

Chapter 2. The Society and Its Environment



Samba dancer

BRAZILIAN SOCIETY OF THE EARLY 1980s was marked by pronounced regional and ethnic diversity. The country's principal regions include the industrialized and relatively prosperous South and Southeast, the impoverished, agricultural Northeast and its humid littoral and arid backlands, the Center-West, and the Amazon Basin, the latter two only recently opened to large-scale settlement and development. All the regions vary in their economic and political histories; each has been integrated into national life in a slightly different fashion.

Ethnic diversity accompanies the marked regionalism. Descendants of Portuguese settlers, Amerindians, and African slaves comprise the main cultural groups. The Lusitanian heritage has been disproportionate to the absolute numbers of Portuguese immigrants to Brazil; they were colonizers and left their mark on the country's political system and social institutions. Language, kinship, and religion all reflect Portuguese hegemony during Brazil's formative centuries. Amerindian influence is most strongly felt in the Amazon Basin, African in the Northeast. Numbers of European, Middle Eastern, and Asian immigrants came in the nineteenth and early twentieth centuries. Most settled in the Southeast, particularly in Rio de Janeiro and São Paulo, bringing with them significant and diverse skills and training. They remain a mainstay of industrial development.

Rural Brazil is—as it always has been—dominated by large landholdings. Social organization was traditionally based on plantations that were devoted to export crop production and that relied on slave labor. Peasant landholders were relegated to marginal lands. Although they might have played a major role in the local or regional economy, they were, with few exceptions, under the hegemony of plantation owners. Sharecroppers, tenant farmers, and casual laborers replaced slaves after slavery's abolition in 1888, but social relations had changed little by the mid-1980s: few held resources and power.

Paternalism moderated the impact of the more glaring disparities. An elaborate courtesy surrounded the relations between plantation owners and their dependents. The powerless exchanged their labor for land and their loyalty and deference for patronage and protection. The ideal landowner would assist his minions in their need and shelter them from the predations of outsiders. The decline of resident plantation workers in favor of casual, temporary laborers marked the 1960s and 1970s. Economic trends limited the land available to sharecroppers and tenants as well as to the owners of small farms who needed to rent parcels to make ends meet. All these swelled the ranks of casual laborers. The increase in casual labor and the growing number of agribusinesses

and commercial interests owning land served to undermine the traditional norms of patronage and dependency.

Since the 1930s Brazil has had an increasingly mobile, urban population. A "moving frontier" has long characterized agricultural expansion. As soils were exhausted, owners abandoned their holdings to move to virgin lands. Peasants were the frontier's vanguard, clearing forests only to be shunted onto more remote parcels as their holdings came under the purview of plantation owners. Beginning in the mid-nineteenth century, the agricultural frontier moved southward from Rio de Janeiro, toward São Paulo, and thence westward through the states of São Paulo and Paraná. Fueled by demographic growth, the migration continued in the 1960s and 1970s, moving into Goiás, Mato Grosso, and Amazonas. With each advance the latest frontier gradually reestablished the social relations typical of more settled regions. Efforts to use frontier lands to absorb the landless from elsewhere and to develop a class of independent small family farms foundered.

The most spectacular population growth has not been in the rural frontier but in the large cities. Much of the economic-political transformation of the past half-century relates to urban growth. The expansion in industry and commerce and the concomitant rise in the influence of the bourgeoisie are city based. The development of a substantial middle class of educated and skilled employees to staff the burgeoning government bureaucracy and public sector is likewise an urban phenomenon. Increased urbanization—far more than migration to the frontier—has been Brazil's answer to skyrocketing population growth and unrest in the countryside. Sons and daughters of the rural populace have flocked to cities. For much of the 1960s and early 1970s cities provided the rural-urban migrant with a measure of opportunity, if not affluence or security. What the more uncertain 1980s would hold for the enormous and growing numbers of urban, lower class Brazilians remained to be seen.

Geography

The fifth largest country in the world, Brazil encompasses 8,511,965 square kilometers of territory, an area greater than that of the 48 contiguous states of the United States (see fig. 1). It comprises about half of South America's landmass and borders all but two of the continent's other countries along a 15,700-kilometer land frontier. Brazil stretches 4,300 kilometers from Cabo Orange in the north to Lagoa Mirim on its border with Uruguay in the south and a similar distance from Cabo Branco on the Atlantic to the westernmost point on its frontier with Peru. The country's coastline is more than 7,500 kilometers long.

The landscape of Brazil is dominated by two prominent features, the Amazon River and the Central Highlands, a plateau that rises southward from the great river. The Amazon, the world's mighti-



Figure 2. Natural Vegetation

est river in terms of flow of water and second longest after the Nile, cuts laterally across Brazil's northern region, and countless tributary streams drain a vast basin that takes in three-fifths of the national territory. The entire basin, including areas in neighboring countries, supports a tropical rain forest that provides natural replacement for 15 percent or more of the world's oxygen (see fig. 2).

Most of the Central Highlands consist of a tableland varying in altitude from 300 to 500 meters above sea level, broken by a number of low mountain systems and cut by deep valleys. The highlands ascend steeply in the east forming an escarpment, where several peaks attain an altitude of 2,500 meters or more, and then drop precipitously to a narrow Atlantic coastal plain.

According to a system of regional designations introduced in 1970 by the Brazilian Institute of Geography and Statistics (Fundação Instituto Brasileiro de Geografia e Estatística—IBGE), the country is divided into five regions—North, Northeast, Southeast, South, and Center-West (Norte, Nordeste, Sudeste, Sul, and

Centro-Oeste). To facilitate statistical reporting, the IBGE shows the regions as composed of entire states and territories (see table B). As a consequence, they overlap the topographical zones.

Table B. Regions of Brazil, 1980

Region	Area ¹	Percentage of Area	Population	Percentage of Population ²	Estimated Contribution to GNP ³ (in percentage)
North ⁴	3,581,180	42.1	5,170,516	4.4	2
Northeast ⁵	1,548,672	18.2	40,309,797	34.2	14
Southeast ⁶	924,935	10.8	47,832,505	40.6	60
South ⁷	577,723	6.8	18,880,831	16.0	21
Center-West ⁸ .	1,879,455	22.1	5,593,477	4.8	3
Total.....	8,511,965	100.0	117,787,126 ⁹	100.0	100

¹In square kilometers.

²1980 census.

³Gross national product.

⁴North includes states of Acre, Amazonas, Pará, and Rondônia and territories of Amapá and Roraima.

⁵Northeast includes states of Alagoas, Bahia, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, and Sergipe and territory of Fernando de Noronha.

⁶Southeast includes states of Espírito Santo, Minas Gerais, Rio de Janeiro, and São Paulo.

⁷South includes states of Paraná, Rio Grande do Sul, and Santa Catarina.

⁸Center-West includes states of Goiás, Mato Grosso, and Mato Grosso do Sul and Federal District of Brasília.

⁹Excludes Brazilians abroad. Official 1980 total population: 119,070,865

Source: Based on information from Brazil, Secretaria de Planejamento da Presidência da República, Fundação Instituto Brasileiro de Geografia e Estatística, *Anuário Estatístico do Brasil 1980*, 41, Rio de Janeiro, 1980, 75.

Topographical Zones

Brazil's natural features can be delineated into five topographical zones. These are the Central Highlands, the Guiana Highlands to the north of the Amazon, the Amazon lowlands, the Pantanal, and the coastal plain (see fig. 3). Brazil, which has the lowest mean altitude of any other South American country except Uruguay and Paraguay, officially defines its highlands as areas with elevations in excess of 200 meters above sea level. According to this definition, nearly 60 percent of its territory qualifies as highlands. Barely 4 percent of the total area is over 900 meters in altitude, and only 0.5 percent is more than 1,200 meters.

Central Highlands

The principal highland zone, the Central Highlands, is tilted westward and northward so that rivers rising near its eastern rim, almost within sight of the Atlantic, flow inland for hundreds of kilometers before veering north or south. The highland block displays a variety of minor relief features. The northern and

western half is made up of broad, rolling terrain punctuated irregularly by low, rounded hills. Frequently these hills are given range names but are not high enough to be considered mountains. Southward from the Amazon Basin to the middle of Goiás, the terrain becomes extremely rough. Gradients are precipitous, and passage through them is difficult. In only two places, between Santos and São Paulo and between Paranaguá and Curitiba, does the escarpment rise in a single slope that allows comparatively easy communications between the coast and the interior. Roads frequently traverse many kilometers to reach destinations only short linear distances apart. The 300-kilometer journey from Rio de Janeiro to Belo Horizonte in Minas Gerais, which can be completed in little more than an hour by air, takes nearly a day by rail.

In this rugged context, remnants of crystalline rock have been weathered by nature and stand above the general level as mountains, but only in a few places do they extend above the timberline at 1,800 to 2,000 meters. The Serra do Mar parallels the coast for 1,500 kilometers from Santa Catarina to Rio and continues northward to Espírito Santo as the Serra dos Orgãos. This extended range has a mean crest of about 1,500 meters topped by peaks above 2,000 meters, including Pedra Açu, which rises to 2,300 meters just west of Rio.

The Serra do Mar is so near to tidewater in many places that it rises almost directly above the shore. Elsewhere, the descent is over a series of parallel steps with a valley at each interval, and it recedes to leave a narrow littoral varying from 30 to 60 kilometers in width. There are passes below 900 meters in only two places, where the Rio Paraíba do Sul and the Rio Doce have cut their way through the escarpment north of Rio. The valleys of these streams, however, are blocked off from the interior plateau by a second range of mountains in Minas Gerais, the Serra da Mantiqueira. This range is the highest and most rugged of the Central Highlands, and it includes Pico da Bandeira, which at 2,898 meters is the highest elevation in the zone and the third highest in the country.

A third significant range of mountains traverses a north-south axis from central Minas Gerais northward into Bahia. Appropriately named the Serra do Espinhaço (Backbone Mountains), it forms a spine that determines the drainage divide between the Rio São Francisco to the west and the short streams that tumble eastward to the Atlantic. The range is important because of the great wealth of minerals that it contains. Sometimes the Serra do Espinhaço and the Serra da Mantiqueira and its southward-extending spurs are referred to collectively as the Serra Geral.

Guiana Highlands

Occupying only about 2 percent of the national territory, the Guiana Highlands is a sparsely populated, largely undeveloped area

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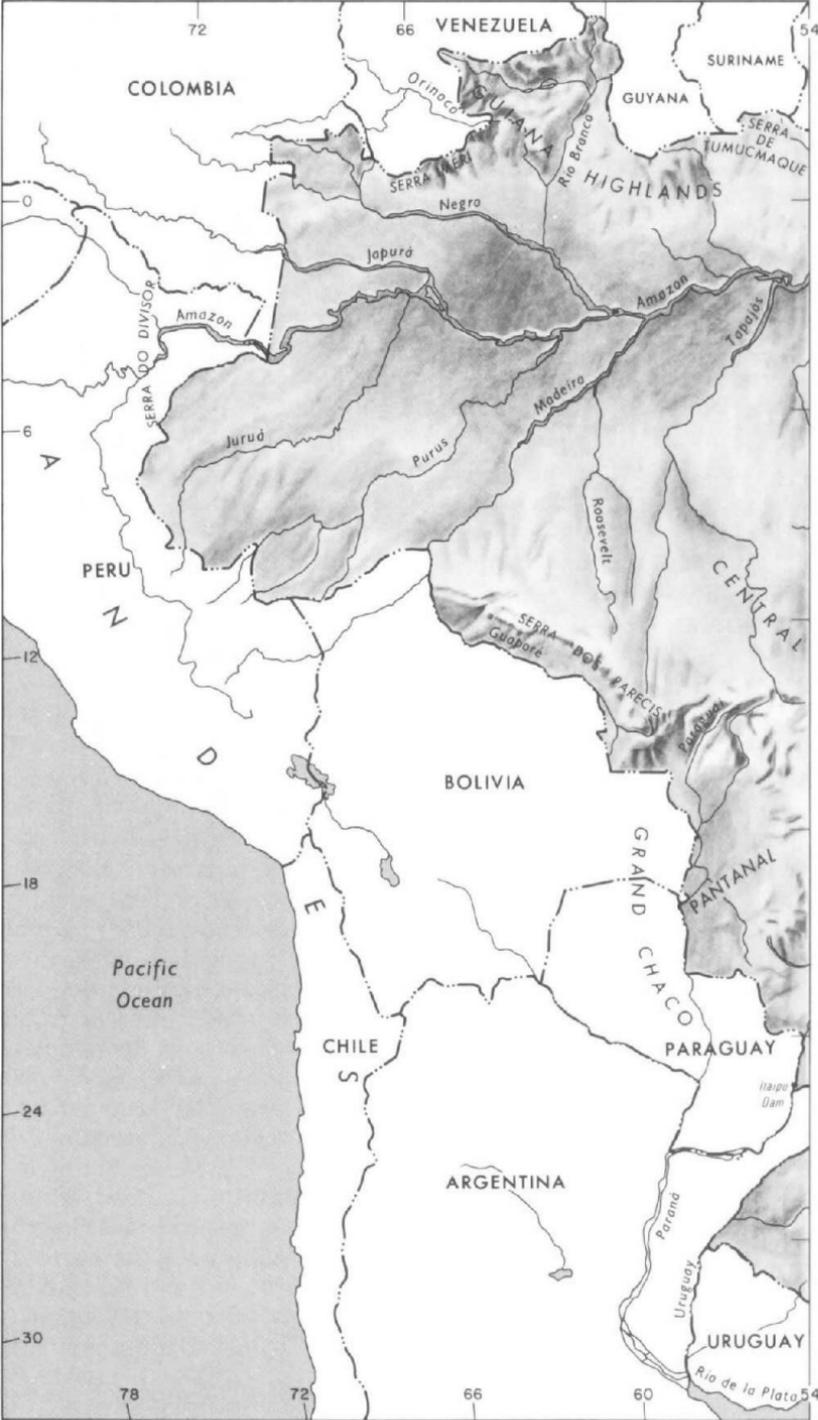
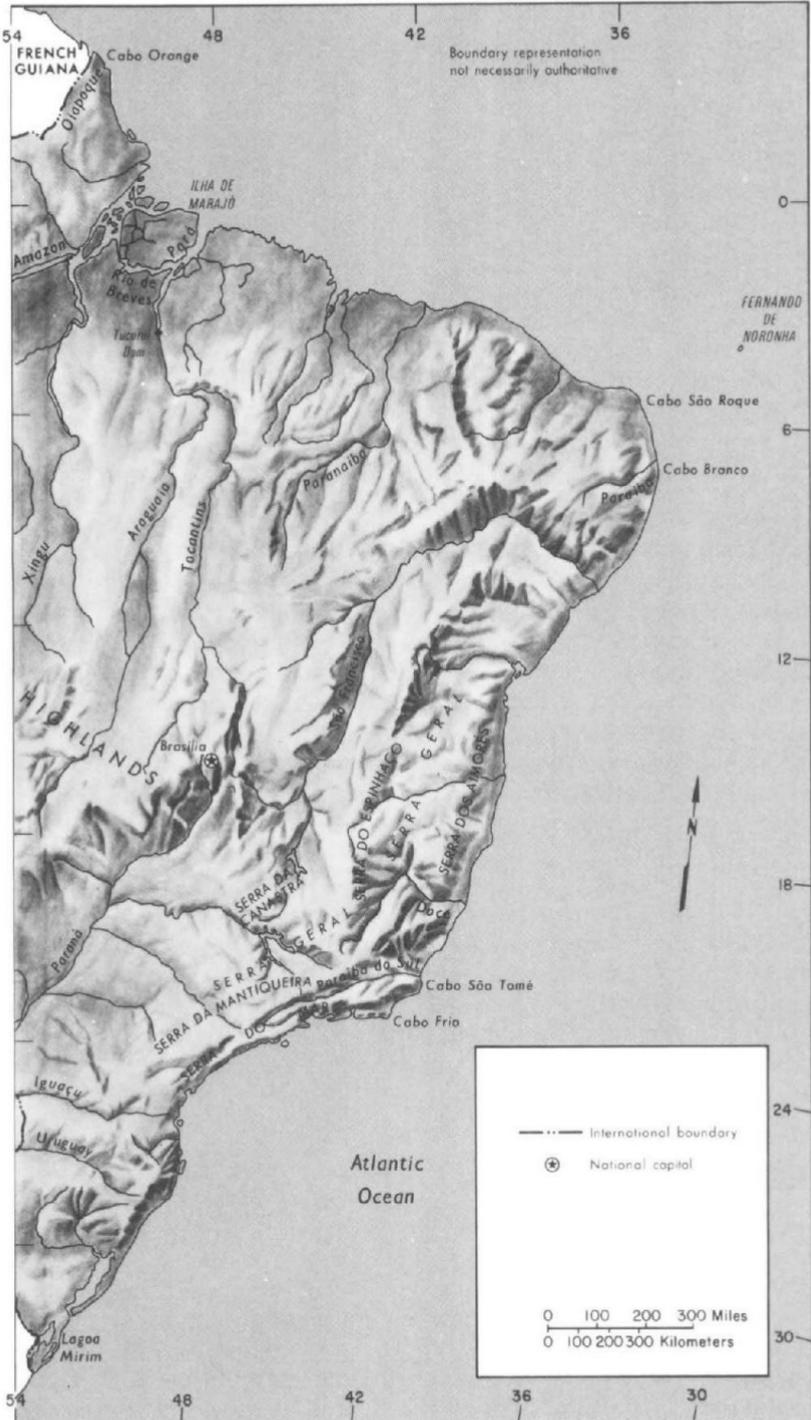


Figure 3. Topography and Drainage

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north of the Amazon. The highland slopes facing to the northwest receive heavy equatorial rainfall, making them the source of countless streams that descend in rushing falls and rapids to tributaries of the Amazon and the Río Orinoco. None of these watercourses is navigable to any distance upstream, and consequently they contribute little to the development of the considerable mineral and woodland wealth believed to exist near their headwaters. The southern slopes, by contrast, are arid and stoney.

These highlands form part of an immense plateau extending into Venezuela, Guyana, Suriname, and French Guiana, and the mean altitude is much more impressive than that of the Central Highlands. The crest of ranges constitutes the divide between drainage northward to the Orinoco in Venezuela and westward to the Amazon and divides Brazil's borders with its northern neighbors. At an elevation of 3,014 meters, the Pico da Neblina in the Serra Imeri is Brazil's highest mountain.

Amazon Lowlands

The most extensive lowlands lie in the Amazon Basin. Fertile strips of riverine land (*várzeas*) are located along the courses of major rivers and are subject to frequent flooding, but the lowland region is characterized by gently undulating terrain, classified as high ground in a flooded area (*terra firme*), and has elevations sufficiently varied to permit rainwater to drain off into streams.

Although the Amazon lowlands include rolling savanna areas, particularly on the plains in the northwest, the prevailing cover is tropical rain forest (*selva*). It is estimated that 80 percent of the soils there are subject to loss of topsoil through erosion, which amounts alarmingly to as much as five tons per hectare annually when forest cover is removed for agriculture. A government study released in 1974 concluded pessimistically that for this reason much of the Amazon lowlands would be suitable only for grazing rather than for colonization by farmers as had been promoted by government planners. The better soils in the region are purple earth (*terra roxa*), which results from the decomposition of dibasic and basaltic rocks and occurs principally in a stretch of land north of the Amazon between the Xingu and Tapajós rivers.

Pantanal

A second lowland area, the Pantanal, is an extension of the Grand Chaco plain in Mato Grosso do Sul and is part of the Río de la Plata Basin. The floor of this lowland is largely swamp and marshland, with an average elevation of 150 meters above sea level. Away from its many streams, which make up the headwaters of the Rio Paraguai, sedimentary deposits have left the soil suitable for varied agriculture. The area is too wet to support forest growth other than lightwoods that grow on patches of high ground and are valued for construction material. A long dry season with lower temperatures, coupled with the presence of fertile

alluvial soils, is conducive to good pasturage for cattle raising, the principal economic activity in the Pantanal (see fig. 4).

Coastal Plain

The third and most highly developed lowland area is the narrow strip of coastal plain that extends along the entire length of Brazil's Atlantic seaboard. Comprising only 8 percent of the total area, the coastal plain contains nearly 40 percent of the country's population. North of the mouth of the Rio São Francisco, it widens to exhibit the luxuriant growth typical of the Amazon Basin. South of the Cabo São Roque it remains tropical, merging into subtropical, and narrows to a mere ribbon of land, 100 kilometers at most in width, at the foot of the escarpment. In some places, particularly between Rio de Janeiro and Santos, the plain disappears entirely where the highlands cascade directly to the sea. Near its southern extremity in Rio Grande do Sul, it widens into the rolling grasslands that merge with the pampas of Uruguay.

Climate

There are three major climatic regions. Almost all of the North, the coastal plain as far south as the state of Rio de Janeiro, and the northern half of the Central Highlands are tropical areas with heavy rainfall and elevated temperatures. A second region lies in the southeast portion of the Central Highlands and along the coast to the southern portion of the state of São Paulo. Wind movements in the uplands and ocean currents on the coast temper the effects of the latitude and maintain subtropical climatic conditions. The South constitutes a third region, where the predominantly temperate climatic conditions are affected by Antarctic air currents when the sun is north of the equator.

Except in the South, the seasonal change in temperatures is not extreme. It is along the northern coast, straddling the equator, that the highest temperatures have been most consistently recorded, and temperatures in the Northeast average several degrees higher than those in the interior of the Amazon Basin. Far to the south and on the rim of the tropics, the city of Rio de Janeiro has an average mean temperature of 24°C, less than 3°C lower than that of Manaus on the Amazon. Summer temperatures in the South do not differ markedly from those of the Southeast, but winter readings are much lower there, and frosts occur.

In most areas, seasons are marked by rainfall cycles determined by latitude and elevation. For example, rainy seasons vary from October to March in São Paulo, April to October in Recife, and January to June in the Amazon lowlands. Summer outside the equatorial belt is from December to February. Winter is a relatively drier season. Over much of the country, annual precipitation ranges from 1,000 to 2,000 millimeters. Exceptions are the Amazon Basin and northern coast, where annual rainfall regularly exceeds 2,000 millimeters, and the backcountry (*sertão*) of the

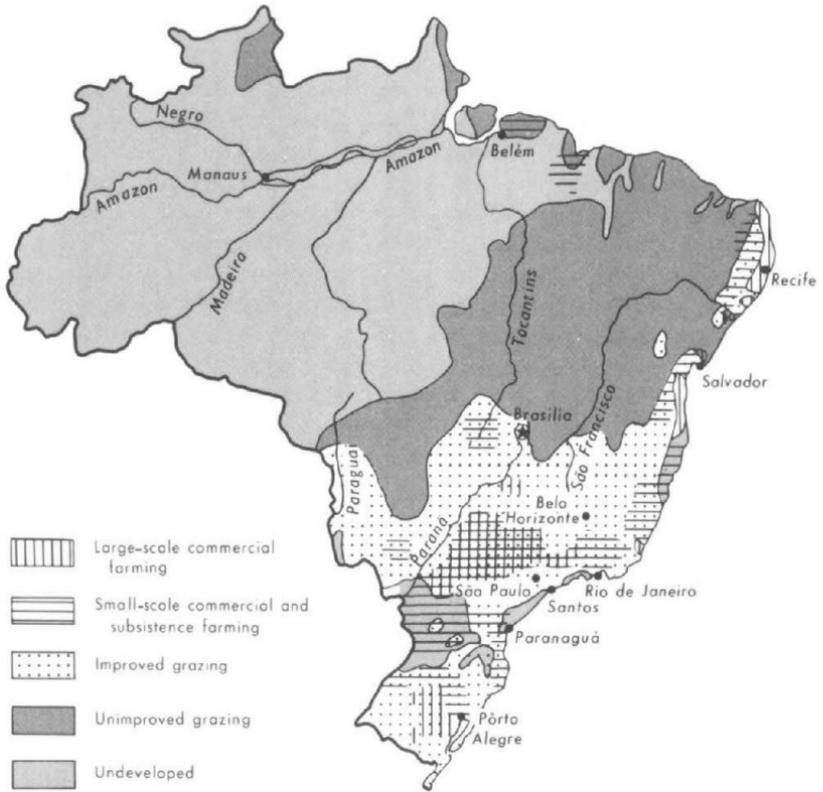


Figure 4. Land Use

Northeast, which experiences frequent droughts and where rainfall is frequently less than 1,000 millimeters a year.

