catching up with the developed areas.

Indeed this is precisely the tendency revealed in Figure 2. In the first grade, where grade participation rates in the developed regions are approaching 100%, growth rates over the 1982-1997 period are relatively inexpressive. By contrast, in the Northeast, where first grade participation rates in 1982 were still far from saturation, growth was much more impressive. The Northeast appears to be gaining on the other regions. By contrast, in the fourth grade, participation rates in the more developed regions were relatively far from saturation, and thus they were capable of sustaining appreciable growth. At this grade level, differences in the rate of growth are less pronounced because all regions are able to produce appreciable growth. While not as pronounced as in the first grade, the rate of growth in the Northeast is nevertheless somewhat more rapid than that of the developed regions in Brazil.

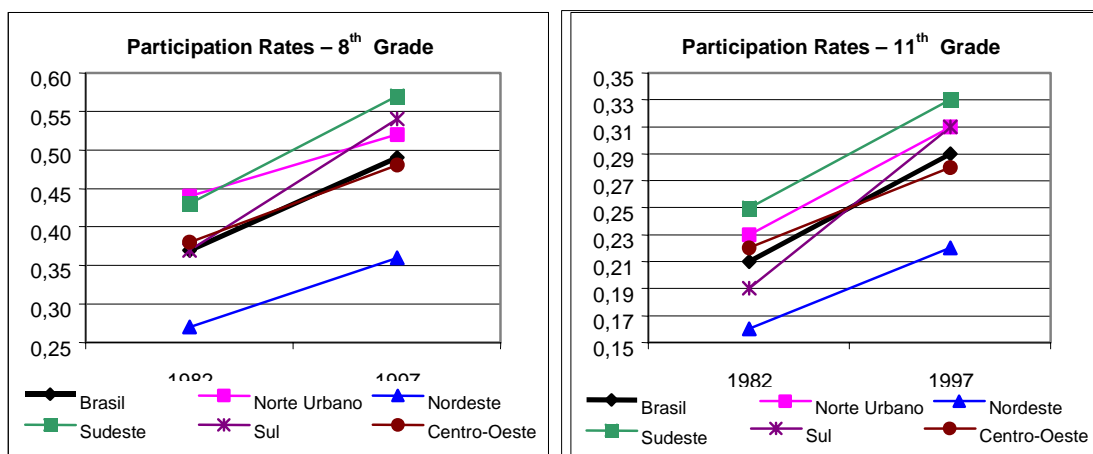


Figure 3: Regional Growth in Secondary School Grade Participation Rates

Turning now to the eighth and eleventh (school leaving) grades reported in Figure 3, it can be seen that the rate of relative growth is now inverted, with participation rates in the developed regions growing more rapidly than in the Northeast. This is because participation rates in the developed regions are closer to 50%, where it is easiest to find students who are available for continuing their education. In the Northeast, it is relatively harder to find students

who are qualified for continuing their education and consequently growth rates in this region are somewhat lower.

Participation rates, like all proportions, follow a curvilinear trend as they increase. Initially accelerating as they rise from zero, they achieve a maximum rate of expansion around 50%, before decelerating as they approach unity. A logistic transformation of these proportions will make this trend linear, providing a more appropriate measure of the amount of effort involved in expanding educational coverage at different levels of participation. Thus, a relatively small expansion in coverage at the first grade, as participation nears saturation, will involve an extraordinary amount of effort to find the relatively few who still require access to elementary school. Near 50%, a much larger increase in participation occurs naturally, because qualified candidates abound. At the other extreme, starting from zero will also involve considerable effort, because it is once again difficult to find qualified students. A logistic transformation of these proportions will produce constant intervals representing equal amounts of effort.

As far as education planning and assessment are concerned, this study shows that the natural tendency is for education systems to grow where grade participation rates are closest to 50% of an age cohort. The corresponding grade levels will consume the greatest additional amount of new resources as the system expands. In developed countries, quantitative expansion occurs in higher education, although qualitative reforms may be pursued at other levels. In a developing country, quantitative expansion occurs at the intermediate grade levels. In an undeveloped country, the system tends to expand in the initial grades of elementary school.

Having achieved considerable growth in educational attainment across all grade levels over the last twenty years, dramatic regional and urban-rural differences in Brazilian educational opportunities endure. Demographic models, allied with geographic mapping resources, offer policy makers an opportunity to target specific population groups with a differentiated set of priorities and policies appropriate for the solution of specific regional and local problems.