The *sertão* lies in the so-called polygon of drought that encompasses more than 10 percent of the country's territory. Rainfall deficiency there is reflected in occasional drought, however, rather than perennial inadequacy. The area averages about 750 millimeters annually, but a locality receiving 1,000 millimeters or more in one year may get as little as 200 millimeters of rain the next. Moreover, the rate of evaporation is very high. Floods and drought are equally common, and about the only certainty is that rain will not fall during the dry season, a period that at a minimum spans the months from July to January.

Hydrography

Brazil's river systems are among the world's most extensive. No other three rivers combined equal the Amazon's flow of 300,000 kiloliters per second that is discharged into the Atlantic, and silt

discoloration can be observed more than 300 kilometers seaward from its mouth. The main stream of the Amazon rises in the western Andes less than 100 kilometers from the Pacific Ocean and flows 6,400 kilometers from its source to the Atlantic. Altogether there are more than 200 rivers in the Amazon system, which drains 60 percent of the country. Of the Amazon's 18 major tributaries, 10 measure longer than the Mississippi River. The greatest of these is the Rio Negro, which has its source in Colombia in the watershed between the Río Orinoco and that of the main stream of the Amazon. The principal tributaries of the 3,200 kilometer-long Rio Madeira, the second longest tributary, rise in the Bolivian Andes and in the Pantanal, a region also drained by the Rio de la Plata system.

During its course eastward across northern Brazil, the Amazon drops only about 440 meters. It is navigable by oceangoing vessels as far as Iquitos in Peru; Manaus, more than 1,200 kilometers inland from the coast, is a significant port. Smaller craft ply the Rio Madeira to Pôrto Velho, near the Bolivian frontier.

Other major streams rise in the Central Highlands. The Rio Xingu and Rio Tapajós are major tributaries of the Amazon. The Rio São Francisco has its source in the Serra da Canastra in Minas Gerais and flows northeastward for 1,500 kilometers along a line parallel to the coast before turning eastward toward the sea. The river drops nearly 700 meters at the Paulo Afonso Falls about 250 kilometers from its mouth. The Rio Doce has carved a deep valley through the Serra dos Aimorés to a broadening in the coastal plain in Espírito Santo, where it finds its outlet to the sea. From its headwaters in the Serra do Mar, the Rio Paraíba do Sul flows eastward through a rift between two ranges before emptying into the sea at Cabo São Tomé. The line of communication between the cities of São Paulo and Rio de Janeiro lies along the river valley.

The Rio Tocantins rises in Goiás in highlands near the Federal District and flows northward, widening into an estuary where it becomes the Río Pará. The river is linked to the Amazon in the delta region by the Rio de Breves, a network of navigable waterways that rounds the Ilha de Marajó on the south and west.

Although many rivers of the Central Highlands originate close to the sea, the westward inclination of the plateau causes most of them to flow inland, into the Río de la Plata system. All of these streams are interrupted in their flow by falls and rapids as they descend from the highlands, and consequently they are navigable only for short stretches. Of the three major rivers forming part of the Rio de la Plata Basin in Brazil—the Rio Paraná, Rio Paraguai, and Rio Uruguay—the Paraná is the largest and the one receiving the waters from most of the tributary streams generated in the southern part of the Central Highlands. From its headwaters in Goiás, near those of the Rio São Francisco and Rio Tocantins, the

Paraná flows southward and forms part of the frontier with Paraguay on its course to the estuary of the Rio de la Plata. One of its important Brazilian tributaries, the Rio Iguaçú, plunges more than 700 meters over a six kilometer-wide stretch of cataracts near its confluence with the Paraná.

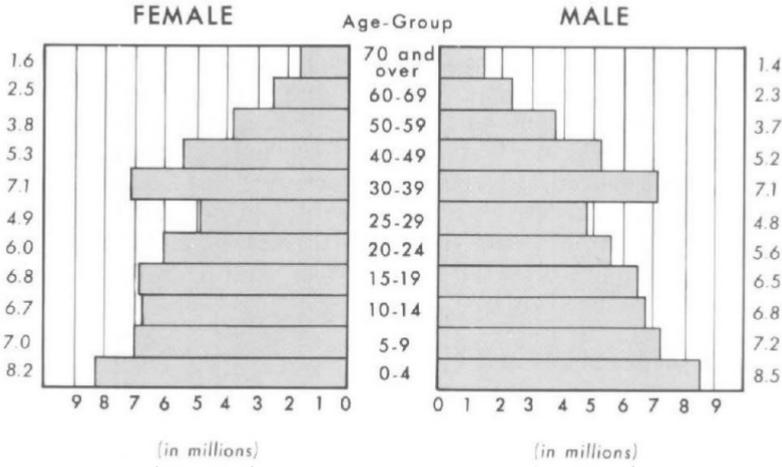
Sluices were closed in October 1982 on the 1,500-meter-high Itaipu Dam across the Paraná just west of the Iguaçú Falls. The dam, a joint Brazilian-Paraguayan undertaking designed primarily to provide energy for the cities and industries of the Southeast, is the world's largest hydroelectric project. Waters backed up by the dam will create a 325-kilometer-long, 1,500 square-kilometer artificial lake on the Paraná, eventually covering the cataracts of the Guaira Falls.

Population

The 1980 decennial census reported the number of Brazilians at 119 million, making Brazil the world's sixth most populous country. This figure compared with 93 million counted in 1970 and 71 million in 1960, and it represented about one-third of the total population of Latin America. On the basis of reported data, the average annual rate of growth during the 1970s was 2.4 percent, reduced from 2.8 percent during the previous decade and 3.1 percent in the 1950s. The effect of a sharp decline in the birth rate in reducing the rate of increase still further is offset, however, by a significant rise in life expectancy and by an expanding number of women of childbearing age, estimated to reach 35 million in the 1980s. Projections indicate that Brazil's population will pass the 200 million mark by the turn of the century and that growth will continue at a gradually slowing rate, eventually stabilizing, according to the minimum estimates, at about 300 million.

Structure and Dynamics

Brazil's population in 1980 was characterized by its youth, but a decline was noted from the 1970 census in the percentage of Brazilians under the age of 20 in the country's total population. About 37 percent of those counted in the 1980 census were under the age of 15 and 48 percent under the age of 20, compared with figures of 43 percent and 53 percent for the same age brackets reported in 1970. More than 12 percent of the total were 50 years old and over, and 6.4 percent were over 60, representing increases in those categories from the previous census (see fig. 5). The changes reflected a dramatic lowering of official birth and death rates, which were calculated at 34 per 1,000 and 7.3 per 1,000, respectively, in 1980. During the same decade, life expectancy rose from 59 years to an estimated 63 years, 60 for men and 65 for women. A particularly impressive increase in female life expectancy has been credited to the substantial reduction in deaths related to childbirth. The IBGE pointed out, however, that the



Source: Based on information from Brazil, Secretaria de Planejamento da Presidência da República, Fundação Instituto Brasileiro de Geografia e Estatística, IX *Recenseamento Geral do Brasil—1980*, 1, Pt. 1, Rio de Janeiro, 1981, 12.

Figure 5. Age-Sex Pyramid, 1980

incompleteness of birth and death registrations, particularly in the more remote areas of the country, has been such that considerable allowance must be made for margins of error in reported data.

Brazil's population doubled in size during the three decades 1930 to 1959, and it increased from 50 million in 1949 to an estimated 100 million by 1972. The best indicator that the rate of population growth has passed the peak registered during that period is the sharp reduction in fertility among women of potential childbearing age sustained during the 1970s. Estimates made in 1976 showed that an average of 2.4 offspring had been born to each woman in the 15-to-49 age bracket; an average of two children survive the first year of life. Of greater consequence, the projected total fertility rate dropped from 5.3 children per woman reported for 1970 to a figure estimated at between 3.9 and 4.3 children per woman in 1980, depending on reports from various sources. Studies also concluded that women were having their first child at a later age in the 1970s than in the previous decade. It is expected, however, that the optimum effect of the trend toward fewer offspring per childbearer on reducing the rate of population growth will be offset for some years by the greater numbers of women entering the birth cohort in the 1980s, as a result of the considerably higher birth rate that prevailed in the 1960s.

Overall population density in 1980 was calculated at a relatively sparse 13 persons per square kilometer, but 90 percent of Brazil-

ians were concentrated in three regions—the Southeast, the Northeast, and the South—which together constitute only 35 percent of the country's total area. Several underpopulated areas—Paraná in the South, the states in the Center-West, and the remote Amazon region in the North—have been especially targeted for new settlements and more intensive development. Despite government-backed projects to attract settlers to these areas, internal migration has been characterized principally by population transfers from a rural to an urban setting, and the greatest rate of growth has occurred in the urban centers of the Southeast (see *Urbanization*, this ch.).

Population Problems and Policy

Traditionally, Brazilians have looked favorably on rapid population expansion, and official policy, insofar as one existed, was defined as pronatalist. Tax incentives and maternity bonuses encouraged large families. Sustained population growth was deemed essential for the settlement and development of the "new lands" on the Brazilian frontier. Furthermore, the effective occupation of that sparsely populated area was linked to Brazil's ability to maintain sovereignty there and, thereby, to considerations of national security. As industrialization progressed, political and business leaders cited a close correlation between income growth and population growth, and the perception was commonly stated that a reduction in the population growth rate during a time of rapid economic development would not be desirable. Popular resistance to population planning was also related to the status derived from producing big families. The Roman Catholic Church opposed contraceptive birth control on theological grounds, although in practice the church in Brazil gave greater emphasis to other issues. Brazilian attitudes toward population growth and opposition to population control, therefore, were based to varying degrees on political, economic, cultural and moral grounds. By the 1960s, however, a small but growing number of critics were arguing that unrestrained population growth was impairing the quality of life.

Limited support for the introduction of population measures surfaced in 1965 when members of the medical profession took the lead in urging family planning as an alternative to the widespread incidence of induced abortion. The following year medical groups cooperated in founding a private organization, the Family Welfare Society (*Sociedad de Bem Estar Familiar—BEMFAM*), to publicize the need for family planning and to sponsor birth control clinics. By 1978 BEMFAM was assisting 280,000 women annually in adopting and maintaining birth control regimens through community-based programs operated in several states with government cooperation. In addition, it concluded both formal and informal agreements with government agencies and other private groups to provide advice in organizing family planning services.

BEMFAM clients, who in 1978 represented about 1 percent of all married Brazilian women of childbearing age, came largely from upper and middle-class backgrounds. Outreach to women in the lower socioeconomic strata was hampered by the magnitude of the problem in relation to BEMFAM's resources. There nonetheless were some indications in the early 1980s that the poor were having fewer children.

In 1973 a working group composed of representatives of various government ministries prepared for the first time a definite national population policy statement in preparation for Brazil's participation in the United Nations-sponsored World Conference on Population, held the following year in Bucharest. Although strongly denouncing foreign-inspired population control as a means of dealing with social and economic problems in underdeveloped countries, the Brazilian delegate to the conference conceded in an address that it was the responsibility of government to provide birth control information and means to families of limited income. Significantly, Brazilian presence at the conference coincided with the drafting of the Second National Development Plan (II Plano Nacional de Desenvolvimento), for the period 1980-85, which confirmed the correlation between population and economic growth but added that it was the government's policy "to respect the right of each family to decide how many children they want." "Families have complete freedom," the statement concluded, "to choose the number of children they desire." This marked a move from an implicit pronatalist position to one of laissez-faire on the question of population control, and it was widely interpreted as benevolent toleration of private and government family planning activities.

The world recession of the late 1970s and early 1980s and the surge in energy costs confronted government planners with the prospect of leveling off of economic growth while population continued to increase, despite the reported decline in the birth rate. In 1977 the federal government introduced a new national health plan that included provisions to make contraceptives available to prevent "high risk" pregnancies. Overriding economic concerns were later cited, however, to explain the government's failure to follow up with further expenditures on family planning programs. On the official level, Brazil in the early 1980s still resisted macroeconomic arguments for population control on the grounds that current economic underdevelopment and not projected overpopulation lay at the roots of the country's problems. Population growth, according to government sources, had not been demonstrated to be detrimental to economic growth.

Cultural Regions

Pronounced regionalism has long characterized Brazilian culture; numerous barriers discouraged communication among the far-flung settlements of colonial-era Brazil. The captaincies (colon-

ial administrative units) were virtually autonomous entities subordinate only to Lisbon (see Portuguese Exploration and Settlement, ch. 1). The country's varied history and diverse geography are reflected in contemporary social, political, and economic cleavages.

Although federal legislation divides Brazil into five main regions, social scientists suggest other relevant divisions. Anthropologist Charles Wagley, for example, delineates six cultural regions: the Northeast coast (part of Rio Grande do Norte, eastern Paraíba, Pernambuco, Alagoas, Sergipe, and Bahia); the *sertão* (large amounts of Maranhão, Piauí, Ceará, Pernambuco, Rio Grande do Norte, Sergipe, Alagoas, and Bahia); the eastern highlands (most of Minas Gerais and western Espírito Santo); the South (Rio de Janeiro, São Paulo, Santa Catarina, Rio Grande do Sul, and part of Paraná); the Amazon Basin (most of Amazonas, Roraima, Amapá, Pará, Acre, and part of Rondônia); and the Far West (Mato Grosso, western Paraná, parts of Goiás, and part of Rondônia).

Most of the regions are associated with a specific "boom-bust" cycle of the economy. The Northeast coast came to the fore during the sixteenth-century sugar boom only to be eclipsed by the rise of the Caribbean sugar producers in the next century. Settlers flocked to the eastern highlands after the discovery of gold and diamonds in the 1700s, but the gold was played out by the early 1800s and the diamonds faced an uncertain market. The South was the scene of the coffee boom (mid-nineteenth to early twentieth centuries); and the Amazon Basin gained world notoriety during the rubber boom (ca. 1850-1910). The far South and the *sertão* were regions of large-scale cattle ranches; small farmers dominated the mountainous areas of the South. Neither area enjoyed the prominence of other regions associated with "boom" prosperity. Each boom had slightly different beneficiaries; each regional economy gave rise to a slightly different elite and social institutions. Brazil entered the modern era with sugar, cotton, coffee, rubber, and cattle "aristocracies."

The regions' varied economic histories combine with the inhabitants' diverse ethnic background to create a cultural mosaic. The northeastern coast was settled principally by Portuguese and Africans. The region's dominant social institution was the sugar plantation and mill, tied to export markets and relying on slave labor. Towns and commercial centers were the appurtenances of the plantation; in terms of social relations the plantation was a world unto itself with its own artisans, carpenters, smiths, and frequently its own chaplain. The plantation owners of a given neighborhood were often a tightly knit group bound by ties of blood and marriage. The sugar plantation established the pattern of landholding and land use characteristic of contemporary Brazil; large plantations (*fazendas*) monopolize the best land while small landholders are relegated to the fringes. The northeastern coast remains heavily marked by the heritage of its African slaves (see



*Flamingo Beach and Sugar Loaf
Courtesy Jan Knippers Black*

Afro-Brazilians, this ch.).

The *sertão*, by contrast, was a region of mestizos (a mixed population of Portuguese and Amerindian descent). Here, too, large *fazendas* were the rule, and a few “territorial magnates” held the most desirable holdings. Nonetheless, cattle ranching relied on a regime of free labor; the cowboy (*vaqueiro*) who tended the owner’s herds received a portion of each year’s calves, and some *vaqueiros* managed to accumulate their own herds and become independent ranchers. The *sertão* is subject to periodic droughts that can be appalling in their impact (see Geography, this ch.). The late 1870s drought, for example, decimated virtually the entire livestock herd and, from the combined effects of starvation and disease, nearly half the region’s human population. Migration is the Nordestino’s (inhabitant of the Northeast) primary adaptation to drought; droves leave in bad years only to return at the first rumor of rain in the *sertão*. The government began organizing public works projects to relieve drought-stricken areas in the 1950s; the ideal landowner assures his workers either employment on these projects or makeshift work on his *fazenda*.

During the colonial period armed explorers (*bandeirantes*) tracking westward from the region of present-day São Paulo discovered

the placer gold and diamonds of the southeastern highlands. The *bandeirantes*, Luso-Brazilians heavily influenced by and miscegenated with Amerindians, were the region's initial settlers. They were supplanted by newly arrived Portuguese (many of them from the Azores) and by Afro-Brazilian slaves as word of gold spread. No export crop took the place of gold as the mines played out, and the area never became a region of vast landholdings dedicated to monocultural production. Mixed agricultural production on mid-sized, commercialized farms remains the rule in these rural areas (see Agriculture, ch. 3). Perhaps because the highlands lacked the disruptive influence of plantation agriculture and export-crop "boom-bust" cycles, the region remained a bastion of traditional Luso-Brazilian culture through the 1960s. Religious practices of Iberian origin, such as the religious brotherhoods (*irmandades*), persisted longer than in most of the country. In remoter areas artisans and craftsmen, as well as small-scale itinerant traders, held their own against industrial manufacturers and large-scale commercial enterprises well into the 1950s.

The Amazon Basin, locale of the world's largest tropical forest, has since its discovery offered Europeans a tantalizing vision of ready wealth and natural bounty. Until the mid-nineteenth century, however, the region languished as an economic backwater. Colonial-era settlement was limited to the lower reaches of the Amazon, where the Portuguese set up stations for slaving expeditions against the Amerindians of the region, while the Jesuits organized missions in the hinterland in an effort to protect the Indians from the slavers. As the Indian population declined, an extractive economy furnishing cacao, cinnamon, vanilla, cloves, and the like took the place of slaving. Culturally, the basin was and is an Indian and Luso-Brazilian mix. Amazonian Portuguese is marked by borrowings from Tupí-Guaraní (the Amerindian language used by the Jesuits as a *lingua franca*). Local place-names, plants, and animals are largely of Tupí derivation. Likewise, religious practices include all the standard Iberian trappings combined with a variety of Indian customs.

The Amazon boomed with rising demand for rubber in the late nineteenth century. Population grew more than six times and regional income some 12 times between 1850 and 1910 (when the market collapsed). The "rubber barons" relied on Indians and Nordestinos imported from the drought-stricken *sertão* to tap the dispersed rubber trees; both groups suffered from a labor regime that was little better than slavery. Those who survived formed the nucleus of the Amazon's peasant population. In the wake of the rubber boom, the Amazonian peasant earned a livelihood through mixed horticulture, hunting, fishing, and trading.

There was renewed interest in the Amazon's mineral wealth and agricultural potential in the 1960s and 1970s. Changes in the legislation governing mineral concessions and the readiness of

state companies to form joint ventures with foreign corporations increased exploration and mining (see Mining, ch. 3). There were a variety of colonization schemes, the notion being that the unpeopled reaches of the Amazon forest were a safety valve to absorb the land-hungry peasants of the Northeast. Amazonian peasants and small farmers from the South responded to government incentives to colonize the region as frequently as did the landless Nordesteño. Colonists from within the region itself had the advantage of a detailed knowledge of local soil types, plant life, and crop conditions. (One study showed that the yields of local peasants's plots were double that of the newcomers.) Those with previous farm management experience tended to outperform landless laborers. In the mid-1970s the government changed the structure of incentives to encourage larger holdings, particularly cattle ranches.

The Far West, i.e., the western part of the North, is Brazil's frontier zone and bears some resemblance to the current settlement of the Amazon. In both areas there is a characteristic "frontier mentality" most often compared to that of the Old West of the United States. Both regions pit settlers against each other in virtually chronic conflicts; land disputes permeate every level of society. A measure of lawlessness surrounds land possession, and arguments are frequently settled violently (see Rural Society, this ch.). The sheer numbers of settlers have meant problems; Rondônia's population grew more than twelve and one-half times in the 1970s alone. The region tends to be ethnically diverse. Wagley describes a settlement in western Paraná founded in 1945 that, by the early 1970s, had eight Protestant churches, a Roman Catholic cathedral, and a Buddhist temple. Its population included Luso-Brazilians, as well as descendants of Italian, Spanish, Portuguese, Japanese, German, and Polish immigrants.

The South is both culturally diverse and economically differentiated. Rio de Janeiro grew as a port during the Gold Rush. São Paulo was originally settled by *bandeirantes* who ranged through the interior in search of gold or, failing that, Indian slaves. The region languished until the rise of coffee production.

The coffee boom gave the country not only a new set of wealthy plantation owners but also substantial numbers of Italian and Japanese immigrants brought to Brazil following the abolition of slavery (see Immigrants of the Nineteenth and Twentieth Centuries, this ch.). Cattle ranches and, more recently, rice plantations cover the pampas of the far south; the mountainous regions of Santa Catarina and Rio Grande do Sul were settled by European immigrants in the nineteenth century and remain the dominion of small farmers.

A sense of well-being increases from the Northeast to southern Brazil. The Northeast as a whole accounts for half of Brazil's poor;

it represents the single largest concentration of poverty in the Western Hemisphere. The Southerner can expect to eat better (in terms of both calories and protein) and live longer. The South and Southeast enjoy a substantially greater share of national income. In the late 1970s the Nordesteño earned less than 40 percent the income of his or her counterpart in São Paulo (*paulista*). Even the lower 50 percent of the economically active population of the South earned more than double the Nordesteños as a whole. Illiteracy rates in the Northeast are 30 to 40 percentage points higher than in the South. Nearly 100 percent of primary-school-age children in the South are enrolled, two-thirds in the Northeast.

Ethnic Patterns

Luso-Brazilians

Lusitanian influence in Brazil is disproportionate to both the absolute numbers of Portuguese immigrants and Portugal's international influence even in the sixteenth century. If only because of crown policy, Portuguese predominated among colonial immigrants. They were a motley crew: Madeirans and Azoreans, having experience with sugar plantations, came early on, accompanied by nobles and soldiers (who frequently received immense land grants), order priests, "New Christians" (formerly Jews, usually forcibly converted), and a variety of exiled criminals. They shared the stage with the French, Spanish, Dutch, Africans, and Indians. Colonial Brazil was an ethnic hodgepodge with a distinctly Portuguese cultural backdrop (see Portuguese Exploration and Settlement, ch. 1).

It was the Portuguese who left their mark on the social institutions and political system of the country. Language, kinship, and religion reflect Lusitanian influence. Both the Portuguese and Brazilians faithfully revere many of the same saints. The religious festivals (*festas*), so prominent a feature of colonial and modern Brazil, are Iberian transplants. Colonial cities followed a peculiarly Portuguese model in their lack of planning. Bahia, Olinda, and Rio de Janeiro, observers note, were similar to Lisbon and Pôrto.

Amerindians

In the early 1500s Brazil's indigenous population numbered roughly 4 million. Most were concentrated along major rivers and a few strips of fertile coastal land. The Amazonian floodplain and the *várzeas* required careful management but were the most productive lands available. The river itself furnished a supply of large aquatic animal protein. Population density reached moderate levels, and social differentiation among the riverine villagers was marked. Away from the larger rivers were scattered groups of swidden (slash-and-burn) horticulturists and nomadic hunters and gatherers. Both groups were dispersed. Even horticulturists relied on game for protein; neither forest nor stream afforded a supply to support a dense population.



*Iguaçu Falls, Brazilian side
Courtesy P.A. Kluck*

In the early 1980s there remained roughly 200,000 Amerindians. Colonial contact brought smallpox, whooping cough, yellow fever, and malaria. The rubber boom took a toll on many tribes previously spared. Roger Casement, a British civil servant who investigated charges against a company particularly active in the rubber trade, found that the number of Indians along the Rio Putumayo dropped from 50,000 to 8,000 from 1900 to 1910; each ton of rubber produced cost seven Indian lives.

In the decades following the rubber boom, most contact that Indians had with outsiders was limited to the occasional missionary or trader. The 1960s-1970s push westward and into the Amazon Basin changed this. Both the volume of migration and the kind of regional development posed problems for the Indians. Measles, influenza, and respiratory ailments decimated tribes lacking resistance to these and similar diseases. Roadbuilding, colonization projects, and mining all posed a threat to Amerindians, whose traditional means of subsistence demanded large reserves of land.

The National Indian Agency (Fundação Nacional do Índio—FUNAI) is charged with safeguarding Amerindians. The agency took over in the wake of a 1968 government investigation that charged that FUNAI's predecessor had massacred Indians and embezzled their lands. FUNAI itself, many critics argued, was unable adequately to protect tribes from the predations of outside

mining and agricultural interests. Indeed, there were confrontations between Indians and settlers and roadbuilding crews in the late 1970s and early 1980s. In 1982 FUNAI set up a Nambikawa Indian reserve in Bahia and interdicted 7.7 million hectares of Yanomamo land in Roraima.

Afro-Brazilians

"The Negro," commented a nineteenth-century British traveler, "is not only the field labourer, but also the mechanic; not only hews the wood and draws the water but by the skill of his hands contributes to fashion the luxuries of civilized life. The Brazilian employs him on all occasions and in every possible way . . ." His remarks were echoed by Brazilians and visitors to the country alike. Brazilian society without a secure and plentiful supply of African slaves simply could not have existed. All but the poorest Portuguese immigrants to the country soon acquired slaves. The slaves themselves served as collateral for their own purchase; their labor repaid their owners' loans at the same time it provided their livelihood. "Work is for dogs and blacks" was a common saying in colonial Brazil.

Slaves enjoyed legal guarantees: they could marry freely, seek different owners, acquire property, and buy their own freedom. These rights were, however, largely unenforced and, in any event, far beyond the reach of the average field hand. The system of plantation agriculture where most slaves spent their lives was almost routinely brutal. An eighteenth-century Jesuit commented that although some owners would kill their slaves for minor infractions, rational plantation owners would "when a slave deserves it . . . tie him to a cart and flog him. After being well flogged, he should be pricked with a sharp razor or knife, and the wounds rubbed with salt, lemon juice, and urine, after which he should be put in chains for some days." Female slaves, in the interest of decorum, were to be flogged in private.

Slaves resisted as they might; they proved, as one owner ruefully commented, most "inconstant property." Slave revolts were almost yearly affairs; runaways amounted to some 1 percent of the total slave population. Slave catchers did a thriving business. Settlements of fugitive slaves (*quilombos*) dotted the remoter regions. The most famous settlement, Palmares, survived for over 50 years (see *The African Presence*, ch. 1).

Miscegenation was a common and freely acknowledged practice and contributed to contemporary attitudes on racial categories. To encourage marriage between white men and women, colonial legislation barred mulattoes from administrative posts, but to no avail: wealth rather than color was the main criterion in awarding offices. From a relatively early date there were wealthy and influential mulattoes at the highest levels of society. These, of course, were the fortunate few; most formed an intermediate class

performing those tasks for which slaves were inefficient and whites unwilling. Mulattoes were overseers, soldiers, *vaqueiros*, and farmers.

In the mid-1970s census takers counted roughly one-third of the population as mulatto and another 8 percent as black. The 1980 census reported over 38 percent as mulatto and almost 6 percent as black (see table 2, Appendix). The figures should be taken only as the roughest estimates. Brazilian racial categories are anything but unambiguous. Descent is not considered an overriding criterion in assigning individuals to racial groups; Brazilians see nothing unusual in thinking of parents and children, as well as brothers and sisters, as representatives of widely disparate racial groups. Anthropologist Marvin Harris, for example, showed a picture of three sisters to a number of Brazilians. Only 6 percent of his respondents identified all three sisters as belonging to the same racial group; 14 percent identified them as members of three different racial groups. There is frequently little agreement about the racial classification of an individual; pictures shown to various Brazilians will elicit a variety of racial classifications.

There is a general consensus that, as the saying goes, "money lightens." When shown pictures of various-hued individuals with purported incomes shown beneath each picture, respondents classified individuals with higher incomes as lighter colored. Beyond the ambiguity surrounding an individual's race there is little agreement about the precise meaning of the society's elaborate vocabulary relating to racial classification. There are some 40 different racial categories commonly used, but little consensus about who belongs to what group or how the groups themselves might be organized as racial designations. The notion of a biracial classification scheme of the sort North Americans are accustomed to is simply incomprehensible to Brazilians.

Race in and of itself is not a socially significant category for most members of society. The rich (*os ricos*) and the poor (*os pobres*) are the more pervasive and relevant social groupings. This does not mean that Brazilians do not have racial stereotypes. There are a plethora of racial terms in Brazilian Portuguese, and many are used derogatorily. Most regard Afro-Brazilians negatively. White is perceived as more desirable than black, but the intermediate steps between the two extremes are vague and obscure. Further, ideal perceptions of race do not define actual behavior. A relatively light-skinned poor Brazilian would not insult a darker skinned educated or rich Brazilian in racial (or any other) terms. It is equally true that skin color continues to be a good general predictor of social status. As a rule the darker the skin the poorer the Brazilian. Anthropologist Robert Shirley noted that in the rural municipality he studied, Afro-Brazilians were nearly half the landless laborers and unskilled workers but only 5 percent of the large landowners and 9 percent of the small businessmen.

The highest concentrations of Afro-Brazilians are in the Northeast, where they constitute nearly two-thirds of the total population. There the African influence is readily apparent in dialect, children's stories, nursery rhymes, folklore, and cuisine. Syncretic Afro-Brazilian religious cults are common in the Northeast. The cults are known by a variety of names: *candomblé*, *xango*, *macumba*. They mix West African and Iberian Catholic religious traditions and practices and bear a striking resemblance to Haitian voodoo (*vodun*) (see Religion, this ch.). African influence is also apparent in the Northeast's music (the samba is related to the *batuque* danced by slaves) and in men's clubs specializing in displays of dance and defense similar to jujitsu, elaborated from a form of combat brought by Angolan slaves (*capoeira*).

Immigrants of the Nineteenth and Twentieth Centuries

Immigrants came in significant numbers only after the abolition of slavery: there were sporadic efforts to initiate colonies of small farmers in the South, but most potential immigrants rejected a country dominated by plantation agriculture and slave labor. Immigration peaked between 1888 and 1929, when more than 100,000 immigrants entered Brazil annually, except during World War I. More than half went to São Paulo where the coffee boom drew not only agricultural laborers but also a diverse group of entrepreneurs seeking their share of the coffee wealth. After World War II there was a renewed spurt of immigration when the society absorbed some 50,000 to 80,000 foreigners annually.

Italians and Portuguese were the largest national groups within the stream of migrants. Roughly 30 percent of all immigrants between 1884 and 1933 came from Portugal; Italian immigration peaked between 1884 and 1903 when it constituted nearly 60 percent of all immigration. Spaniards came in steady numbers, though a 1911 prohibition against emigration to Brazil by the Spanish government limited their numbers in the years before World War I. Germans and Japanese arrived in substantial numbers, and there was a steady flow of Middle Easterners as well as smaller numbers of Slavs from Eastern Europe and Russia.

Portuguese entered in a steady trickle throughout the nineteenth century; they were primarily Azoreans who entered under indentured labor contracts. The numbers of immigrants grew in the 1900s and peaked in 1912 and 1913 when more than 76,000 Portuguese arrived each year. Between 1908 and 1929 the number of Portuguese immigrants topped 30,000 every year except during World War I. Most were urban-bound immigrants; Rio, São Paulo, and their satellite cities were the principal destinations. Portuguese have tended to congregate in the lower middle-class service sector occupations; they are shopkeepers, taxi drivers, and seamstresses.

A few Italians came as settlers to the small agricultural colonies in the South; most, however, were recruited as replacements for slaves on coffee plantations after abolition. They represented the owner's first large-scale experience with free labor and, to judge from contemporary accounts, learning to deal with workers who could not be treated as chattel was not easy for owners. Complaints about the treatment of the immigrants reached such a pitch that in 1902 the Italian government prohibited its citizens from accepting free passage to Brazil, an inducement frequently used by labor recruiters.

Italian immigrants had an immense impact on the society. Urban migrants, many of whom arrived with small amounts of capital, became a critical component in São Paulo's industrial bourgeoisie. They had both the entrepreneurial talent and the overseas contacts to take full advantage of a domestic market that was expanding as a result of the coffee boom. The Italian agricultural laborers were, in comparison with ex-slaves, a favored segment of the rural work force. The typical coffee worker would have been hard pressed to accumulate the capital necessary to purchase land, but most were able to pay off their debts to planters within three to seven years. Early contracts permitted the immigrants to plant subsistence crops between coffee trees, a practice that not only provided the family's sustenance but also generated a surplus that contributed added income.

Colonization efforts, begun in 1824 under imperial aegis, brought roughly 50,000 Germans to Brazil by 1914. Royal patronage did little, however, to assure the immigrants a warm welcome in a milieu dominated by plantation agriculture. Settlers were to receive land, cash grants, and tax concessions, but the program was inconsistently implemented. Nonetheless, the colonists prospered after a fashion. They were active in industry and commerce and in rural areas set up small family-run farms engaged in mixed crop and livestock production. German immigrants resisted assimilation so tenaciously that on the eve of World War II expanses of southern Brazil were exclusively German speaking. German-Brazilians learned Portuguese in the army and, more recently, through public education and radio and television programs.

Approximately 230,000 Japanese immigrated in the 1920s and 1930s; Brazil has the largest Japanese community in the world outside of Japan itself. Like Italians, the Japanese were recruited as laborers for plantations in São Paulo, Minas Gerais, Paraná, Goiás, and Amazonas. Most rejected work on plantations, however; instead they bought abandoned coffee lands and prospered as truck farmers for growing urban centers. By the 1970s more than half of all Japanese-Brazilians were city dwellers, virtually all spoke Portuguese, and a substantial minority of marriages were interethnic. The first generation of rural-urban migrants special-

ized in retail trade, but younger Japanese-Brazilians chose careers in the professions.

Social Relations

Family and Kin

Brazil's "cult of the family" stands out even among the family-oriented nations of Latin America. Historically, the family has been perhaps the single most important institution in the formation of Brazilian society. The ideal is defined in terms of the traditional kin relations of upper class families; it hardly serves to describe urban middle-class families and, still less, those of the lower class. Nonetheless, it remains a cultural ideal reflected in the ways Brazilians conceptualize and evaluate a whole range of personal and social relations.

The traditional upper class family was characteristically patriarchal—"taciturn father, submissive mother, and cowed children," is one historian's commentary. The Luso-Brazilians took from Portugal the practice of secluding women, and travelers to Brazil until the late nineteenth century commented on the "Arabic" sequestering of upper class women. The customary treatment of women in the colonial era was apparently too extreme even for those whose view of that sex was conditioned by the Pauline epistles. The bishop of Bahia complained that some parents were reluctant to let their daughters leave home even to attend Mass. The ideal, according to a common proverb, was for a woman to leave home for her baptism, marriage, and funeral. Indeed, a woman's position was an unenviable one; again, numerous travelers commented on it, and many attributed it to the customary presence of slaves. "Surrounded by slaves, the Brazilian is accustomed to see only slaves among the beings over whom he has superiority. The woman is, frequently, the first slave of the household, the dog the last."

The most significant kin group was (and still is for many upper class families) the *parentela*, a diffuse group comprising the relatives an individual recognizes from both families. Kinship terms, such as cousin, aunt, and uncle, are applied to a whole range of kin, and the extent of an individual's *parentela* is limited only by genealogical memory and willingness to recognize distant relatives. *Parentelas* may include hundreds of individuals; typically the kin group focuses less on strict rules of descent than its relationship to an illustrious ancestor. Large *parentelas* continue to be a force in social life. There is a constant round of family-centered events, including baptisms, weddings, and funerals. The upper class Brazilian often maintains social contact with kin numbering in the hundreds (see Conservative Groups, ch. 4).

The *parentelas* often held resources together, and even today there is a strong family presence in many corporations. Rural politics until the 1960s was simply unintelligible without taking

into account the web of interlocking *parentelas* at every level of political organization. The *parentela* almost overshadowed the nuclear family in the raising of children. Most of a child's early years might be spent in the company of divers cousins, uncles, aunts, and grandparents. The *parentela* was, in a sense, a social universe. *Parentelas* were linked by marriage as well as blood; marriages between cousins were not uncommon and gave both families the advantage of a "known quantity" in their offspring's spouse. Young women normally experienced little social contact with any males but their relatives. Their kin were therefore ideal marriage partners in that they were considered to be trustworthy individuals. One author tells of an argument between her parents (then married some 20 years) in which her mother replied to her father's criticisms with the remark, "What right do you have to say things like that to me? You're not even my relative!"

The *parentela* serves as an interest group. Lesser members not only bask in the reflected glory of the prominent but also share, through sinecures and the like, in their wealth and influence. Family loyalty is the individual's highest duty; and failure to assist one's kin in their need diminishes one's stature in the same way that inability to protect one's clients or dependents diminishes a patron. Nepotism (*filhotismo*), far from being dereliction of duty, is the influential family member's first obligation.

Godparenthood (*compadrio*) both extended and reinforced the web of kinship. A godparent might be a child's relative—an uncle, an aunt, even an older sibling, or an outsider. The relationship could function to strengthen a preexisting one between relatives or to bring other *parentelas* into a pseudo-kinship relationship. Kinship served as an idiom for defining social relations in general. *Compadrio* obligations involved not only the child and his or her godparents but also the godparents and the parents themselves. Godparents, parents, and children owed each other assistance, trust, and mutual support. *Compadrio* could be used to deepen a patron-client relationship; lower class Brazilians could thereby emphasize their loyalty and respect for an influential patron. *Compadrio* was so pervasive an element of social relations, notes one anthropologist, that *compadrisimo* is "synonymous with political protection." Further, in many parts of the country a child receives godparents not only at baptism but also at confirmation and marriage.

Kinship functions very differently for the lower orders; the every existence of a *parentela* demands wealth and influence in some degree. Larger extended kin groups atrophied among lower class Brazilians in part because of the lack of resources and in part because of the sheer mobility of the populace (see Migration, this ch.). Distance weakens kin ties and responsibilities, even as deeply held an obligation as a son's duty to care for his parents in their old age. Within the constraints of migration and wealth, kin

do aid and assist one another. There is a tendency for rural neighborhoods of small farmers to be composed of a group of interrelated families. Even on plantations where the population is more mobile, the tendency is for kin to migrate to the same locale and live near one another. Something on the order of half of a plantation population might be expected to have kin on the same *fazenda* or living nearby.

The obligations that extended kin owe one another are not particularly well defined among the general population. Married siblings living near one another may, if they are so inclined, engage in a variety of mutual aid arrangements; the arrangements themselves, however, are frequently the same that non-kin make. Likewise, kin can also make agreements that reflect nothing but market forces, as when an uncle hires his nephew for a day's work or brothers agree to sell merchandise to one another at the going rate. Joint economic ventures are relatively rare; married siblings, their spouses, and children would be unlikely to farm together, for example. There are instances, particularly in the South, where separate households will specialize in the various aspects of a business. One brother might do all of the marketing for his sibling's farms, or siblings might agree to sell all their dairy products to their brother who owns a bakery in town.

Within the individual household, rights and duties are more clearly stipulated. A husband owes his wife and children protection and sustenance; they owe him deference and obedience. Children should care for their parents in their old age. Ideally, parents should see their children started in life; this assistance can take many forms, such as education, land, or money to begin a business. The norms frequently go by the board with the exigencies poorer Brazilians face. Partible inheritance is a legal requirement, but where family relations are not acrimonious, heirs accept their "grubstake" as their patrimony or sell their shares for a pittance to the sibling who cared for the parents in their declining years.

The nuclear family is the typical household unit. In most of the country the ideal is for a married couple to set up housekeeping as soon as possible. In the rural South, however, a three-generation household is not uncommon. It is an arrangement that demands considerable flexibility on the part of all concerned, but it affords the farm couple real advantages when children are young and the family's labor is limited.

There are three principal kinds of marriage: civil, religious, and common law (*amasiado*). Only civil marriage is recognized by the state and confers legal status on the marriage. It ensures the family social security benefits and the children a portion of the inheritance, establishes the legal responsibility of both parties in regard to each other and to their children, and determines certain property rights as agreed to by the spouses.

Divorce has been legal since 1977; before that time legal separation, a variety of quasi-legal contractual unions, and foreign divorce and remarriage were the principal means whereby middle- and upper class Brazilians regularized marital status. Legalized divorce will presumably have little impact on most of those living in common-law unions because they lack the financial resources to take advantage of this option.

Rural Society

Social relations in the countryside are based on the simple fact that relatively few have secure access to land; the roots of contemporary rural society lie in plantation agriculture geared to export crop production, which relied on slave labor. The recipients of crown land grants (*sesmarias*) were the powerful and the influential. Although care was supposedly taken that only those who could exploit the land grants productively received *sesmarias*, there was in fact no effective curb on the accumulation of land by a powerful few.

The pattern of land use was extensive: plantation owners (*fazendeiros*) increased their wealth by bringing more land under cultivation—not by using more intensively the land they already had. The history of agriculture is one of periodic frontier expansion. The push toward new agricultural lands came not only through soil exhaustion or demographic pressures but also through changing world demand: Brazil had its sugar, cotton, cacao, coffee, and rubber frontiers. More recently changes in tax incentives, as well as expanding domestic markets, have fueled a new burst of western and northern migration and settlement (see Cultural Regions, this ch.).

Small landholders typically spearheaded the march toward the frontier. Pushed off more desirable land by plantation owners, they chose more remote regions by default. As settlement increased and hitherto remote regions caught the interest of the powerful, earlier settlers were shunted farther toward the frontier or incorporated into the plantation work force. The powerful resorted to a variety of stratagems to expel squatters. Typically, a potential *fazendeiro* laying claim to a stretch of land would hire a gang of thugs (*capangas*) to pursue a claim. Armed retainers were virtually essential to the potential landowner; other aspirants would have their own *capangas* and squatters were often armed and, even if expelled, might be inclined to seek revenge before moving onward. Violence was endemic on the frontier. The murder rate in one municipality on the coffee frontier in the early days of settlement, to take but one example, was more than five times that of more settled rural areas.

Clouded land titles contributed much to the uncertainty of land tenure. Even in Rio Grande do Sul, a region spared much of the frenzied land speculation of the coffee, sugar, and cacao regions

and where small landholders were relatively immune from pressures from *fazendeiros*, there was chronic confusion over landholding. In the early 1900s a land commission for the state found that roughly 10 percent of all titles were clouded. In more favored areas the level of land speculation and the sheer velocity of land transactions exacerbated the chaos surrounding landholding. Concessions were granted and canceled; forging land titles was a minor industry. Speculators frequently knew that their land was occupied but simply counted on reselling it and letting the unfortunate third party deal with the previous occupants.

As titles became more regularized, a local oligarchy of landed and influential families emerged. In rural areas the contemporary social spectrum of old settlements is diverse. At the upper end are large landholders, rural industrialists (such as sugar mill owners), commercial elites, and upper ranking local governmental officials. Small- to mid-sized proprietors, marketing middlemen, and shopkeepers represent a middle echelon, slightly more prosperous and secure than sharecroppers, tenants, artisans, and craftsmen. At the bottom are a growing number of day laborers.

Large Landholders

In Brazil fewer than 2,000 agricultural establishments (of more than 5 million total) control nearly 15 percent of the land. Less than 1 percent of all holdings (with more than 1,000 hectares) are on over 40 percent of the land, while more than half (with less than 10 hectares) are on less than 3 percent of all land.

Landholdings are concentrated in every region, but especially in the North and the Center-West where establishments of more than 10,000 hectares comprise roughly one-third of all holdings. Both regions, ironically, are the latest Brazilian frontier—areas seen as a “safety valve” for absorbing land-hungry peasants from the Northeast.

The figures, if anything, slightly understate the extent of land concentration. Large landholders can partially insulate themselves against the pressures of land fragmentation through inheritance. Extended families operate their holdings as a single unit while registering them as several farms for inheritance or tax purposes. By the 1970s, in any event, the extent to which large holdings were held by corporations and financial institutions rather than individual families blunted the impetus for dividing large holdings.

The *fazendeiro* was traditionally the pivot of social relations in the countryside. On the estate a *fazendeiro's* authority was virtually absolute. Abolition of slavery altered hegemony not a whit; the authority of the *fazendeiro* was largely unchallenged until the 1950s and 1960s. Individual *fazendeiros* might have failed to uphold the cultural norms and to wield their authority well or astutely, but the plantation authority structure persisted. The locality was dominated by a few landed families. Political life was characterized by *coronelismo*, the Brazilian form of bossism wherein



*Pôrto Alegre, Rio Grande do Sul
Courtesy P.A. Kluck*



*Rural grocery store, Curitiba, Paraná
Courtesy WORLD BANK PHOTO/Tomas Sennett*

a *fazendeiro* exchanged the votes of loyal retainers for political plums (see Politics under the First Republic, ch. 1). Relations among the landed families were frequently antagonistic; the internecine fighting of local landed clans was a mainstay of literature from every region of the country. Even in the smallest of districts feuding was a chronic feature of social life; land, albeit concentrated, was never so much so that it precluded the formation of factions. As settlements aged, landholding became more regularized, and the violent disputes of years earlier gave rise to political jockeying. Local-level political activity normally reflected the personal and family loyalties of the participants more than ideological differences; splits within the local elite were often the results of feuds begun generations past rather than contemporary socioeconomic differences.

Paternalism was the ideal principle dictating dealings between the *fazendeiro* and his dependents; they included not just family but all the plantation's sharecroppers and tenants. They owed the *fazendeiro* respect and unswerving loyalty; there continues to be an elaborate etiquette whereby the lower orders address their superiors in rural Brazil, and deference is particularly due the *fazendeiro*. In return the landowner is to act as patron and protector to those who depend on his or her beneficence. It is hard to overestimate the extent to which the forms of deference remain ingrained in peasant behavior. Even so radical a force as the peasant leagues were not immune. One of the earliest leagues began by asking a *fazendeiro* to be its honorary president.

When practice approached the ideal, paternalism could do much to blunt the inequity of economic relations and alleviate the uncertainty that was the peasant's lot. "At its highest level," notes one author, "it is a form of unwritten social security that works well." The ideal patron not only guarantees sharecroppers and tenants access to land but also provides loans before harvest (when they are most hard pressed) and credit in the *fazenda* store. The *fazendeiro* should care for the health and well-being of the plantation workers. Influence in local politics should ensure that one's loyal retainers have hospital care if they are in need of it. Traditionally, the effective patron was able to preserve the *fazenda* from any and all outside interference so that not even the police could harrass workers under the protection of the *fazendeiro*. If the labor demands made of sharecroppers and tenants were onerous, a patron could selectively dispense with the worst conditions for favored workers. In its essence, paternalism made it clear that the worker's well-being was not a right but a matter of noblesse oblige.

Still there was a certain pressure on landholders to follow the canons of good paternalistic behavior. It was the horde of loyal retainers and dependents that validated the landholder's status as much as the land itself did. Indeed, it was unfeasible to occupy land without numbers of sharecroppers scattered about to secure

the perimeter of the estate. It was the ability to dispense favors that ensured the landholder the forms of deference within the community.

In regions without a history of export crop production or with a limited labor force, the harsher aspects of landlord-tenant relations were blunted still further. Where one could lose a labor force, i. e., where peasants could seek a better situation, *fazendeiros* were normally careful to avoid acquiring a reputation for bad faith or niggardliness. Where there was no ready financial advantage in converting forestland to cultivation (and before landholders feared enforcement of legislation guaranteeing squatters' rights), a *fazendeiro* might demand little or nothing of those living on land he or she owned. Anthropologist Shirley describes a conversation with a *fazendeiro* in a remote area of São Paulo in the late 1960s. The *fazendeiro* said he had some 30 families who did not pay rent living on forestland. Shirley asked if he had tried to force them off. "Oh, no," was the *fazendeiro's* reply, "I've always had as much land as I needed, and besides some of them are armed."

Changes in the 1960s and 1970s often undermined the ties between patron and dependent. New landlords often failed to conform to the paternalistic model and eschewed personalistic ties with their tenants. Those purchasing land were frequently successful businessmen, financiers, or simply corporations and financial institutions. At the same time, legislation governing the treatment of rural workers and the rights of squatters encouraged landholders to limit their work forces and expel any squatters who might have even a tenuous claim to land. Tax incentives as well favored less labor-intensive agricultural products (see Agriculture, ch. 3).

As a group, large landowners have always been highly diverse, and in the early 1980s there were no indications of impending change. They vary by region, in their relationship to the market, and frequently in their ethnic background. There are substantial differences in the scale of resources landowners from various regions enjoy; even a wealthy *fazendeiro* from an obscure municipality would probably be unable to afford a fraction of a prime agricultural enterprise. The group includes old aristocratic families, descendants of immigrants whose timely arrival and entrepreneurial skills gave them a chance to make money in one of the periodic "boom" economic cycles, and well-placed government administrators.

Although landholding is concentrated, the pattern of frontier expansion permits some mobility. Some squatters manage to register their holdings and become part of the local landed elite; it requires a measure of good fortune to acquire adequate cash and to have an extended family near at hand to assist in defending holdings from outside incursions. Even the relatively penurious might hope to open a store in the front of the farmhouse and extend credit to form patron relationships with neighboring households. Shopkeeping gives the ambitious peasant a potential

power base. "Semi-peasants" can, through commercial success, consolidate their landholdings, send their children to secondary school or college, and attain a measure of local power and influence.

Small and Mid-Sized Landholders

The peasant proprietor has never had an easy row to hoe in Brazil, and the 1970s had a less than positive impact on the situation. The ratio of small farm owners to agricultural employees dropped from four to one in 1950 to three to two in 1975. Earnings among the bottom 50 percent of all farms declined from nearly 25 percent of agricultural income to less than 15 percent between 1970 and 1980. Small holdings are concentrated in Ceará, throughout the *agreste* zone in the Northeast (a transitional region between the humid coastal zone and the inland *sertão*), in eastern São Paulo, Minas Gerais, the state of Rio de Janeiro, and in the hilly parts of Santa Catarina and Rio Grande do Sul. Those who own properties of less than 10 hectares constitute over one-third of all landowners. They represent more than three-quarters of the notably less secure group that occupies land with no clear title. Squatters and landowners with less than 10 hectares account for roughly 2 percent of all farmland. When authors comment on Brazil's land-hungry peasants they mean just that: one anthropologist describes a Nordeste peasant who built roughly a quarter-hectare plot in a mangrove swamp by packing mud dikes against the tidal waters. He watered the plot by carrying gourds of fresh water from the nearest well some five kilometers away.

Smallholders have always existed in the shadow of plantations; they were nonetheless essential to the domestic economy and the continued export of agricultural commodities. Peasants were the primary suppliers of foodstuffs for the colony. Subsistence crops could never generate the income that export crops could, so there was little enticement for *fazendeiros* to plant them. Rising world prices for the export crop of the hour drove up food prices in the cities and frequently spread hunger in the countryside. There were repeated royal edicts requiring plantation owners to plant subsistence crops for their slaves, all to little avail. "Sugar devours everything" was the commonplace description of that crop's spread. The rise of coffee cultivation had a similar impact. In one municipality in the Paraíba Valley, for example, food prices more than quadrupled in less than a decade following the first coffee exports. The region, long an exporter of foodstuffs, became an importer.

Family farms dotted the less favored agricultural regions. Most sold a small surplus at local markets, though a few ventured far enough afield to compete with middlemen in the larger cities. In the early nineteenth century peasants were prohibited from selling at the better sites in Bahia. Peasants in a given rural neighborhood often maintained a loose sort of allegiance to a nearby *fazendeiro* who offered them patronage and protection in their

dealings with powerful outsiders. Descriptions of rural smallholders by nineteenth-century travelers sound curiously similar to field studies of the 1950s and 1960s.

Contemporary smallholders grow a variety of crops and often raise livestock; they maintain a link to the market, selling their surplus while ensuring the family's subsistence. Theirs is an existence that the urban Brazilian judges to be hopelessly inferior. The inhabitants of even the most undistinguished of towns in the interior would concur. There are a variety of Portuguese terms denoting the peasantry; virtually all can be and frequently are used derogatorily. A Portuguese dictionary defines one of the terms, *caipira*, as a "man or woman who does not live in a settlement, who has no education or social graces, and who does not know how to dress or present himself in public." Indeed, urban florescence, associated as it was with the expansion of plantation agriculture, almost always meant the demise of the smallholders. The end of isolation and available land undermined the system of family labor, mutual aid among neighbors, and leisure that was essential to peasant culture.

The rural neighborhood (*bairro*) is the basic nonfamily social unit. The *bairro*, "a series of linked homesteads . . . bound by feelings of locality, by convenience, by practices of mutual aid, and by folk religious practices," commonly comprises a single small valley and shares a chapel and shop. In the South, neighborhoods called *linhas* (literally, lines) stretch along the principal means of transportation. Neighborhoods are frequently linked by kinship and marriage. In contrast with the nearly nomadic plantation labor force, *bairros* often have a stable core of families over several generations. Neighboring households exchange mutual aid on a day-by-day basis; a group of families exchanges meat among themselves when slaughtering a large animal and, traditionally, gathers for a communal house raising.

Peasant landowners and their fortunes vary from region to region. In the *agreste* small farmers are hemmed in between the sugar plantations of the humid coast and the cattle ranches of the *sertão*. They are a middle segment wedged between the fortunate few large landholders and the mass of landless laborers. There is considerable variation within the class of peasant landholders; not only does the size of individual holdings vary but also sheer diversity in the *agreste* contributes to wide differences in income and productivity. The ideal is to possess a trade or skill, such as carpentry or mechanics, to supplement agricultural earnings. Even plots that provide little more than the family's subsistence are a safety net for those who face the uncertain market for wage labor. Families try to raise a few head of livestock, ideally one or more head of cattle and hogs, though the more marginal the holding the fewer the livestock. Peasants also take advantage of opportunities for day labor on nearby *fazendas*, and undertake an annual

migration to the sugar zone to work on plantations there.

Agreste peasants (along with tenant farmers and sharecroppers in the Northeast) were enthusiastic adherents of the peasant leagues. The leagues began modestly enough as mutual aid societies and expanded as smallholders were increasingly threatened by the expansion of plantations and changing labor practices. By the early 1960s the leagues were calling for a radical redistribution of land, and the *agreste* became a region of intense agrarian unrest. The leagues were early targets of the military regime that seized power in 1964.

In the Southeast small peasant farms outside the coffee areas persisted into the late 1960s. Like most smallholders, they were mixed agriculturists selling a slight surplus over the family's sustenance. Poor transportation limited their involvement in marketing. Even in the mid-1960s travel in rainy weather was, as one commentator put it, "not courage, but madness." Where expanding *fazendas* threatened the peasants of the Northeast, here it was the rise of mid-sized commercial enterprises taking advantage of the growing urban markets in the region. Peasants have been reluctant to register their lands, thereby losing whatever protection the courts might have afforded. The increase in commercial agriculture with capital requirements beyond the average small farmers's means has jeopardized both their tenancy and their livelihood. Rising land values and population growth have further limited the possibilities of maintaining landholdings. In the Northeast comparable developments have led to a rise in seasonal wage labor, but in the Southeast the trend has been toward more permanent migration to regional industrial centers.

In the hilly South peasants did not face competition from large holdings but from progressive land fragmentation through inheritance. As colonists, the European immigrants to the region received marginal land; transportation was neglected to a degree even greater than the rule for rural areas. Where settlers overcame these handicaps to any extent, the results provide a dramatic contrast to the typical portrait of rural society. Small landholders in the South form a relatively prosperous rural middle class. The family farming regime spawned a host of small-scale factories and businesses. Farmers' children were educated; rural neighborhoods supported an elementary school, and the more promising students boarded in nearby towns for advanced education. Families enjoyed significant occupational mobility over the generations; farmers' sons and daughters became teachers, priests, nuns, and established members of the urban professional and propertied classes. Where off-farm employment or land was available elsewhere, fragmentation of holdings through inheritance was limited as families gave their surplus heirs a "grubstake" in a nonagricultural occupation or land in less settled areas. The Southern peasant's technological repertoire is more elaborate than that of the *Nordestino*

peasant. Small farmers in the South use plows and a variety of related implements pulled by draft animals. By the mid-1970s mechanized implements and a variety of improved inputs were in use. The farmers' own assessment of their agricultural achievements is modest but is one that many rural dwellers might envy: "Who works here," they say, "need not go hungry."

Mid-sized landholders are scarcely less distinguishable from small farmers. Colonial-era sugar mills often demanded more cane than the owner's fields could produce in order to be economically efficient. Mill owners would accept cane on contract from mid-sized landholders. Often a mill owner would lease part of his lands to another who was then obliged to provide a crew of slaves for planting and harvesting. Sometimes the mill owner and his growers were part of an extended family, but it was apparently not uncommon for nonrelatives to be business partners, and their terms were anything but advantageous to the grower. Indeed, he faced some of the same constraints modern sharecroppers do. Owners had a tendency to evict growers after planting and cultivating but before harvest and the dividing of the spoils.

Mid-sized landholders fare much better in contemporary Brazil. What distinguishes them from small farmers is less an absolute amount of land than their wherewithal for exploiting new markets and taking advantage of changing government policies; mid-sized, literate, commercial farmers were the chief beneficiaries of the growing role of the courts in resolving land disputes. It was also mid-sized landholders who stepped into the void to exploit the growing demand for foodstuffs in the massive urban expansion along the Rio de Janeiro-São Paulo axis.

Brazilians have not been unaware of the pernicious effects of concentrating so much land (and power) in so few hands. Attempts to establish a rural middle class of yeoman farmers—a counterbalance to the influence of plantation owners—date from the early 1800s. Most efforts foundered on that very influence, however. Public and private efforts to set up colonies of family farms ran afoul of plantation owners on two accounts. First, large landowners were not anxious to relinquish land for the purpose. Second, they were unwilling to have their dependent labor force lured away to greener pastures. Not surprisingly, the sporadic efforts at colonization gave marginal land to European immigrants, ignoring the mass of rural Luso-Brazilians.

The settlement of northern Paraná from the 1920s to 1950s that was organized by a private colonization firm is the "man bites dog" story of colonization schemes. The firm guaranteed settlers clear title to medium-sized plots, built roads, and extended railroad service from Loudrina to Maringa. The company planned urban centers, laid out city lots, and installed water and electrical systems. The land disputes and violence typical of much frontier expansion were at a minimum. Similarly, the colony founded by

the National Institute for Colonization and Agrarian Reform (Instituto Nacional da Colonização Reforma Agrária—INCRA) in Rondônia, was dramatically successful. INCRA settled some 7,000 families on 100-hectare plots, opened many feeder roads to connect with the main highway, and provided helicopters to enable extension agents to reach farmers. The town of Ouro Preto had schools, a health clinic, grain storage facilities, and an airstrip. The settlement was largely peaceful.

Most colonization projects have not been so fortunate. Former President Emílio Garrastázú Médici's characterization of the Amazon as a "land without men for men without land," proved too slim a basis for successful large-scale settlement. Part of the problem in the 1970s and early 1980s was that INCRA lacked the institutional infrastructure to deal with the number of settlers projected. INCRA found itself in conflict with previous settlers who had either bought land from private companies or simply taken possession by squatters' rights. Colonists were at odds with squatters, squatters and settlers with Indians, and private colonization firms with INCRA. The possibilities for conflict were legion.

The enormous confusion over land titles and registration added to the problem. There were multiple sets of papers to the same property, a notable lack of accurate land surveys, and numerous local and state officials willing accept fraudulent titles. Further, the growing interest of *fazendeiros* and prosperous (and absentee) businessmen and companies in frontier Amazon land was another factor. The entrance of moneyed interests having the wherewithal to fight protracted legal battles over land or, if necessary, evict settlers forcibly made the 1960s-1970s expansion into the Amazon and the Center-West seem like previous pushes to the frontier. The squatters cleared the forest and planted crops only to be bought out or forced out—disposed of in any event. The pattern is all too familiar; one large landowner investigating an area he deemed too primitive to be of current interest commented: "Let the beasts enter first. Let them suffer malaria and hepatitis and do the brutal work of clearing the forest. Then we will come in with money when it is ready."

In 1981 the government reduced the length of peaceful occupancy necessary to establish squatters' rights to land from 10 to five years. The trick was to maintain any kind of possession—let alone peaceful. The final fillip was that the frontier was closing. This round of land conflicts involved many peasants who fled the northeastern drought in the early 1970s for Maranhão only to be evicted by cattle ranchers later in the decade, or sharecroppers displaced in São Paulo who settled in Mato Grosso only to be displaced there as well. They were fast losing their forbearance and were increasingly reluctant to leave lands they had cleared for uncertain tenancy in more remote areas. Rural unions, the Roman Catholic Church, and a variety of grass-roots organizations were

increasingly active in pressing for settlers' rights. There seemed to be a sense, as one settler (from São Paulo via Mato Grosso) put it, that "to die of an arrow or of a shot or of malaria or of hunger is all the same to me."

Sharecroppers and Tenant Farmers

From the abolition of slavery until the mid-twentieth century, sharecroppers and tenant farmers formed the bulk of Brazil's plantation labor force. They worked under a multiplicity of contracts and arrangement. Part of this diversity reflected the variety of crops grown on *fazendas*. In return for caring for a specified number of coffee trees, coffee plantations offered workers a minimal wage along with a house and land for subsistence crops and pasturage. In addition, workers received a piece rate for harvesting the coffee beans. Planting the groves was done under a separate contract wherein the family planted virgin land in trees and cared for them until maturity. In return the family received little cash remuneration but planted corn and beans between the trees and got the proceeds of the first coffee harvests.

The rise of large-scale sugar mills on the northeastern coast in the early twentieth century eclipsed sharecropping in the region. In the *agreste*, however, assorted arrangements grew up in response to the variety of crops and climactic conditions common to the region. Mid-sized landowners let plots to sharecroppers who grew tobacco followed by corn and beans in a single agricultural cycle. Cotton was typically sharecropped, and cotton sharecroppers also split their subsistence crops with the landlord. The traditional labor arrangement for cattle raising in the *sertão* was drawn along the principle of shared returns; the *vaqueiro* received one-fourth to one-fifth of a herd's calves along with the option of planting foodstuffs. In non-coffee parts of the South, *fazendeiros* typically gave land in return for a portion of the harvest of subsistence crops; alternately, they might leave a settlement of squatters unmolested on *fazenda* land in return for a number of days' labor from the squatters.

Sharecropping varied regionally, but there was also tremendous diversity in the terms a single plantation owner might offer his work force. Some hands were simply resident laborers receiving a house and a small garden plot in return for specified days of labor; still others received only a house. In some cases a tenancy agreement might be contracted for a single year in which an individual cleared the land and planted crops, then switched to a sharecropping arrangement. Sharecroppers might split their harvest with the landlord or, if they had a skill, give as little as 20 percent of their crops. *Fazendeiros* varied too in the amount of seed they would provide and the extent to which they reimbursed sharecroppers for improvements made on the land and house. A variety of marketing arrangements where landlords bought tenant

crops at a discounted price plus the cost of credit a *fazendeiro* had extended also entered into the balance. Workers were required to put in a certain amount of labor on the landlord's crops, but here again, the actual days and whether or not the sharecropper could hire a substitute varied. For some skilled workers the *fazendeiro* might dispense with the general labor requirement in favor of a simple sharecropping contract with a number of specific tasks to be done.

The plethora of contracts made the *fazenda* work force a highly stratified one. The *fazendeiro* was at the top, but the steps in the social order were minutely graded. Sharecroppers themselves contributed to this complexity. Some were landholders in their own right or had a claim to a plot of land too small to provide a living. Some were skilled craftsmen; others might own shops. As a group they were highly mobile; in one plantation in Ceará in the late 1960s the entire resident labor force had been born elsewhere. In an average year (when there was no drought) over one-third of the resident labor force left and was replaced. Most moves, however, were between *fazendas* in the same municipality.

The 1960s and 1970s did much to undermine the sharecropper's position in traditional rural society. In the coastal Northeast and portions of the *agreste*, mill owners took whatever land was marginally appropriate and put it into sugarcane in response to government price incentives (see Agriculture, ch. 3). Sharecroppers and tenants were displaced in the process. In the South rising soybean prices encouraged owners to take land out of coffee, eliminating yet more tenants. Between 1960 and 1975 the amount of agricultural land held by sharecroppers and renters dropped nearly 40 percent; average holdings declined by more than half from roughly 30 hectares per sharecropper or renter to a scant 13. Even when sharecroppers were not expelled from plantations, the land at their disposal was limited. Further, small farmers who depended on rented land to supplement their inadequate holdings were caught up in the same process. They were forced to seek wage labor as a substitute for the income that rented plots had formerly generated.

Landless Laborers

There were an estimated 5 million landless agricultural laborers in the early 1980s; of these roughly 1.5 million had permanent employment. The rest, commonly known as "cold lunches" (*bóias-frias*) or clandestines (*clandestinos*), from their propensity to work without contract, were casual day laborers. According to INCRA a number of seasonal agricultural workers had no documents (which significantly limited their options for permanent work or receiving social services). The proportions of women and minors were 87 percent and 95 percent, respectively.

Numerous factors account for the dramatic increase in temporary labor, among them changing cropping patterns and the growing mechanization of agriculture. The Rural Labor Statute (1963) regulated contracts and salaries for agricultural laborers. The legislation aimed at guaranteeing farm workers and sharecroppers benefits comparable to urban workers. Its effect, however, was to encourage plantation owners to limit their permanent work force and rely instead on casual labor.

From the perspective of the *bóias-frias* this created a situation where membership in a rural syndicate, although it guaranteed the benefits of a formal contract, also limited employment opportunities. Further, although *bóias-frias* lacked legal guarantees and social benefits, their wages—on a daily basis—were equal to or slightly exceeded those of permanent workers. In fact, while real rural wages in general rose by roughly 50 percent between 1968 and 1977, those for casual laborers in São Paulo, where the phenomenon is most common, nearly doubled.

Bóias-frias, of course, have no guarantee of employment. Casual laborers are quite heterogeneous. They include those who work almost all year as a part of a relatively fixed work group; those, often women and minors, who work only periodically at peak seasons; and those who shift between agricultural and urban employment. Small farmers represent another pool of potential *bóias-frias*; surveys in Minas Gerais and São Paulo found casual work accounted for some 40 percent of the family income of small farmers. Some authors suggest that the *bóia-fria* phenomenon should be seen as part of a family's survival strategy. A male *bóia-fria* might work fairly regularly, and the earnings of the women and children would supplement the family income. Urban residence and employment opportunities provide a tenuous access to social services unavailable in the countryside. It is clear as well that the wage laborer's lot varies dramatically from one region to another. The options the *paulista* has can hardly be compared to those of the Amazonian laborer who spends his off-season in cheap hotels living on credit, waiting for another employer to pay his bills and send him off into the bush again.

The rise of wage labor, particularly casual temporary labor, betokens a major shift in rural social relations. Some authors suggest that there may be ties of patronage and loyalty between regular members of a work group and their labor contractor. Others insist, to the contrary, that contractor and *bóia-fria* alike are at pains to limit their personal involvement. Certainly, the statements of the *bóias-frias* themselves indicate a turn away from traditional social relations between patron and client. "I am a *clandestino* so as not to be a captive [of anyone]," comments one—an attitude poles away from a dependent relationship with a patron. Local landholders are unable or unwilling to furnish the

expected perquisites to their dependents, and the rural masses are increasingly ready to seek alternatives to the "good patron."

Forces of Change

Migration

Brazil's population is an increasingly mobile, migratory one: by the late 1970s nearly 40 percent of all Brazilians were resident in municipalities other than their birthplace. Nearly half the total urban population were migrants. Even focusing on those who had migrated within the last 10 years revealed a substantial measure of mobility. Roughly one in five Brazilians moved at least once in the 1970s, and among city dwellers the proportion was one in four.

Mass migration was a twentieth-century phenomenon. For most of the country's history the population was concentrated in a narrow band of roughly 300 kilometers stretching along the coast from São Paulo northward. The dramatic population shifts of the past century should be seen in the context of 300 years of coastal living. In the 1770s nearly 90 percent of the populace lived along the coastal belt between São Paulo and Recife; in the 1970s roughly 70 percent did so. Both the mountainous coastal escarpment and the lack of rivers flowing inland along the coast contributed to the interior's lack of settlement. So too, however, did colonial policies; it was easier to police the coastal cities and far easier to collect the royal fifth (tax) from such cities than from thousands of settlements scattered throughout the hinterland. Late in the colonial era and during the empire there was a slight shift inland. The gold rush in Minas Gerais was the impetus for the first large-scale push toward the interior; there was as well a steady increase in the South's population through the government's efforts at colonization (see Cultural Regions, this ch.).

Beginning in the 1870s there was a shift in the population as prolonged drought in the *sertão* drove Nordestinos to migrate and as expanding coffee production in the South drew immigrants. Throughout the 1870s a small number of slaves trickled southward from the declining sugar plantations of the Northeast to São Paulo's coffee *fazendas*. An increasingly influential abolitionist movement in the South limited their numbers. All told perhaps 15,000 to 20,000 slaves were imported—a fraction of the 1.5 million increase in population São Paulo enjoyed between 1872 and 1900.

International migration accounted for most of the population increase in the Southeast and South; during the last 30 years of the nineteenth century, international migration was roughly double internal migration. A variety of factors combined to eliminate Nordestinos as a possible replacement for slaves on coffee *fazendas* in the years following abolition. *Paulista* planters had a clear hierarchy in their preference for laborers, and free Luso-Brazilians ranked at the bottom of the list, below slaves and European

immigrants. Nordestino *fazendeiros* of course were opposed to a plan to limit their labor supply; Nordestinos themselves do not appear to have been anxious to accept the poor contract terms offered by the *paulista* coffee planters, terms invariably inferior to those offered European immigrants. In addition, the coastal or inland transportation systems were rudimentary in comparison with the transatlantic passenger lines, making the cost of the two alternatives roughly comparable.

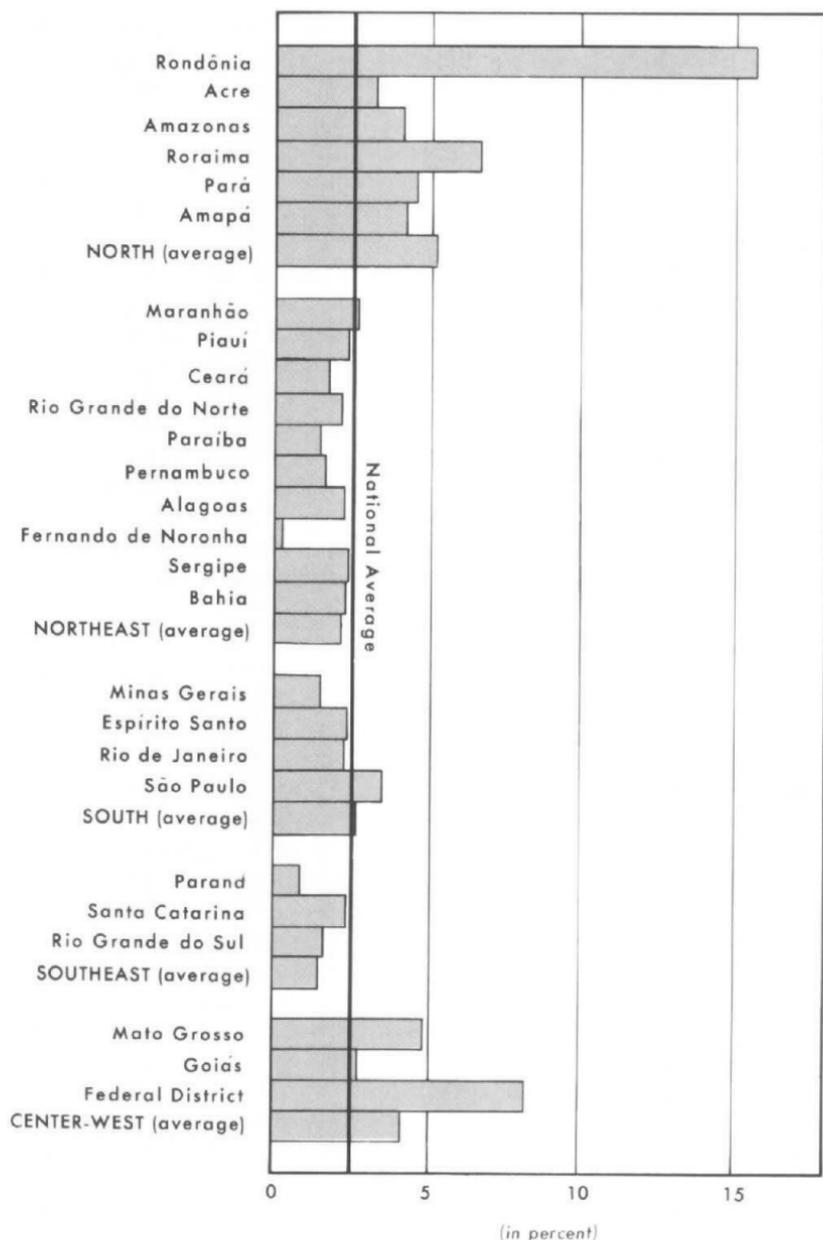
Most Nordestinos migrated to the Amazon Basin or to the growing urban centers of the Northeast itself. That they were effectively precluded from joining the labor force of the most prosperous region exacerbated the country's already growing regional disparities. A mobile labor force was lacking at just the point in time when it might have served as an "equilibrating mechanism" to blunt differences in income and wages between the South and the Northeast. As it was, the terms of labor most Nordestinos encountered in the Amazon, where the rubber boom was just getting under way, were scant improvements over those they had left in the overpopulated Northeast as the drought abated and the rubber boom went "bust."

International migration peaked early in the twentieth century; since the 1920s the single defining characteristic of population movements has been the role of internal migration. In the 1920s and 1930s second-generation European immigrants moved off the coffee plantations of São Paulo into the region's cities and farther toward the frontier, in this case Paraná. These former agricultural laborers established themselves as the backbone of the petite bourgeoisie. City-bound migrants became the merchants and entrepreneurs; those who went to Paraná bought property and continued farming. Continued migration from the Northeast gave the coffee planters a steady stream of replacement laborers.

Since the 1940s there has been a new upsurge in internal migration as well as a tremendous natural increase in the population. Like earlier population shifts, there has been continued frontier settlement, and the frontier itself has moved westward and northward. Above all, the 1960s and 1970s were decades of rural-urban migration. City-bound migrants were so predominant that in rural Brazil only the frontier regions registered significant gains.

There were two distinct shifts in westward migration. The 1950s was the peak period of Paraná's settlement; in that decade migrants equaled one-half of Paraná's 1950 population. Goiás, Mato Grosso, and (more recently) the Amazon were migrants' destinations in the 1960s and 1970s (see fig. 6). The two migration streams could hardly be more disparate. Rising demand for coffee and foodstuffs precipitated the settlement of western São Paulo and Paraná. Public policy, in the form of moving the capital to Brasília (in 1960) and subsidized highway construction, was the driving force

Brazil: A Country Study



Source: Based on information from Brazil, Secretaria de Planejamento da Presidência da República, Fundação Instituto Brasileiro de Geografia e Estatística, *Anuário Estatístico do Brasil 1980*, 41, Rio de Janeiro, 1980, 109.

Figure 6. Average Annual Growth Rates by Region, 1970-80

behind the push to the West in the 1960s and 1970s. Nearly three-quarters of the migrants to Paraná were from the South, and they brought a significant fund of farm-management and entrepreneurial skills. Half the migrants to the latest frontier have been from low-income regions, especially the Northeast; they were driven to migrate by droughts in the late 1950s and the early 1970s. Notes one author, "Migrants were *pulled* into Paraná by the promising economic opportunities and largely *pushed* into Goiás due to rural overpopulation, unemployment, and droughts in the Northeast."

These trends continued throughout the 1970s. Acre, Rondônia, Amapá, and Roraima received substantial numbers of migrants—mostly from Paraná and the Northeast. Roughly three-quarters of the nonnative population in those regions had arrived between 1975 and 1980. Pará received migrants from Goiás and Minas Gerais and from Maranhão and other parts of the Northeast. The cities of Rio and São Paulo continued to be frequently chosen destinations—approximately one-quarter of their population had been born elsewhere. Roughly 200,000 migrated to Rio annually during the decade, more than 600,000 to São Paulo (not counting re-migrants). In 1979 alone the state of São Paulo received more than 1 million migrants.

National censuses underrepresent the population's mobility in a variety of ways: they neither reveal the frequency with which Brazilians change residences within the same municipality nor measure repeated migration by individuals or families. Short-distance moves are particularly important in the countryside where they generally betoken a change of employers. Looking at one northeastern plantation's labor force, sociologist Bernard J. Siegel found that half of the sharecroppers had moved between *fazendas* in the same municipality and that one-third had moved between adjacent *fazendas*. There is considerable turnover in the plantation labor force. Case studies show resident workers and casual laborers alike to be constantly evaluating other employment options and numerous migration alternatives.

Once a Brazilian undertakes long-distance migration, he or she is likely to be involved in a process where move follows close upon move. The probability that an individual who has migrated will do so again within a year is 58 percent; it drops to 9 percent for the migrant who has stayed at one destination at least a year. Questioning migrants to Brasília (admittedly a highly mobile group), researchers found that two-thirds had made at least one move before coming to the capital; 20 percent had made three or more moves. Nationwide roughly one-third of all migrants move again within five years of their first move; within nine years nearly half do so.

Numerous studies from the 1960s to the early 1980s sought to compare the socioeconomic characteristics of migrants with the population at large, both in the migrants' regions of origin and in their destinations. The reports of these studies reveal a consensus that the "poorest of poor" were meagerly represented among rural-urban migrants. Those who left for the city generally out-

ranked those remaining behind in educational attainment, income, and social mobility. Some studies suggested that surveys have overstated the migrants' educational background. It may be that the more educated migrants did better and therefore remained to be surveyed, while their less educated counterparts returned home or migrated elsewhere. Rural-urban migrants on the average had less schooling than natives of the cities they migrated to. Although education may have helped the migrant in adjusting to the urban milieu in a general fashion, it bore little specific relationship to the jobs migrants actually obtained.

The principal difference between migrants and nonmigrants, of course, was in occupation. Those who remained behind were overwhelmingly agricultural laborers and small farmers. Migrants, regardless of how lowly their urban occupations or how minimal their earnings, were financially better off than they would have been had they remained in the countryside. Even allowing for differences in the cost of living and the rural dweller's ability to produce part of the family foodstuffs, studies estimated that the migrant increased real earnings by roughly half in the city. A rural Nordesteño tripled earning potential by moving to Rio; a *paulista* manual laborer outearned the Nordesteño agricultural worker by five times. Further, however tenuous the migrant's access to the much vaunted urban services, it was better than what the average farm laborer or small landholder enjoyed.

Migrants were more likely than natives to be employed—a relationship that held true across the board for older or recent, male or female immigrants alike. Older males were more likely to migrate when they perceived no options at all left in their region of origin; younger males were frequently persuaded that the city offered better opportunities. Young women generally moved in order to work, whereas older women normally migrated to follow their husbands. Most migrants found work relatively quickly; in one study conducted in the late 1970s, two-thirds were employed within a month of arrival, and only 15 percent took longer than three months to find a job. It was possible that the migrant who failed to find work returned home relatively quickly, as did the less educated. Skilled migrants were more likely to take longer in finding a job; their relatively privileged position in the marketplace permitted them to hold out for suitable employment.

In the early 1970s women were more likely to migrate than men. Young women were able to find ready employment as maids in urban households; one-half to three-quarters of all female migrants began work in domestic service. As a woman's length of residence in the city increased, she was more likely to shift into work in industry or the social sector or simply get married. Among migrants with 10 or more years residence, the proportion of women in domestic service declined to 25 to 40 percent. Males generally began their urban work careers in unskilled construction jobs; typically a migrant would advance to more remunerative and

secure work; the most successful became taxi drivers or shopkeepers, although this was not the most common career path. The migrant's situation in terms of income, employment, and housing normally improved over time.

Family and friends were pivotal in the migration process. Some surveys indicated that as many as 80 percent of all rural-urban migrants stayed with family or friends on their arrival in the city. It was through these same personal contacts that most migrants found their first jobs. A network of kin already in the city played a major role in the migrant's success. Most arrived in the city with little financial cushion; many spent literally all their money simply to get to the city. One migrant described her arrival: "The truck owner asked each family how much they had, and charged the entire amount as his fee." The more recent the migrant the less likely the individual was to have arrived in the city without prior contacts. Part of the cumulative effect of decades of rural-urban migration was an increasing pool of persons on whom the potential migrant could call for aid and assistance in setting up in the city. Migrants tended to settle where they first arrived, and a relative's residence was probably the most significant factor in defining a migrant's choice for housing and employment alike.

Case studies offered glimpses of the fortunes of migrant families over several generations as well as the migration process. A substantial portion of migrants came to the city with their families in tow. In a study of migrants to Rio de Janeiro, social scientist Janice Perlman found that over half came directly to Brazil's second largest city from a distinctly rural setting, the small towns or county seats in the interior; nearly 30 percent came from farms or villages.

A substantial minority of rural-urban migrants retained rights to property in their place of origin. Often they had a claim to a portion of a small holding that, if actually subdivided, would be too fragmented to provide a living for any of the potential heirs. This underscores the extent to which the city served as a safety valve for rural overpopulation. In one rural municipality in the Southeast, for example, roughly 40 percent of the potential agricultural population had migrated. By maintaining a claim to land, the urban-bound migrant had a safety net should employment fail in the city. The process of rural-urban migration could span the generations; migrants were reluctant to foreclose any options that enhanced the family's potential security. The successful first-generation migrant enjoyed considerable occupational mobility and improved real earnings and level of living, largely by leaving agriculture. Social and occupational mobility stalled in descending generations; few of the rural-urban migrants' advantages were passed on to children and grandchildren. A discouraging percentage did not attend even primary school with any regularity, and

most ended up in the relatively low-level, unskilled, or semi-skilled jobs their parents and grandparents had.

Urbanization

On the eve of World War II fewer than one-third of all Brazilians were city dwellers; by the early 1980s nearly two-thirds were. Population nearly tripled during the period, and cities absorbed most of the increase. Far more than the frontier, the city has been a "safety valve" for excess rural population. Continued urban growth was a central feature of changing social relations. Cities—previously enclaves of privileged planters and merchants serviced by slaves and artisans—have become focal points of the changes taking place in the society at large.

Urban population growth has outstripped rural growth in every region of the country—often dramatically so (see table 3, Appendix). Between 1970 and 1980 the rural population grew less than 10 percent, the urban by roughly 50 percent. In the Southeast there was more than a 7 percent difference in the average annual rural and urban growth rates; rural population in fact declined by nearly a quarter during the decade. During the 1960s the absolute growth of the nine largest cities was three times that of the frontier. Even on the frontier, i.e., the North and the Center-West, urban expansion in the 1970s was double that of rural expansion. The expansion was even more spectacular in that it capped four decades of continued urban growth.

Urban growth has been concentrated in the largest cities (those over 100,000 in population). Nine officially designated metropolitan regions together account for more than 40 percent of the urban population and roughly 30 percent of the total population (see table 4, Appendix). São Paulo and Rio de Janeiro residents together equal nearly one-third of all urban dwellers, and close to one in every five Brazilians lives in Greater São Paulo or Rio.

The contemporary urban scene has its roots in the country's past "boom-bust" cycles—above all, in the coffee boom and subsequent international migration. Since the 1920s industrial development has played an increasing role in urban expansion. The northeastern cities of Recife, Salvador, and Fortaleza grew as colonial administrative centers or entrepôts for the exchange of cotton, sugar, slaves, and European manufactures. Rio's primacy dates from the gold rush; it was also the seat of government after the Portuguese court located there during its flight from Napoleon in 1808. São Paulo's rise, which began in the 1870s, was truly meteoric. The town had languished as an economic and cultural backwater throughout the colonial era. In the seventeenth and eighteenth centuries not even a wealthy *paulista* could hold a candle to a modest sugar mill owner in the Northeast. Wedding clothes were reused by couple after couple; on one occasion the town council commandeered the only decent bed for a visiting



*Street scene in Ouro Preto, Minas Gerais
Courtesy Michaël Borg-Hansen*

dignitary. Between 1872 and 1900 Rio and São Paulo doubled their portion of the population. The turn of the century was the high point of their preponderance among cities: together they represented over 60 percent of the total urban population.

There has been relatively little change in the relative ranking of major cities by population from the 1870s through the 1970s. São Paulo overtook Rio as the largest city in about 1960. The settlement of Brasília and Goiânia, as well as the rise of some frontier cities, was a new development. Curitiba, its population less than 100,000 in 1940, had over 1 million inhabitants in 1980; metropolitan Curitiba numbered nearly 1.5 million. Urban development has taken place at the expense of smaller cities (those from 20,000 to 100,000 in size) as well as rural areas. Cities close to metropolitan areas have been incorporated or effectively reduced to the status of satellite communities. Aside from the nine metropolitan areas, only cities larger than 100,000 have experienced significant growth.

Beginning in the 1950s the locus of growth within metropolitan regions shifted from the central city to the outlying suburbs. The Center-West has experienced the highest rate of expansion—a reflection in part of the minuscule levels of urbanization in that region earlier. Northeastern cities have had the lowest growth

rates. There was some evidence that cities in the South were gaining on the primate cities of the southeast. Observers speculated that businesses may have found some virtue in locating in the South where cities could offer an educated labor force and a relatively developed infrastructure at lower cost than in Rio or São Paulo.

Massive urbanization is a uniquely twentieth-century phenomenon, and traditional social relations have hinged on the plantation rather than the city. Paradoxically, however, Brazil has never lacked an "urban ethos." The numerous small towns and municipal seats of the interior regarded themselves as urban and therefore privileged. However limited the economic opportunities or however rudimentary the amenities, they outstripped those enjoyed by the vast majority of the rural populace. Town inhabitants viewed their way of life (and, by extension, themselves) as superior to that of the "backward" countryside. The town's weekly market was a social occasion bringing cultivators from the surrounding area to sell and buy. The town—rather than the plantation—was the center of domestic trade. Similarly, town festivals were major annual events attended by everyone from the local environs. The urban milieu has *movimento* (literally, movement), and continues to be the focus of political, economic, and social action.

Some of the most far-reaching changes in Brazilian society since World War II have centered on the city. The rise of wealthy and influential industrialists, the growth of a nonagricultural work force, and the expansion of the middle class are all urban-based changes. Small towns as well have been transformed. In the 1950s and 1960s *fazendeiros* abandoned their rural mansions in favor of homes in local municipal seats. In one municipality, for example, the number of town-dwelling landowners grew six times between the mid-1940s and mid-1960s. Education has been a major drawing card for the town. In the municipality of Cunha nearly three-quarters of all city-based *fazendeiros* had chosen to move to town to educate their children. Finally, even the relatively small urban centers have shared in the growth of public employment. There are a few government jobs in even the most remote hinterland municipalities. Anthropologist Charles Wagley has estimated that as much as one-fifth of the populace receive some portion of their earnings from public employment.

Urban Elite and Middle Class

During the past century Brazil's former elite—a minute group of landowners with narrowly agrarian interests—lost its importance. By the mid-twentieth century urban industrialists and financiers, numerically and politically insignificant for most of the First Republic (1894-1930), sat at the top of a steep social pyramid. To say that social mobility has been limited and that the elite remains

a privileged fraction of the populace should not obscure the extent to which the rich and the powerful of the early 1980s comprised a group vastly more diverse than their late nineteenth-century counterparts.

The contemporary elite includes top-ranking military officers and civil servants, prominent politicians, industrialists, commercial and financial powers, the largest landowners and owners of agribusinesses, and groups peripheral to the power structure, such as bishops and labor union leaders. The cleavages and divergences among the various strata offer a dramatic contrast with the cohesion of the earlier agrarian elite. Not even the business community and the military rulers are always of a single mind, nor are politicians in unflinching accord with the military (see *Interest Group Politics*, ch. 4). Nor, for that matter, do bureaucrats charged with overseeing the economy always agree with the priorities of those whose bailiwicks are concerned with culture, social welfare, or foreign relations. A new generation of labor union leaders, increasingly militant and critical of government policies, are clearly at odds with the powers that be. So too are many leaders of the Roman Catholic Church for whom the regime's vehement anticommunism is neither enough to ensure against secular policies (such as legalized divorce) nor to afford much common ground for dealing with issues such as social justice and equity, which are of concern to many bishops (see *Religion*, this ch.).

The rise of the industrial-financial bourgeoisie was linked to foreign immigration during the coffee boom. Brazil's elite is not only diverse in the roles it plays in the nation's politics and economy but is also ethnically diverse. Nearly half the largest concerns were founded by immigrants. The typical career path that led to the role of manufacturer began in commerce and the marketplace. The successful agent for a foreign firm had strategic knowledge of the market, access to foreign sources of credit, and familiarity with the channels of distribution. By the beginning of World War I, more than half the chief import firms were also engaged in manufacturing. Luso-Brazilians entered industry as well; almost all who did so came from the landowning elite. The European immigrant who began a career as a craftsman and ended it as a factory owner was a rarity, but the pattern was still vastly more common than among Luso-Brazilian artisans. Government policies aimed at controlling the supply of coffee in the early 1900s meant coffee planters reaped substantial profits that could be reinvested in industry.

The socioeconomic transformation since the early 1930s has permitted real social mobility, but to a limited number. Mobility essentially stops at the lower reaches of the middle class. The emphasis on higher education as an avenue of upward mobility has meant substantial opportunities for the urban middle stratum of

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society, but at the same time those with little access to educational resources have suffered. Surveys in the 1970s of the elite's social background found that more than one-third of those interviewed came from the middle segments of the urban population. Similarly, educational requirements for military cadets have worked to the advantage of the offspring of middle-class and skilled workers. Between the mid-1940s and the mid-1960s there was a precipitous drop in the number of cadets from landowning and professional families and a concomitant rise in recruitment of sons of skilled workers as well as those of military personnel. Overall, the middle class has made its greatest gains in the expanding government bureaucracy and the administration of public enterprises.

Regional differences, changing educational choices, and students' family backgrounds have had a combined and distinct impact on elite career patterns. Since the 1950s economics and engineering have gradually replaced law as the preferred fields of study for the elite. The process has not been uniform. A degree in law continues to find favor among the scions of leading political and military families. It is a course of study congenial to older elite families as well as those outside the Southeast. Elites of industrial and commercial background, by contrast, have favored engineering in preparation for entering the family firm, while those of the middle class have viewed economics and business administration as the most promising avenues of upward mobility.

Aside from the military, whose leaders attended the Superior War College (*Escola Superior de Guerra—ESG*), there are marked regional disparities in the universities educating Brazil's elite. In the early 1970s more than 40 percent of the elite polled had been educated at the Federal University of Rio de Janeiro or the University of São Paulo. Both schools were among the first to offer courses of study in tune with the changing requirements of the economy and the growing emphasis on "technocratism" within the public sector.

In the early 1980s higher education continued as the quintessential avenue of mobility for the middle class. It allowed the child of modest background a chance for a niche in society's upper echelons. The system was undoubtedly elitist, but it was hardly caste like. The expansion of higher education and increased public employment have had as almost their sole beneficiaries the middle ranks. For the ambitious individual of relatively modest origins, education offered an opportunity for public employment. Entry to the world of business, industry, and finance was, with the exception of government-owned companies, far more limited. Those families who were already firmly established in the upper class, of course, educated their offspring, but they would, in any event, have had access to elite channels through their wealth and family ties. Poorer Brazilians, by contrast, would certainly have had greater advantage had the educational resources gone to primary or

secondary schooling instead of higher education.

If education offered some opportunity for advancement, marriage did not. Most Brazilians chose spouses of similar social class and background. The trend was most clear among labor leaders, more than three-quarters of whom married within the ranks of manual labor; none married above the middle class. Children of professionals were slightly more likely than others to marry above their family's station. Education over a two-generation span, then, did lower certain otherwise impervious social barriers. Offspring of large landowners, senior military, and prominent political leaders intermarried; industrialists and financiers, by contrast, tended to marry those of comparable occupational background or those of professional families. Social networks reflected the differences in family background among the various segments of the elite. Businessmen tended to have extensive kin ties within the industrial-financial community. They exhibited a certain clannishness conforming to the traditional upper class norms for kinship behavior (see *Family and Kin*, this ch.). The elite from middle-class families tended to rely more on ties of friendship formed in the course of their education and professional life.

Urban Lower Classes

The cities' lower orders comprised overwhelmingly first-, second-, and third-generation rural-urban migrants. They have shown a persistent resourcefulness in dealing with the problems of living in an urban setting with little money and limited job skills. Urban population growth has been far greater than the increase in industrial jobs. The surplus has been absorbed, after a fashion, by the public and service sectors. Economic development generated substantial opportunities for the skilled and educated; it did so at the expense of widening the income scale. In 1960 the top 10 percent earned over 30 times the bottom decile; by 1976 the disparity had nearly doubled: the top decile earned nearly 60 times the income of the bottom 10 percent. Even within the lower reaches of the income scale, however, there is marked differentiation. The urban lower class work force is stratified by age and sex; in addition, the fortunes of those employed by large enterprises involved in modern industrial production are much better off than those in small-scale operations or those who find only temporary work.

Lower class families have developed distinctive employment strategies to ensure the household income. Until the economic downturns of the early 1980s, at least, the rule had been high underemployment and relatively low overt unemployment. The typical family strategy was to have the adult male fully employed and to count on the adult female and adolescent children to generate additional income. The "informal sector" served as a buffer for the young, the old, and women. Earnings were low

(except for young adult males) and often uncertain; nonetheless, they were worlds better than absolute unemployment.

Lower income city dwellers unearthed a plethora of make-do jobs to eke out a living. Women did housework and took in sewing; children ran errands, shined shoes, and bagged groceries—the possibilities seemed endless. Odd jobs (*biscates*) played a significant role in generating income for migrant and native families alike, particularly with the restrictive wage policies of much of the 1960s and 1970s. The informal sector has blunted the impact on families, if not individuals, of increasing wage differentials and rising inflation. Further, the lower the family income the higher the portion of it that comes from the informal sector. Poverty can almost be defined as the family's total reliance on odd jobs to the exclusion of regular wage labor.

Men typically began their work career doing odd jobs as adolescents. For them the switch to a regular, if poorly remunerated, job marks the first step up the occupational ladder to relatively skilled, secure, and well-paid work. Young adult males could earn substantial amounts as casual laborers. If they failed to make the switch to permanent employment by their mid-thirties or so, their position in the market eroded fast. Women found the change to a permanent job more difficult and were more likely than men to spend their entire lives in poorly paid casual jobs.

In the early 1980s housing remained a major problem for most of the urban lower class, and the typical solution could be seen in the urban and suburban shantytowns (*favelas*) in the environs of any city. In legal terms *favelas* are defined by their tenuous claim to the land they occupy: squatters began by settling seemingly unowned vacant spaces. After settlements are in place, legal claims to the land multiply. One *favela* located in a swamp north of Rio de Janeiro had 16 claimants within a few years of the initial settlement. The earliest *favelas* date from the 1920s when refugees from the Canudos uprising in Bahia emigrated to Rio (see Religion, this ch.). The 1930s saw a hefty increase in the numbers of *favelas*, but the truly astronomical growth in the settlements came after World War II. Formerly almost the exclusive domain of rural-urban migrants, by the 1970s *favelas* included more and more natives who saw the shantytown as an answer to rising rents.

Favelas represented a solution to urban housing for a plurality of metropolitan residents. The magnitudes were simply astounding. By the early 1980s an estimated two-thirds of the population of Greater São Paulo were inhabitants of *favelas* (*favelados*); roughly one-third of Rio's residents found housing in *favelas*. Baixada Fluminense, to the north of the city where many of the *favelas* were, grew from some 30,000 in 1930 to approximately 2.5 million in 1980. Because Rio is surrounded by mountains and has little room for *favelas* to spread, the city has perhaps the highest density of squatter settlements in Latin America. The level of

crowding reached what one observer termed "Asian proportions."

Favelas have been damned by conservative and reformer alike as cesspools of corruption, decay, and social disintegration. There can be little doubt that the standard of living of the *favelados* is marginal. Access to water and electricity is frequently limited. In the worst *favelas* unsanitary living conditions, overcrowding, and poor nutrition have led to rampant disease and high rates of infant mortality. Those in industrial areas are subject to levels of pollution that almost defy description. In Cubatão, near Santos, particulate pollution was more than twice the level that, according to the World Health Organization (WHO), causes excessive mortality. Forty infants per 1,000 births were stillborn, and another 40 died within the first week of life. In less bleak circumstances *favelados* endured their particular privations with a combination of resignation and equanimity. In one *favela* located on a swamp subject to annual floods, residents yearly bricked up windows and put in cement sacks to divert water from doorways.

Despite the squalor and ramshackle houses, social scientists note that the *favela* is a "self-created solution to the severe housing shortage." Because the initial cost of occupancy is almost nothing, a shack in a *favela* permits the family to accumulate funds for the gradual improvement of its home. Overall, most *favelas* are reasonably organized communities whose residents have created a variety of associations to obtain better services, provide the basic amenities, and fight against eviction. The social life of the *favela* is well developed, and *favelados* maintain membership in athletic and social clubs as well as the ubiquitous samba schools. *Favelas* have a full-blown and diverse religious community, typically including a Roman Catholic congregation, several Protestant evangelical sects, and a variety of *macumbistas* (practitioners of *macumba*, an Afro-Brazilian spiritualist cult). As it matures, the settlement normally spawns a variety of small-scale commercial shops. These indeed are essential to many families' survival, because *favelado* merchants normally sell in the small quantities poor families can afford and offer credit to their customers.

The launching of a settlement can be a highly orchestrated event. In one Rio *favela* the organizer restricted invaders to married men with children, regular jobs, and no police record. Many *favelas* have a high level of social cohesion and an effective system of mutual assistance. *Favelados* can rely on their neighbors for small loans, babysitting, the use of space in their refrigerators, help in making improvements on their houses, and the like. Nearly three-quarters of *favelados* surveyed in the early 1970s belonged to one or more *favela* associations. Far from representing the nadir of social disorganization, most *favelas* show a careful husbanding of extremely limited resources. Where space permits, *favelados* keep small livestock; and where their tenancy seems at all secure, they are ready to make improvements on their homes.

As settlements age, brick and wood structures tend to replace the more primitive wattle-and-daub structures.

Favelas have never found much favor in more privileged urban social strata. The first call for their eradication came in 1937; in 1947 the Commission for the Eradication of Favelas suggested returning the *favelados* to the states from whence they had migrated. Mid-1970s government policies aiming at removing the *favelas* culminated a long history of official disapproval. Regime efforts were directed toward resettling the *favelados* in low-income housing.

However well intentioned, the policies operated to the disadvantage of the poorest of the *favela* populace. Low-income housing was invariably located farther from the jobs of the *favelados*; the increase in travel time, to say nothing of expense, was significant. Some former *favelados* ended up paying as much as a quarter of their income on transportation. Worse still, others lost their jobs completely as a result of undependable public transportation. Others were forced to rent a room in the city and commute to the suburbs on the weekends. The distance from the city center limited the opportunities for women and children to earn income by doing odd jobs, and the economy of families became even more marginal. For *favela* merchants the move spelled disaster because they were unable to pay the rents of the storefronts in the low-income housing. It was a double loss because no one stepped in to fill the void: the shops stood empty because former *favelados* could rarely afford prices that would entice merchants to locate in the area.

Fees and mortgage payments, although they were intended for low-income families, amounted to as much as 75 to 80 percent of the household's earnings. Within a matter of years some three-quarters of those resettled were in arrears. Even attempts to hold housing costs to 25 percent of earnings were ineffective because family income was so uncertain and variable. Families having the lowest incomes abandoned public housing in favor of other *favelas*. By the late 1970s those in slightly higher income brackets had already begun to take over the public housing units.

In the late 1970s the regime redirected its efforts. The income restrictions on public housing were eased slightly, permitting lower middle-class families to take advantage of an alternative clearly beyond the reach of the poor. The number of families in arrears on mortgage payments dropped to a fraction of its former level. Recognizing that finished housing of any sort was beyond the reach of the poorest of the urban populace, the government directed its efforts toward legalizing and upgrading the *favelas*

already in place. *Favelados* were to receive title to their land, water and electricity, and assistance in improving their homes.

Religion

Some 90 percent of all Brazilians are Roman Catholics; they are the single largest national group of Catholics in the world. Beyond the sheer numbers the country is Catholic in culture as well as in traditional mores. Catholicism has long been integral to Brazilian society. Religious festivals were major public celebrations and a significant form of entertainment for the colonial populace. At their most elaborate they might have lasted fully a week and included not only processions but also bullfights, jousting, and dancing in the streets. Scores of chapels and churches dotted the countryside and city. They were far more imposing than the public buildings and private residences of the era; the ecclesiastical architecture earned even the grudging respect of Protestant travelers. Religious brotherhoods were the typical forms of association; they functioned as guilds and professional associations as well as the primary means of dispensing charity and maintaining churches.

This particular form of Catholicism was linked to grants of patronage given to the Portuguese crown in a series of papal bulls. The crown exercised extensive control over the church because of its role in expelling the Moors and spreading the faith. The arrangement was intended to ensure the church's protection; in Brazil it contributed to the Catholic church's extremely weak organization. Although an essential part of culture and social life, Catholicism was from the early colonial period institutionally handicapped. Educating and ordaining priests was a low priority; the formation of dioceses and parishes lagged; the church's tithe found its way into the royal coffers.

The royal prerogatives were continued under the empire. Dom (title used by nobility and members of the church hierarchy) Pedro II (1841-89), educated in the tradition of French rationalism, found little use for religion or clergy. The Catholic Church functioned as an agency of the state and was subject to detailed governmental regulation. The arrangement effectively limited the number and influence of the clergy. By 1889 there were a scant 700 priests to minister to some 14 million souls. Order priests maintained a slim measure of autonomy. The secular clergy were largely untrained; the literature of the period is rife with references to their defects. They were, as one historian put it, "conspicuous neither for their celibacy, erudition nor personal dignity."

The situation improved dramatically in the twentieth century. The church had autonomy in the Old Republic and enjoyed substantial influence during the dictatorship of Getúlio Vargas (see *The Vargas Era, 1930-45*, ch. 1). The number of dioceses, parishes, and seminaries grew astronomically. Nonetheless, understaffing

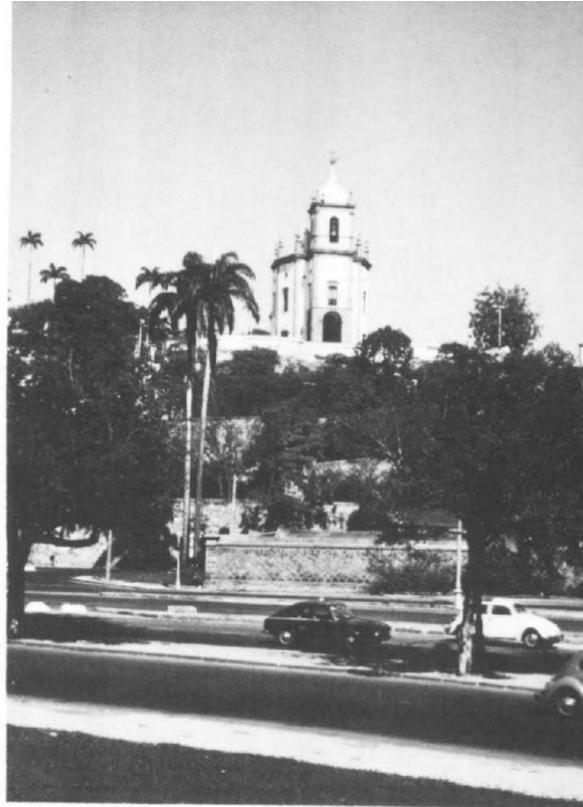
was a continuing and growing problem. In the mid-1970s the official figures noted that there were more than 12,000 Catholics for every priest. Further, about half the clergy were foreigners. Of nearly 6,000 parishes, roughly 95 percent were urban. Most Brazilian clergy came from large (seven or more children) rural families; the priesthood represented an avenue of upward mobility. Many candidates came from the Italian and German immigrant communities in the south; the number of seminarians was continuing to fall in both absolute and relative numbers.

The dearth of trained clergy limited the possibilities for religious orthodoxy. Rural neighborhoods might be visited by a priest once a year. The clergy who were in rural residence were typically attached to a plantation; often being the owner's son, the rural priest's theological training was minimal. In the absence of qualified religious practitioners, the populace improvised both in practice and in doctrine.

Neighborhood Catholicism (*Catolicismo de bairro*) is replete with local saints' festivals and pilgrimages to sundry shrines. Indeed, personal saints and household shrines are the mainstays of the average Brazilian's worship. Saints mediate for the individual, who, in return, professes unswerving loyalty to the saint's cult. The poor believe that however difficult divine Providence may have willed their lot in life to be, a saint to whom one is devoted can still ameliorate some of the harsher conditions. Religious lore is disseminated by itinerant troubadours who travel from market to market; their songs can be bought in pamphlet form. The songs emphasize the importance of devotion to specific saints. A deep sense of personal belief and devotion combines with relative laxity in formal religious practices. Most men believe that religion is the domain and duty of women, attending Mass only on special occasions. Much of their adherence is nominal and pro forma: the ideal is to be baptized, married, and buried in church. There is as well a strain of anticlericalism that is particularly pronounced among Luso-Brazilians.

Messianic movements are a periodic feature of popular religion. Most center on a charismatic leader who denounces present corruption and foretells future destruction for all but his or her followers. The leader seeks to found the "New Jerusalem"—a veritable paradise on earth where the evils of the present social order will have no sway. Small utopian communities periodically spring up in the Northeast and the mountainous regions of Santa Catarina. The fate of these movements at the hands of the local and regional authorities has varied. Most end in open confrontation with the forces of law and order, their adherents forcibly dispersed, often with loss of life. This was the lot of perhaps the most famous messianic movement, that of the followers of Antônio Conselheiro, who settled in Canudos in the Northeast. Like most adherents of messianic movements, the followers were a ragtag lot

*Cathedral of the
Immaculate
Conception,
Rio de Janeiro
Courtesy P.A. Kluck*



of the rural poor, in this case mostly Nordestinos displaced by droughts. Conselheiro fell out with the local landowners and ecclesiastical authorities, and it took four armed expeditions over a period of years to defeat his community. A few movements have been more fortunate and were gradually integrated into the political and economic life of the surrounding communities.

A host of syncretic Afro-Catholic cults are also common. Although only 1.4 percent list their formal religious affiliation as spiritualist, something in the order of one-third of the population is influenced to some degree by spiritualist beliefs and rituals. Most of them, however, consider themselves ardent Catholics. The cults typically link a West African god with a Catholic saint. Leaders are commonly women; rituals run the gamut from those as staid as a High Mass to others that have more in common with a revival meeting. Spiritualism was formerly confined to the northeastern coast: now it can be found everywhere from Amazonas to Pôrto Alegre.

The tremendous expansion in church organization in the first half of the twentieth century was geared to the middle sectors of society. The church was largely a middle-class organization. It drew its personnel from the middle and lower middle classes. It was supported by those groups and geared to their needs. Education is a case in point. In the late 1960s Catholic schools represented one-third of the institutions of higher education and nearly 30 percent of the country's secondary schools; at the same time,

they accounted for a scant 2 percent of the primary schools.

The Second Vatican Council and the general tumult of the 1950s and early 1960s had a great impact on the clergy and hierarchy. There was a sense that the New Testament might be seen as justification for social involvement. Clergy were active in rural unionization efforts, particularly in the Northeast. The Movement for Basic Education (Movimento de Educação de Base—MEB) was an extensive adult literacy program that aimed not only at literacy but also at general political and social awakening.

Significant aspects of the church's activist programs were dismantled, and the more radical elements of the clergy were purged in the years following the 1964 coup. Within the priestly hierarchy criticism was muted in the midst of a general willingness to "wait and see." The hierarchy was split; there was a substantial majority of moderates, flanked by conservatives and activists. Since the late 1960s the hierarchy as a whole has been increasingly critical of the social costs of Brazil's economic growth and the regime's continued political repression. The nadir was in the mid-1970s when numbers of the clergy were imprisoned and tried for subverting national security, and bishops were pilloried in the press. By the end of the decade the Brazilian hierarchy ranked as perhaps the most socially activist in Latin America. In 1980 the president of the National Conference of Brazilian Bishops, Dom Ivo Lorscheiter, promised Pope John Paul II that his visit to Brazil would give him "a good look at the thorns as well as the flowers."

In the late 1970s and early 1980s there remained points of conflict. The support of bishops for striking workers rankled the military rulers. The Pastoral Land Commission cataloged land disputes in the countryside and publicized information on the deteriorating position of the small landholders. Likewise, the Pastoral Office on Indigenous People and the Indigenous Missionary Council publicized the problems the Amerindians faced as national expansion into the tropical forest continued. Meanwhile, the MEB had evolved into a potentially important grass-roots force consisting of tens of thousands of ecclesiastically based communities (see *Liberal Groups*, ch. 4).

In the early 1980s over 6 percent of all Brazilians were Protestants—up from a scant half-percent in the late 1930s. The Protestant community contained a variety of mainline denominations as well as a proliferation of fundamentalists and Pentacostal sects of more recent origin. Most of the mainline adherents were descendants of the German immigrants who came in the nineteenth century. Fundamentalists accounted for the precipitous rise in the number of Protestants in the 1940s and 1950s. The first Pentacostals arrived in Brazil soon after the sect got started in the United States; they consolidated their tenuous position in the 1910s and 1920s. In the 1930s they were less than 10 percent of all Protestants, by the mid-1970s more than 75 percent. The princi-

pal converts come from the urban lower and lower middle classes. The conversion experience is associated with upward mobility. The popular view attributes this to the fundamentalists' emphasis on hard work, moral living, and abstention from alcohol and gambling.

Education

In accordance with reform legislation enacted in 1971, the educational system is structured into four "grades" (*graus*): an eight-year primary-school cycle; a three-to-four-year middle level, equivalent to secondary school in the United States; higher education at the undergraduate level; and advanced graduate education. The term *middle school* is used to describe "2 Grade" as a whole to avoid confusion with the secondary schools (*escolas secundárias*), which in Brazil are middle-level institutions whose academically oriented curriculum is designed specifically to prepare students for university entrance.

The basic structural changes introduced by the reform included shifting grades five through eight, formerly lower middle-level grades, to the primary level. The extension of primary school to the eighth grade was in keeping with efforts to give the system greater flexibility, encouraging children to stay in school longer, and allowing them to progress at rates suitable to their abilities. The qualifying examination taken at the end of the fourth grade, which had restricted promotion to the next level, was eliminated.

The administration of public education was decentralized. Primary and middle schools are the responsibility of the state and municipal governments, although participation by the latter may differ from state to state. In general, however, schools in cities are usually operated by municipal authorities at the primary level and in rural areas by the state. Most middle-level schools are under state jurisdiction. The Ministry of Education and Culture in Brasília exercises a direct federal role in operating schools in the several federal territories and special vocational and adult education programs and in public higher education. The federal ministry's primary function is to set national guidelines for education and to rectify regional disparities through financial and technical assistance to state and municipal school systems. A large private-school sector supplements the public system, particularly at the middle level. The majority of private schools operate under the aegis of Roman Catholic dioceses and religious orders. Private schools are also eligible for government subsidies, and tuition is tax deductible.

The formulation of overall educational policy is the responsibility of the Federal Council of Education (Conselho Federal de Educação—CFE), acting under the executive direction of the Ministry of Education and Culture. Composed of a panel of 24 prominent educators appointed by the president to six-year terms of office, the CFE is also charged with establishing minimal

national standards for federal, state, and municipal systems and proposing a syllabus for studies at each grade level. In addition, its members supervise the federal school system, accredit institutions of higher education, and monitor their administration. The federal ministry is vested with decisionmaking powers and implements the CFE's policy recommendations. Each state has a parallel education secretariat and advisory council. Retired military officers frequently fill important administrative posts in the federal and state educational systems.

State and municipal governments are required by law to allocate a minimum of 20 percent of their budgets for primary and middle-level education. Expenditures have grown rapidly at these levels, but great disparities exist in funds available for education among states in different regions. In the state of São Paulo, for instance, more than 30 percent of revenues are channeled into education. Federal funds enable poorer states to compensate for a low-revenue base, but São Paulo's spending on education is at least equal to that of the total federal expenditure for education.

Although federal spending expanded at an annual rate of more than 10 percent during the 1970s, the proportion of the federal budget earmarked for education fell to under 5 percent of the total, and funds declined in real terms because of inflation.

Primary and Middle-Level Education

The restructuring of the educational systems initiated by the 1971 reform law represented a basic shift in philosophy and a reassessment of goals. The latter were stated as improving access to education, retaining students in school for a longer period, making vocational training an integral part of the curriculum for all students through middle school, and equalizing educational opportunities across the country. Rigid academic standards and terminal examinations that kept students, particularly those from lower socioeconomic strata, from advancing to the next grade level were abolished. While responding to middle-class demands by greatly increasing university places, the reform package also insisted on modernizing curricula to include vocational, or "professional," training that would give students who failed to gain admission a practical alternative to university education. Education was officially viewed as a key factor in the country's economic development that was expected to prepare "human resources" for the labor force as well as scholars for the university.

Critics of the system that pertained before the reform attributed a share of the blame for socioeconomic inequality to the inordinate stress laid on year-end examination. Underqualified teachers allegedly gauged their efficiency by the difficulty of the tests they prepared for their students. Failures at the primary level among children from lower income families were so frequent that their schooling was reduced to what was sometimes described as a

babysitting operation. As a result, a majority of children dropped out of school after the fourth grade. Even after the reform, the problem of large-scale failures and school leaving reportedly persisted, especially in rural and depressed urban areas where as many as half of the students repeated the first grade and as many as a quarter were held back in succeeding years. Government-sponsored studies attribute the causes to social problems that are manifestations of poverty—such as cultural backwardness, the need for children to work, recurrent illness, and inadequate nutrition—rather than to flaws in the educational system. A rise in the retention rate in some localities, for example, was linked to the introduction of school lunch programs. Classroom overcrowding in cities and distance to school in rural areas were also cited. Education is compulsory by law through the eighth grade, but enforcement of the regulation is virtually impossible. The continuing problem of school leaving appears to have been underestimated by official statistics in the late 1970s, because children who had in fact dropped out or attended class irregularly were kept on school rolls.

Primary and middle-level classes included many students who were older than assigned age brackets for their grades. Nearly half those in the second four-year grade were 15 or older. Slightly less than 20 percent of those in the 14-to-19-year age bracket nationally were enrolled in middle school, where they represented only about 60 percent of the total. Ten percent studying at this level were over 25 years of age. The age distortion is caused by the incidence of grade repetition, returning school leavers, and part-time students.

The syllabus recommended by the CFE calls for an integrated course to achieve literacy and develop computational skills during the first four years at the primary level. Vocational courses are introduced in upper primary school and are compulsory. The academic side of the curriculum at that level includes Portuguese, science, mathematics, social studies, geography, and history, although not all schools are equipped to offer the full range of subjects up to prescribed norms. Religious instruction under Roman Catholic auspices must be offered in all public schools, but only as an optional course.

The full curriculum is largely restricted to urban schools, which have teachers for each grade and for specialized instruction. Severe crowding is a serious problem, however, in schools in poorer urban areas, and facilities are limited. Schools in smaller towns typically have several classrooms for pupils following a common program at different levels of advancement but seldom offer specialized subjects. The dispersed pattern of rural settlements and underinvestment in primary education usually limit attendance to a dozen or more children in one-room, single-teacher schools, in which there is no real separation of students

into grades. In the mid-1970s they accounted for about two-thirds of all primary schools.

Pre-primary school facilities for children aged five to seven years operate effectively in large urban centers, but they largely draw children from middle-class families and accommodate less than 5 percent in the assigned age bracket.

The most far-reaching changes resulting from the 1971 reforms have taken place in the middle schools. Students attending the three-to-four-year schools at this level elect to enter on either the academic (secondary) or the vocational (professional) tracks. Although there is in practice a high degree of flexibility in both programs of study, the former is designed essentially to prepare students for the next level of formal education, attracting in 1978 about 40 percent of the 2.5 million middle-school matriculants. The vocational track is intended to provide marketable skills for employment in the labor market at graduation as well as further grounding in basic academic subjects.

Admission is open to primary-school graduates, but less than 20 percent of those in the 15-to-19-year age bracket nationally attend middle schools, popularly called colleges (*colégios*), and in the Northeast the figure dips to 10 percent. In some localities the shortage of school buildings is so acute that classes are held in shifts, often in multipurpose facilities. Night sessions are commonly relied on to permit employed students to attend classes.

Middle-level programs in both tracks are divided into classroom hours rather than school years, enabling students to proceed at a pace geared to the amount of time available to them from employment. Depending on the program, requirements can ordinarily be met in the equivalent of three years of full-time study but can be completed in as few as two years or as many as five years or more. In addition to the opportunity that this arrangement gives to students to work and study at the same time, it also facilitates the return of students who leave school prematurely.

The curriculum is based on a "common nucleus" of 1,000 classroom hours, consisting of courses in Portuguese language and Brazilian literature, history, social studies, mathematics, and science. The vocational track includes 130 specialized areas of training within categories for industry, agriculture, primary education, service occupations, and commerce. The last category is the most popular, involving about one-third of all vocational students. A nonspecialized program is available in a "family of skills." Classroom work is supplemented by periods of supervised apprenticeship in facilities maintained by the schools.

All students, including those in the academic track, must participate in a vocational program, although the choice of university-bound students is usually a white-collar skill, such as advertising technology, that may to some degree complement their academic studies. A complete vocational course requires up to 1,200 hours

in a selected field and is rewarded with a certificate as a technician (*técnico*). Lower levels of auxiliary certification—usually sought by students in the academic track—can be achieved after a minimum of 300 hours of specialized study.

The vocational training program, which was the cornerstone of the middle-school reform, was implemented immediately in several states, including Rio de Janeiro and Rio Grande do Sul, but “professionalization” of the curriculum was resisted in others. Enforcement, even in the public school, has been erratic. Some schools, particularly in the private sector, comply with the letter of the law simply by altering the description of traditional university preparatory courses. Implementation has also been impeded in many states by the lack of physical facilities and trained faculty.

Schools in the private sector, which are mainly operated by Roman Catholic diocesan authorities or by religious orders, have made important contributions to education, especially at the middle-school level. Although church-related schools are not the exclusive preserve of the well-to-do and in many instances have served to fill gaps in the public system, they have traditionally drawn the bulk of their students from an established elite and from the upwardly mobile who regard a university education as the next stop after the *colégio*. Although tuition is tax deductible, private schools are expensive and many families make a significant sacrifice to send their children to them, both for the religious environment of Catholic institutions and for their emphasis on academic subjects. With the dramatic expansion of tuition-free public schools, however, parents presented with a choice between a public school and a marginally superior private school have tended to decide for the former. Although the number of their matriculants is stable, private schools have attracted a decreasing share of the total enrollment, about 40 percent in the late 1970s as compared with 60 percent a decade earlier.

Despite the massive growth of higher education, entrance examinations, which are the sole criterion for acceptance, remain highly competitive, with fewer places available than applicants in some degree programs (see Higher Education, this ch.). The examinations are considered so difficult and so crucial that middle-school graduates usually enroll in *curzinhos* (literally, little courses), expensive but intensive preparation courses offered by private educational enterprises, which compete vigorously on the market to recruit students. Although *curzinhos* are expensive, the quality of instruction is highly rated. To compensate for apparent shortcomings of academic preparation within the formal school system, the entrance examinations have been watered down and students encouraged to forgo the *curzinhos*.

A specialized normal-school (pedagogical) program is included among the occupational categories in the middle-school vocational track to train primary-level teachers and prepare a smaller num-

ber of aspiring middle-level teachers for admission to the university. Over 200,000 students, the large majority female, were enrolled in normal schools in the late 1970s. Their number declined proportionally during that period, however, and was not considered adequate to meet the need for qualified teachers.

Primary- and middle-school teachers are certified by the state education authority. Completion of middle-school pedagogical training is required for full primary-level certification, but provisional certification for teaching in the lower primary grades may be given to holders of a teaching assistant diploma who have passed through the normal-school program offered in the upper primary grades. In the early 1970s only about 10 percent of primary teachers were fully certified, and in rural and urban slum schools at least half of the primary teachers had not themselves finished the upper primary grades. According to recommended norms, middle-school teachers should be university graduates in philosophy, science, letters, or education; after a probationary period they must pass a qualifying examination to be certified. Teachers in this category, however, are a minority in most schools. Many classes, particularly in specialized areas and vocational courses, are taught by part-time licensed personnel.

At least 90 percent of primary school teachers and more than half of those at the middle level are women. The late 1970s witnessed a marginal decline in the total number of primary-school teachers; during the same period student enrollment rose by 33 percent. Although an increase was noted in the number of middle-school teachers, it did not keep pace with the rate of growth of students. The student-teacher ratio at the primary level in 1978 was calculated at 25 to one, at the middle level, 14 to one.

The turnover in teachers is regarded as a serious problem. Teaching is a respected profession in Brazil and confers status in the community, but salary levels are low and working conditions poor. A large proportion of young teachers leave the profession after a few years for better paying jobs or, among the women who make up the bulk of primary-level personnel, for marriage.

Higher Education

Priority in the expansion of education after 1964 went where the discrepancy between demand and supply seemed greatest—to higher education, classified 3 Grade at the undergraduate and 4 Grade at the graduate level. In 1979 there were a total of 887 accredited institutions of higher education. These included 65 universities, of which 44 were public and charged only nominal fees. Quality varied; some were respected schools of medicine, law, engineering, architecture, design, and music, while others were criticized for their lax standards. In the 1970s a group of about 20 public universities were considered Brazil's top-ranking institutions; the University of São Paulo was recognized as the

most prestigious. Despite its expansion, access to higher education is unevenly distributed. Nearly 90 percent of all institutions are located in the Southeast and the South.

Universities are self-regulating through representative councils but are subject to oversight by the CFE. The basic unit of organization in each, however, is the faculty (*faculdade*), an entity offering courses in a field of concentration and setting comprehensive examinations in them. Many institutions have but one faculty; a university must have at least five. The faculties have traditionally been headed by the holder of an endowed chair, but there is a strong trend toward a departmental system and professional ranks on the United States model. About 10 percent of university teachers hold terminal degrees in their disciplines, but overall less than 20 percent have full-time appointments.

The surge of applications for admission has been so great that administrators seem concerned principally with making places for the new students. The policy of public universities is to accommodate the greatest number of students at the lowest cost by favoring expansion of faculties having the least overhead, such as the humanities, while limiting the growth of new faculties in expensive technology-intensive disciplines, although graduates in these areas seem to be those most needed for the country's future development. Competition for places, therefore, is stiffest in medicine and engineering, which have the fewest places despite high demand for them. Fully one-third of total enrollment in the late 1970s was in the humanities, where low-cost expansion is possible. Having 20 percent of all students, economics and business administration are the fastest growing faculties. Law, formerly the most popular, has fallen to 10 percent of the total. Education and biological sciences are in low demand; hence, admission to them is most accessible.

First-year students register for a cycle of basic studies before proceeding into an area of exclusive concentration leading to a degree from a particular faculty. Courses of study may vary from three to six years in duration, depending on the degree program. A degree in medicine, for example, requires the equivalent of six years of full-time work, law and engineering five years, and the humanities three to four years. A specific sequence of courses and the switch from comprehensive examinations to a credit system for evaluating progress have reduced the incidence of "professional students" who clutter universities in other Latin American countries.

Formerly, examinations for entrance to specific faculties had minimum cutoff scores that eliminated unqualified applicants for admission even if available places went unfilled. As a result of the education reform, this procedure was replaced by standardized computer-coded tests taken simultaneously throughout the country; these allow the admission of as many applicants as there are places available that year. Critics argue that the transformation has

meant quantitative change at the expense of quality performances. The basic cycle of courses for first-year students may serve as a remedial program to prepare less than qualified matriculants for specialized studies in their chosen degree program.

Literacy and Adult Education

The share of the population 10 years and older classified in census data as "literate" rose from 40 percent in 1940 to nearly 70 percent in 1970. The government campaign to combat illiteracy was intensified during the 1970s, and by 1978 it was estimated that 77 percent of all Brazilians in that age category were literate.

Definitions of literacy differed, however, and officially indicated literacy levels are regarded as optimistic by some observers who consider that much of the population classed as literate either has never become fully literate or has relapsed into illiteracy. Regional differences are also considerable, as is the disparity between literacy in urban and rural areas. By whatever yardstick literacy is measured, however, data show a significant degree of progress accomplished by the literacy campaign in recent years.

A massive nonformal program was inaugurated in 1970 with the founding of the Brazilian Literacy Movement (Movimento Brasileiro de Alfabetização—MOBRAL), which by mid-decade had offered instruction to several million persons who had not been reached by the formal system. MOBRAL is government sponsored but autonomous in its operation. Its literacy courses are five months in duration and are usually conducted in the evening by teachers from the regular school system. Individual programs are community based and administered locally, MOBRAL confining itself to setting up courses and providing financial support. Funds for the program come from lottery proceeds and tax deductible contributions from private companies. Municipalities failing to cooperate run the risk of a reduction in federal funding for other projects.

Several government and private vocational programs provide training for young adults and the unemployed. The Intensive Manpower Training Program (Programa Intensivo de Preparação de Mão-de-Obra—PIPMO) provides on-the-job instruction to several hundred thousand employed in all sectors of the economy. The privately administered National Service for Industrial Apprenticeship (Serviço Nacional de Aprendizagem Industrial—SENAI) sponsors programs for unemployed youth through apprenticeships in industrial occupations as well as intensive vocational training for adults. A parallel National Service for Commercial Apprenticeship (Serviço Nacional de Aprendizagem Comercial—SENAC) offers training in 90 different occupations in commerce and the service sector. Programs are conducted in retail outlets and hotels and restaurants owned and operated by SENAC. The work of both services is supported by a voluntary payroll tax. Both are highly regarded for their effectiveness and have contributed to Brazil's

reputation as a world leader in the area of nonformal kinds of vocational training. On the basis of their success in industry and commerce, the National Service for Professional Rural Training (Serviço Nacional de Formação Profissional Rural—SENNAR) was established in 1979 to extend vocational education to agricultural workers.

Health and Welfare

Health hazard and, consequently, life expectancy vary greatly by kind and incidence relative to socioeconomic background and region. According to WHO, about 40 percent of all Brazilians lack adequate medical coverage. The health care provided was regarded as substandard, and modern delivery systems were concentrated in population centers of the South and Southeast. Significant disparities were also noted in sanitation and nutrition. Brazil's investment in medical and other health-related items was not commensurate with the country's national wealth, amounting in the late 1970s to only about 2.5 percent of the gross national product.

The federal government's Ministry of Health delegates responsibilities to state and municipal authorities and coordinates their activities with those of concerned ministries and agencies operating within the national health system. While that ministry deals directly with collective programs, the Ministry of Welfare and Social Security handles individual cases, the Ministry of Education and Culture the training of medical personnel, and the Ministry of Interior sanitation; state and local governments are charged with the enforcement of regulations and the operation of community-based facilities. A "grass-roots" health program supervised by the Ministry of Health aims at providing low-cost, community-based treatment, including immunization, nutritional guidance, and improved sanitation. One of the system's shortcomings, however, is its apparent failure to rationalize the supply of services.

Parasitic diseases are blamed for about 16 percent of all deaths in Brazil, and they are estimated to be the cause of about twice that rate of mortality in the Northeast and the North. Some sources indicate that as much as half of the population may suffer from some kind of parasitic infection, and the rate approaches 100 percent in some areas of the Northeast. Other significant causes of death are communicable diseases and malnutrition. The latter is probably the principal factor in mortality among infants and small children and contributes to death from other sources among people of all ages. Circulatory diseases, accounting nationally for about one-quarter of all deaths, and cancer are reported as the causes of death principally in urban areas, perhaps because ailments of this sort often go undiagnosed in the country. Respiratory ailments are believed responsible for another quarter of all deaths; pneumonia and influenza are the most prevalent in the

South. Tuberculosis is endemic in all regions and most frequently affects those in the economically productive age-groups.

The most prevalent parasitic ailments are malaria, Chagas' disease, and schistosomiasis. Of these potential vector-borne diseases, only malaria has been successfully contained; about 94 percent of the cases reported are in the Amazon region and Mato Grosso. Chagas' disease debilitates the victim and, through heart damage, may eventually cause death. Its carrier, a blood-sucking insect called the *barbeiro*, infests the walls and thatched roofs of wattle-and-daub houses in the countryside and reportedly infects millions. Schistosomiasis causes severe liver damage and is contracted by eating snails and shellfish that act as the fluke's host or by contact with polluted water. Poor sanitation facilitates its transmission through untreated sewage. The disease is endemic in the seaboard states but has been spread through migration. Other serious vector-borne diseases include hookworm, trachoma, filariasis, leishmaniasis, yaws, and yellow fever. Yellow fever, possibly Brazil's most feared health hazard in earlier years, was reported eradicated in 1958. The mosquito vector, *aedes aegypti*, was reintroduced from outside the country several years later, however, and scattered cases continue to be reported.

Among the communicable diseases, influenza and dysentery are the most frequently reported. Next in order are tuberculosis, measles, whooping cough, and syphilis. Measles was responsible for numerous deaths in the 1970s among Indians in the Amazon lowlands, where it had been introduced by settlers. Among other serious maladies are leprosy, typhoid, and tetanus, which are dispersed throughout the country. The occurrence of meningitis is occasionally epidemic.

An extensive program for the immunization of children has reduced the incidence of diphtheria, tetanus, and whooping cough and virtually eliminated smallpox and polio. Nevertheless, it is estimated that 80 percent of deaths from parasitic and communicable diseases in the late 1970s could have been prevented by appropriate intervention. Serious outbreaks of disease have usually been necessary to bring about improvements in preventive measures. Although inoculation is effective in reducing the incidence of diseases of this nature, poor sanitation, unpotable water supply, and nutritional deficiencies have been judged to be barriers to long-term improvement in health conditions.

The number of physicians practicing in Brazil in the late 1970s rose sharply from the previous decade to approximately 80,000—about one physician for 1,500 people nationally—but that figure was below the Latin American average in terms of population served. Fully qualified medical personnel were unevenly distributed across the country. Half of all physicians were practicing in the São Paulo and Rio de Janeiro areas, and the number active in the largest cities and state capitals was four times greater

than the number practicing in the rest of Brazil. Work in rural areas is often carried out by paramedical personnel.

In 1978 there were 9,700 hospitals and 5,700 clinics, the latter generally staffed by paramedics. About 1,000 such facilities were added annually in the late 1970s. Possessing about 500,000 beds and other places available for patients, hospitals and clinics treated an average of 10.5 million persons a year during that period, about four times as many in urban as in rural areas. The disparity in accessibility to hospital care was particularly acute in obstetrical cases, which accounted for almost 20 percent of total admissions.

Through programs administered by the federal government's National Food and Nutrition Institute (Instituto Nacional de Alimentação e Nutrição—INAN), attempts were underway in the late 1970s to promote a better distribution of foodstuffs to depressed areas of the country and to lower costs. Food supplements to the "biologically vulnerable"—pregnant women, lactating mothers, and small children in low-income groups—were also provided by the agency.

Welfare activities are administered by public and private agencies, whose activities frequently overlap. During the 1970s, however, the federal government assumed additional responsibilities for welfare and social and health insurance through the upgrading of the Ministry of Welfare and Social Security.

Health insurance is arranged for urban occupational groups through trade and professional unions in programs linked to those of the federal ministry. Employees of the large public sector receive similar benefits through the Social Security Welfare Institute for Public Servants (Instituto de Previdência e Assistência dos Servidores do Estado—IPASE). Coverage was extended to rural workers with the establishment of the Rural Worker Welfare and Social Security Fund (Fundo de Assistência e Previdência do Trabalhador Rural—FUNRURAL) in 1970. Although more limited in scope and effectiveness than the other programs, FUNRURAL has made important improvements in rural health care. In addition, the Medicament Center (Centro de Medicamentos—CEME), a federal agency established in 1971, furnishes drugs free or at a reduced cost to lower income groups. Its purchases constitute about half of the annual sales of the entire pharmaceutical industry.

Employers are required to deposit in controlled accounts a portion of each employee's earnings as insurance against unemployment. Deposits may be withdrawn on retirement, and accrued interest may be used for specific purposes, such as the purchase of a dwelling. Additional forced savings programs also operate under private and government auspices.

The focal point of the public welfare program is the National Social Security Institute (Instituto Nacional de Previdência Social—INPS), which operates under the supervision of the federal ministry. Contributions to the INPS fund are determined on the basis of the

worker's income; the employer is required to match this amount. The fund provides compensation for sickness and disability as well as a pension collectible from the age of 65 for men and 60 for women. The INPS also administers survivors' pensions and maternity benefits.

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There is a wealth of English-language material on Brazilian society. General background works include Charles Wagley's *An Introduction to Brazil*, Celso Furtado's *The Economic Growth of Brazil*, T. Lynn Smith's dated but still useful *Brazil: People and Institutions*, and E. Bradford Burns' *A History of Brazil*.

Gilberto Freyre's *New World in the Tropics* and *The Masters and the Slaves* are classic studies of Luso-Brazilian culture and mores. Daniel Gross' "The Indians and the Brazilian Frontier" offers an analysis of the current situation of the Amerindian population, and Betty Meggers' "Environment and Culture in Amazonia" examines indigenous adaptation to the tropical forest environment. Marvin Harris' *Patterns of Race in the Americas* and Donald Pierson's *Negroes in Brazil* provide useful background information on Afro-Brazilians and on Brazilian notions about race. Robert Conrad's *The Destruction of Brazilian Slavery* is extremely instructive. *Racial Discrimination and Black Consciousness in Brazil* by Thomas Sanders deals with changes in the 1970s.

For information on nineteenth- and twentieth-century immigrants the reader might consult Sanders' *Japanese in Brazil*, Douglas Graham and Sergio Buarque de Hollanda Filho's *Migration, Regional and Urban Growth, and Development in Brazil*, and Thomas Holloway's "The Coffee *Colono* of São Paulo, Brazil."

Stanley Stein's *Vassouras*, Harry Hutchinson's *Village and Plantation Life in Northeastern Brazil*, and Warren Dean's *Rio Claro* all describe nineteenth- and twentieth-century plantations. More contemporary studies of rural Brazil include Robert Shirley's *The End of a Tradition*, Allen Johnson's *Sharecroppers of the Sertão*, and Maxine Margolis' *The Moving Frontier*. Manuel de Correia Andrade's *The Land and People of Northeast Brazil*, Shepard Forman's *The Brazilian Peasantry*, and William Saint's "The Wages of Modernization," detail conditions for small farmers, sharecroppers, and wage laborers.

Thomas Merrick and Graham's *Population and Economic Development in Brazil* is a comprehensive look at migration and labor movements; unfortunately, most of their statistical data end with the 1970 census. Emilio Moran's *Developing the Amazon* and "Ecological, Anthropological, and Agronomic Research in the Amazon Basin" describe the 1970s settlement of the Amazon as well as the state of the art of tropical forest agricultural production. George Martine's "Adaptation of Migrants or Survival of the

Fittest? A Brazilian Case" examines rural-urban migration.

Janice Perlman's *The Myth of Marginality* is a valuable description of several Rio *favelas*. Richard Morse's *From Community to Metropolis*, a history of São Paulo, is useful. Marcos G. da Fonseca's "An X-Ray of Brazilian Income Distribution" and Guy Pierre Pfefferman and Richard Webb's *The Distribution of Income in Brazil* discuss changes in income distribution. Kenneth Paul Erickson's *The Brazilian Corporative State and Working-Class Politics* and Sanders' *Brazil's Labor Unions* describe workers' efforts to organize. Dean's *The Industrialization of São Paulo 1880-1945* and Peter Evans' *Dependent Development* describe the formation of the commercial and industrial elite. Peter McDonough's *Power and Ideology in Brazil* sketches changing career patterns and social mobility between the middle and upper classes. (For further information and complete citations, see Bibliography.)

Chapter 3. The Economy



Man tossing coffee beans to clean and dry them

BRAZIL IS A LARGE DEVELOPING COUNTRY, fifth largest in the world in area, sixth largest in population, and tenth largest in economic size. For nearly five centuries it has undergone development, and in this century economic growth has been rapid and sustained. Between 1932 and 1979 real gross national product increased an average of 6.3 percent a year and industrial output by about 9 percent a year. In 1981 the gross national product was the equivalent of US\$250 billion, about US\$2,000 on a per capita basis. Brazil could be classified a newly industrialized nation by some measures.

In 1982 the country continued to have a huge agricultural sector that supplied produce for domestic consumption and raw and processed exports. Brazil was one of the world's larger exporters of agricultural products. At the same time, only four industrialized countries had as large a share of gross domestic product contributed by industry. Only eight developed nations exceeded the absolute value of Brazil's industrial production. The nation's steel industry ranked tenth in the world and the chemical industry seventh. Industry produced a wide range of consumer and producer goods. Manufactured exports included arms, airplanes, made-to-order capital equipment, and electronic gear.

Nevertheless, vast portions of the country were scarcely inhabited. Huge deposits of minerals, large stands of timber, and many hydroelectric sites remained for exploitation. Modernization had been localized geographically and in terms of the population. Many people were extremely poor and lived in primitive conditions. Further development and improvement of the situation of the disadvantaged depended on prosperity in world markets and a flow of foreign capital, because the scale and number of projects in Brazil exceeded the country's own resources. In the early 1980s foreign help was difficult to obtain, and the country faced a period of austerity to meet payments on earlier loans. How the population would react to slowed economic growth after a half-century of rapid expansion remained to be seen.

Growth and Structure of the Economy

After the arrival of the Portuguese in 1500, economic development of Brazil became linked with the political and economic situation in the major nations of the world. Because of excessive reliance on one or two export commodities throughout most of its history, economic growth has been largely in fits and starts, reflecting changing market conditions abroad. After nearly five centuries of development, Brazil's economy has become more diversified and less dependent on just a few commodities. Nonetheless, even in 1982 the country's economic well-being was

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still closely related to international commodity and financial developments.

The Portuguese who discovered and claimed the land that became Brazil did not know its extent. In fact, the present boundaries of Brazil were established only over the centuries. The country is larger than Western Europe or the 48 contiguous states of the United States. Exploration, colonization, and development progressed unevenly, often in terms of the five geographical regions: the Northeast (Nordeste); the North (Norte), which included most of the Amazon Basin; the South (Sul); the Southeast (Sudeste); and the Center-West (Centro-Oeste) (see *Geography*, ch. 2). The uneven regional development pattern remained a problem in the 1980s.

Portugal's small population and limited resources restricted the development that could be attempted in its Brazilian colony, particularly because its Asian possessions appeared richer and at first received priority (see *The Colonial Period*, ch. 1). Economic development in the first years after discovery was largely confined to cutting brazilwood for export to Europe where the extract from the wood was used as a textile dye. This activity was confined to coastal areas and required few workers and little in the way of infrastructure.

By the mid-sixteenth century more extensive development was under way, based on the cultivation of sugarcane and the export of sugar. The Portuguese mastered the techniques and became sugar exporters as a result of large-scale experiments on the Azores and Madeiras during the late fifteenth century. The experience proved highly profitable when applied in Brazil's Northeast region. Sugar became the dominant crop. By the late sixteenth century sugar was one of the main commodities in international trade, and Brazil had become the major source. When the Dutch occupied northeastern Brazil (1630-54), they learned the sugar business and created a competitive industry in the Caribbean. The enlarged supply forced down sugar prices during the latter half of the seventeenth century, and prices remained low for more than a century. After 1650 the volume of Brazil's sugar exports fell by about 50 percent at the same time that the price per ton dropped more than 50 percent.

The sugar boom provided the stimulus for the initial development of colonial Brazil. The cultivation of sugarcane was most economical on large areas, such as plantations, and required a large supply of cheap labor. Although some settlers arrived from Portugal, most of the labor in the sugar industry came from slaves—both indigenous Indians and blacks from Africa. Some of the Portuguese settlers relied on the capture and sale of Indian slaves to plantations for their livelihood. Other settlers raised livestock, which the plantations needed for draft power and meat. Other settlers took advantage of homesteading laws and became

subsistence farmers or sold their small surplus produce to the plantations and emerging urban centers. Sugar processing required substantial amounts of wood for fuel. Although the sugar industry was largely confined to the Northeast (with a minor center near Rio de Janeiro), close to the sea for ease of transport, the settlers increasingly had to push inland to enslave Indians, to obtain wood, and to find grazing areas for the expanding cattle herds.

The next surge of development, lasting through most of the eighteenth century, was based on mineral exports. The primary product was gold, but exports included diamonds and other gemstones. Gold mining was mainly alluvial panning, a labor-intensive activity. Mining was concentrated in the area that became the states of Minas Gerais, Goiás, and Mato Grosso, shifting the economic center of colonial Brazil southward from the Northeast (see fig. 1). Gold attracted workers not only from the Northeast sugar areas, including slaves, but also substantial numbers from Portugal itself. Gold exports peaked during the 1750s; prosperity subsequently declined in the mining industry. The search for gold had revealed rich iron ores, however, which formed the basis for a small, emerging ironworking industry, fabricating tools and some machinery. Farming, cattle raising, and crafts expanded to meet the needs of the growing population and expanding economy. Transport was primarily by boat, so shipbuilding, repair, and supply (sails, rope, and so forth) became important. Mining stimulated a variety of activities, although they remained small scale and localized.

After the mid-1700s the mining boom subsided, and the economy settled into nearly a century of stagnation. Production was largely for subsistence or on nearly self-sufficient units, although some exports of sugar, hides, cotton, cocoa, and a few other commodities continued. International price levels for these exports tended to remain low, however, greatly reducing the profitability and the stimulus provided to economic growth compared with earlier periods.

Coffee was introduced into Brazil in the early 1700s, but cultivation was widespread and for local consumption. Coffee began to acquire commercial importance late in the eighteenth century as international prices rose because of disruption of supplies from other countries. By the 1830s coffee exports accounted for 18 percent of the value of Brazil's exports and ranked third after sugar and cotton. By the mid-1800s coffee was the country's leading export, amounting to more than 40 percent of total exports (see *The Economy under the Later Empire*, ch. 1).

Initially, coffee for export was cultivated primarily in the hills behind Rio de Janeiro because of the ease of transport to ports and the availability of labor no longer employed in mining. Early development relied mainly on slaves working on large plantations. Contrary to the sugar industry, in which foreigners controlled the

trade, transport, and financing, local entrepreneurs were involved in both the production and the commercial ends of the coffee business. They formed a new managerial class that exerted considerable influence on Brazil's future development. As soil fertility declined over the years, coffee production shifted to additional areas, mainly southward into São Paulo and later into Paraná and Rio Grande do Sul.

From the beginning the coffee boom increased foreign trade, transport, and incomes, adding to demand. Once the underemployed resources remaining from the mining boom were engaged in production, expansion of coffee exports required committing more resources. The need for additional workers became critical. Increasing antislavery efforts diminished and then in the 1850s abolished the import of slaves, and slavery itself became illegal in 1888 (see *The Slavery Question*, ch. 1). An expanding flow of immigrant wage labor from Europe, particularly Italy, provided additional workers for expanding coffee production. Various measures by the government and coffee growers, especially after 1850, facilitated emigration from Europe, which became quite large by the late 1800s. These European immigrants brought technical and entrepreneurial skills, which contributed substantially to Brazil's subsequent development (see *Immigrants of the Nineteenth and Twentieth Centuries*, ch. 2).

The coffee boom accompanied other major changes in the country's economic situation. In 1785 a royal decree banned almost all manufacturing in the Brazilian colony. After the Portuguese court fled to Brazil in 1808, the prohibition was rescinded, and manufacturing and other development was encouraged. In 1844 the Portuguese trade treaty with Britain that had effectively stifled any industrialization in Brazil for nearly a century and a half expired. After the lapse of the treaty, emerging manufacturing industries received tariff protection (see *Problems of Foreign Policy*, ch. 1). In 1889 the country became a republic in which landowners and businessmen exerted strong influence on government policies.

In the second half of the nineteenth century, considerable expansion and diversification of the economy occurred. Profits from coffee exports provided funds for expansion of coffee production and industrial investments. The foreign exchange earnings from coffee instilled confidence so that foreigners invested in and developed railroads, electric power plants, and other essentials for economic development (see *Economy under the Later Empire*, ch. 1). The railroad from Santos to São Paulo and westward, for example, initially opened new areas to coffee production and subsequently to industrialization. The railroad was an important ingredient in the concentration of manufacturing in São Paulo. Celso Furtado, a well-known Brazilian economist and former economic minister, estimated the growth of real per capita income

at about 1.5 percent a year over the last half of the nineteenth century, a rate probably above that for Europe or the United States.

This substantial rate of economic growth was not shared equally by region. Development and growth were concentrated in the center and southern coastal states. Moreover, the influx of Europeans, the development of transportation and infrastructure, and the start on industrialization in the area of São Paulo-Rio de Janeiro ensured that the Southeast would have a long-lasting edge over other regions in growth and development. The South achieved considerable development based on coffee and other agricultural products.

The Amazon Basin experienced a meteoric rise and fall of incomes from rubber exports. Amazonian Indians had long tapped rubber trees for their own use, and exports from Brazil began in the 1820s. Exports remained low (averaging less than 2,000 tons a year) until mid-century but then began to expand, particularly with development of the automobile, averaging 35,000 tons a year in the first decade of the twentieth century. By World War I rubber plantations in Asia, stocked with seedlings smuggled out of Brazil, were producing at lower costs and quickly took over most of Brazil's markets.

The Northeast largely stagnated once the sugar boom subsided in the late 1600s. Agriculture remained the primary activity. Cattle, sugar, and cotton were the main products, each of which experienced short periods of prosperity when international conditions and prices turned favorable. Cotton exports, for example, became substantial when the American Civil War shut off supplies from the United States. For most of the time, however, the population lived close to the subsistence level. By the latter part of the 1800s, there were already signs of growing population pressure on the land when an extremely serious and protracted drought from 1877 to 1880 damaged crops and killed most of the livestock. Famine also killed a large number of the rural population, and many refugees flooded urban centers. Numerous inhabitants of the Northeast (Nordestinos) moved to the Amazon Basin to become rubber collectors in that area's development surge. When rubber exports fell after World War I, the Amazon population essentially reverted to subsistence activities.

The coffee industry continued to expand up to the Great Depression of the 1930s. By the end of the 1880s Brazil was supplying about three-quarters of the coffee in international trade. Coffee production amounted to about 3.7 million 60-kilo bags in 1880, about 16.3 million bags in 1901, and about 28.9 million bags in 1929. A growing excess of supply began to push world coffee prices down, but by the early 1900s Brazilian growers were able to obtain a domestic support program that held part of the yield off world markets and kept export prices high (see *The Economy under the First Republic*, ch. 1). The high support prices encour-

aged greater production, however, which increased by nearly 100 percent between 1925 and 1929 alone because of the expansion of plantings. In the late 1920s coffee exports accounted for over 70 percent of export earnings. By the late 1940s coffee remained Brazil's major export, but coffee exports had dropped to 42 percent of the value of the country's total exports; the country's share of the world coffee trade had fallen to a little more than 50 percent.

The coffee boom spurred industrialization late in the nineteenth century (see *Manufacturing*, this ch.). By the 1920s the industrial sector was well established. The sharp fall in international coffee prices in the world depression of the 1930s required severe contraction of imports, which prompted local manufacturers to produce substitutes for foreign goods no longer available. Government policies and investments also furthered industrialization (see *Role of Government*, this ch.). Although the Great Depression imposed major adjustments and a reduction of production, by 1934 the economy's output had regained the 1929 level. Expansion continued at a slow pace. Furtado estimated economic growth at a little above 2.5 percent a year between 1929 and 1947, only slightly above population growth.

Brazil emerged from World War II with considerable pent-up demand and substantial foreign exchange reserves. Relaxation of trade and currency controls resulted in a high level of imports and exhaustion of these reserves by the early 1950s. A concerted, successful drive to attract foreign capital investment (especially in the automotive industry), restriction of imports, and government incentives stimulated industrialization, which contributed to a high level of economic growth. Between 1945 and 1962 industry grew at an average rate of 8 percent per year, and real gross domestic product (GDP) increased by 6.8 percent a year between 1950 and 1961. For the first time in Brazil's history, internal demand rather than external factors provided the stimulus for economic growth.

The rapid expansion of manufacturing was primarily based on substitution for imports. Exports increased slowly, and manufactured exports (excluding food) were less than 7 percent of total exports by 1962; coffee accounted for 53 percent of total exports. Although imports also increased slowly, large-scale foreign borrowing was necessary to balance international payments. Other major imbalances appeared. Government policies discriminated against the agricultural sector (except coffee and sugar where the producers retained considerable influence), while contributing to inefficiencies in industry. Growing budget deficits and accompanying monetary expansion accelerated the rate of inflation, which exceeded 100 percent at times in 1964. Social unrest spread in the early 1960s (see *The Crisis of 1961*, ch. 1). In 1963 economic growth was only 1.6 percent, which meant a decline in per capita terms.

The economy was plagued by shortages and dislocations, and the country fell behind in meeting foreign debt payments.

In 1964 the military took over the government to restore order. An economic stabilization program was instituted, but changes were gradual rather than drastic in order to avoid a major recession. The foreign debt was again rescheduled. Government expenditures were curtailed, and budget deficits were reduced. Price and wage controls were imposed along with other measures. The effects reduced the rate of growth of GDP to an average 3.6 percent a year and industrial output to 3.6 percent a year between 1964 and 1967. The rate of inflation was reduced to 27 percent by 1967. The program effectively adjusted the economy for a return to high rates of growth.

The period between 1968 and 1974 has often been called Brazil's economic miracle. GDP increased at the impressive average rate of 11.5 percent a year: manufacturing at 13.9 percent a year and agriculture at 5 percent a year. These high rates of growth resulted in part from expansionary government policies and a return to production of the considerable idle manufacturing capacity that existed in 1967. In addition, a substantial expansion of world trade and a high level of capital movements created a favorable international environment. Brazil's exports increased an average of 27 percent a year while exports of manufactured goods rose 38 percent a year. Moreover, the rapid economic growth was accompanied by declining inflation and a modest rise in the external debt. Some economists argued that it was not a miracle but merely a return to sensible policies that allowed the economy to catch up with its long-run potential after being diverted by poor economic management.

Brazil has a high income elasticity of import demand—meaning that imports grow substantially with each increment in GDP. This reflects the economy's need for sophisticated capital equipment and many primary and intermediate goods produced domestically in insufficient quantities or not at all. World inflation in the 1970s, particularly the quadrupling of crude oil prices in 1974, caused Brazil immediate difficulties in paying the higher value of imports, even though export growth had been considerable. In addition to the sudden deterioration in terms of trade, agricultural production—particularly food for domestic consumption—began to falter, and aggregate demand became excessive. After 1973 the balance of payments imposed constraints on growth while inflation accelerated.

Officials attempted to sustain as high a rate of growth as possible. Between 1973 and 1978 GDP increased an average of 7 percent a year even though there was substantial variation from year to year. Imports were restrained through a variety of measures, and import substitution was encouraged. Crude oil imports were reduced, for example, and a noteworthy, but long-term, program of fuel production from sugarcane was begun (see Energy, this

ch.). The other major recourse to sustained growth was to borrow abroad. Brazil's foreign indebtedness increased sharply in the 1970s, expanding nearly fourfold between 1973 and 1978.

In 1979 the economy suffered serious setbacks. Substantial crop losses, because of drought in the southern states and flooding in other parts, increased domestic prices and caused a loss of about US\$1.8 billion in the balance of payments. Subsidies and other public expenditures proved difficult to control, adding to fiscal deficits, while the money supply increased more than expected. Inflation mounted to 77 percent for the year. Oil exporters again drastically increased prices. In 1979 the prices of oil to Brazil nearly doubled, and the increases were about the same in 1980. The country depends on imports for about 75 percent of its petroleum supplies, and the oil import bill was about US\$10 billion in 1980. The setbacks slowed economic expansion to 6.4 percent in 1979, but real GDP increased 8 percent in 1980 because of good agricultural harvests and increased industrial production—both sectors boosting exports.

A series of expansionary measures begun in 1979 stimulated an already overheated economy and was reversed by early 1981. Contraction brought on the most severe recession in more than 30 years. In 1981 real GDP declined by 3.5 percent and by 5.8 percent on a per capita basis. The industrial production index fell 9.6 percent and that for just manufacturing by almost 10 percent. Automobile and truck production was the most seriously affected, dropping by 33 percent. In contrast, the agricultural sector grew by 6.8 percent. Declining industrial activity caused unemployment to rise, and real wages fell. Contraction of the economy reduced inflation less than hoped. The price index (December to December) was up 95 percent compared with 110 percent in 1980.

The country's large foreign debt was a major concern to officials and international bankers. Substantial foreign loans were needed annually to meet existing debt obligations. In 1981 world bankers were closely watching the economic management of Brazilian officials. In 1982 several countries, such as Mexico, Argentina, and Poland, experienced difficulties in making debt service payments; some required rescheduling of their debt. As a result the international banking community was examining the risks in additional loans to developing countries. By late 1982 Brazil reportedly found it difficult to borrow the final sums necessary to meet its debt service. Although the economy was much more diversified than in its earlier history, the country's economic health still depended significantly on developments in the world's commodity and financial markets.

The changing structure of the economy has been quite remarkable since World War II. The most profound change has been the decline of agricultural activities and the expansion of industry. In

1947 agriculture (then the most important sector) contributed about 28 percent of GDP compared with 10 percent in 1980. In contrast, industry, including energy, mining, and manufacturing, increased from 22 percent of GDP in 1947 to thirty-eight percent in 1980. Various services accounted for 50 percent of GDP in 1947 compared with 53 percent in 1980. The change in employment was also considerable. In the 1950 census 64 percent of the work force was employed in agriculture, compared with 13 percent in industry. In 1979 about 32 percent of the economically active population worked in agriculture and 24 percent in industry, including construction.

The contrasting growth patterns of industry and agriculture reflected what some economists called Brazil's dual economy. Industry used modern techniques and attained high productivity. Associated with industry in the modern sector were trade, transportation, and finance. In 1970 this modern sector was estimated to account for about 85 percent of GDP and to employ about 45 percent of the nonagricultural labor force, although two-thirds of these workers were in low-skilled jobs. The importance of the modern sector increased during the 1970s.

Agriculture used largely traditional practices having low productivity. Few farmers used modern techniques and inputs to lift yields. Before the 1980s agricultural output had been raised primarily by extension of the cultivated area. Opinions differed on the suitability for cultivation of the remaining new lands, which were primarily located in the Amazon basin. Some argued that Amazon soils could sustain continual production with care. Opponents claimed the opposite and pointed to significant ecological damage once the forest cover was cut. Officials recognized that agricultural output needed to grow more rapidly and that much could be done to raise yields from lands already cultivated. The need was becoming most acute in basic food supplies, the imports of which were increasing (see *Crops*, this ch.). It was a long-term problem, however, because considerable institutional development and infrastructure building would be necessary to distribute inputs and move the resulting produce to markets.

Although the transportation system was adequate for the current needs of the economy, new economic development usually required major investments in ancillary transportation services. Before the 1930s roads and railroads primarily linked production centers to seaports, and there were some connections between major urban centers. By the 1980s a start had been made on a national road system connecting the various parts of the country. Construction costs were high, and maintenance had proved costly, however, slowing extensions to the system as well as the addition of feeder roads off the system. In a country as large as Brazil with its difficult terrain, a developed transportation system, such as exists in the United States or Europe, remained many years off (see fig. 7).

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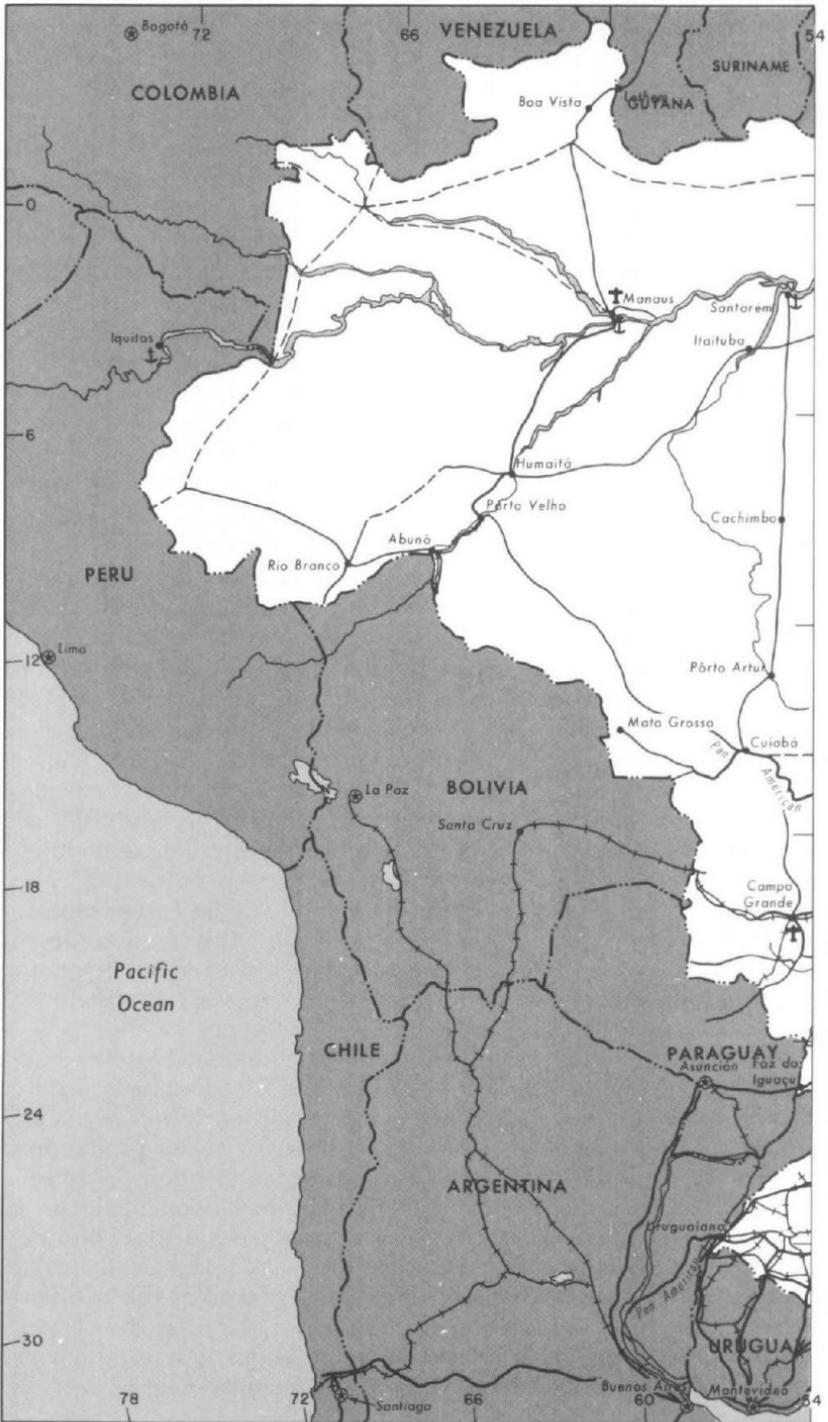


Figure 7. Roads, Railroads, Ports, and Airports, 1981



Housing and services such as water and sewage were underdeveloped portions of the economy. By the 1980s the rural to urban migration had overwhelmed the available facilities. All Brazilian cities had large shantytowns (*favelas*), constructed by migrants from scraps and other available materials (see *Forces of Change*, ch. 2). The national and lower levels of government were improving the supply of adequate housing, potable water, and sewage systems, but it would take years to eliminate the deficiencies.

Role of Government

Historically, government has exerted or attempted to exert considerable influence in Brazilian economic affairs while leaving actual economic activity to private initiative. In the colonial period the government in Portugal primarily wanted revenue, especially gold, from its Brazilian colony. Local manufacturing was suppressed to maintain a profitable market for imports. During the imperial period (1808-89) economic development was promoted through policy measures requiring little direct government participation. Governments under the First Republic (1894-1930) were dominated by large landowners. Government policy continued to influence the direction and pace of economic activity, largely for the benefit of the agricultural crops of the landed elite; direct government participation was mostly limited to managing surplus stocks of coffee beans. After the 1920s direct government involvement increased, but its role remained primarily one of influencing and managing the activities of the private sector. Social goals, such as equity of income distribution and minimum standards of housing, education, nutrition, and health care, increasingly became government goals. Public ownership remained small, however, although influential in key activities.

After World War II, officials opted to continue rapid industrialization of the economy as the means to achieve high growth rates and the social objectives being expressed through the political process. In times past when external events stimulated local industry, official policies returned to guiding the economy as an exporter of primary products, almost completely agricultural, as the stimulus subsided. The policy change in the late 1940s was supported by recommendations made by foreign economic missions in the 1930s and 1940s. The experience of the collapse of coffee prices in the 1930s depression and the subsequent growth of industry reinforced the experts' recommendations. Moreover, many in the population sensed the country's large economic potential. National security considerations further motivated the policy switch to greater industrialization.

The policy change was marked by the creation of a planning agency in the late 1940s and the first of a series of multi-year plans to guide the economy. Planning subsequently was conducted by a ministry, and in 1974 the Planning Secretariat of the Presidency

was created. The first plan became effective in 1950 and was largely a public works list that focused on easing bottlenecks in transportation and energy, particularly electric power. A shortage of funds restrained full implementation.

Over the years the planning staff gained experience and competence, and the multi-year plans became more sophisticated and comprehensive. The plans provided a guide for development and helped avert bottlenecks. At times, however, the plans were thrown off by external events and domestic developments over which the planners had no control. The bulk of economic activity in Brazil is conducted by individuals. State governments have organizations influencing economic development in their areas, including some state plans and state-owned businesses. At the federal level a bewildering, overlapping array of economic organizations and funds was created, over which the federal government often exerted little control or even had timely knowledge of their activities until the 1980s. Planning and coordination in such a milieu was difficult at best.

In the late 1970s some 500 federal decentralized agencies existed in addition to the economic ministries and interministerial bodies. The proliferation of economic organizations was a pragmatic response to specific conditions rather than an evolution under an organizational plan. The responsibilities and importance of individual agencies varied tremendously as did their autonomy. In perhaps an oversimplification, a group of autonomous or semiautonomous organizations called *autarquia* (often containing the words *institute* or *superintendency* in the English translation of their name) were similar to some regulatory agencies of the United States government. One of the most important of these autonomous entities was the Central Bank of Brazil, formed in 1964. One of the earliest was the Brazilian Coffee Institute, created shortly after the turn of the century. The Superintendency for Development of the Northeast (Superintendência do Desenvolvimento do Nordeste—SUDENE), established in 1959, and the Superintendency for the Development of the Amazon (Superintendência do Desenvolvimento da Amazonia—SUDAM), formed in 1966, were responsible for development of their respective areas.

For some activities, wholly government-owned corporations were established. The National Steel Company (Companhia Siderurgica Nacional) was formed in the 1940s to own and operate the Volta Redonda steel mill. One of the most important was the National Economic Development Bank (Banco Nacional do Desenvolvimento Econômico—BNDE) formed in 1952 to finance public and private industrialization. In June 1982 the name was changed to National Economic and Social Development Bank (Banco Nacional do Desenvolvimento Econômico e Social—BNDES). Other corporations were established as mixed companies formed

under the general corporation law but authorized by specific legislation. The federal government held at least a majority of shares, but other investors could participate. The Brazilian Petroleum Corporation (Petróleo Brasileiro—Petrobrás), formed in 1953, was a mixed company and Brazil's largest corporation. There were many companies, owned wholly or partly by the federal government, that were important in the economy; for no apparent reason some had private investors. States also formed companies, particularly banks, to aid and influence development in their areas.

In general, government ownership in companies, as a whole or in part, was intended to stimulate development. In the case of electric power, private companies were limited in financial and physical resources to expand to meet rapidly increasing demand. A mixed government company was formed gradually to take over local companies, develop hydroelectric sites, and interconnect, by a grid, generating and distribution facilities (see *Energy*, this ch.). In some instances, steel and petrochemicals, for example, the initial stages were too costly or risky for private investors. The government financed and built plants to process the raw materials, leaving upstream and downstream operations to private investors, domestic and foreign, who often had federal or state help in financing mines or fabrication plants. Governments at various levels also took over and frequently subsidized portions of the transportation system to provide essential services at low cost.

Policies

In addition to investing taxpayers' money directly, the federal government had more powerful, although indirect, tools for influencing economic development. Exchange-rate policy, tariffs and other import restrictions, subsidized credit, and tax exemptions all affected private investment decisions and the profits from such investments. Government authorities have used all of the policy measures available to stimulate and manage economic development.

A liberalization of import restrictions after World War II had to be reversed by the late 1940s as foreign exchange reserves quickly dropped. Subsequent controls greatly restricted imports. Multiple exchange rates were instituted, which favored some industries and sectors and discouraged others. Various incentive measures encouraged private investment, including large inflows of foreign capital, in the late 1950s. Government investment was added, particularly in energy and transportation. When the economy overheated from the expansionary policies, wage and price controls attempted to control inflation.

By the mid-1950s problems began to appear, reaching crisis proportions by the early 1960s, even though high rates of growth had been attained. The policy measures adopted favored industry over agriculture, capital-intensive investment over job creation, and import substitution over exports. Rural-to-urban migration

increased, although unemployment was growing in the cities. Rising coffee prices through most of the 1940s and until the mid-1950s provided much of the foreign exchange needed to pay for essential imports and growing debt payments. By the late 1950s overproduction of coffee depressed world prices and reduced foreign exchange earnings. Increasing budget deficits contributed to inflation, which prices and wage controls did not suppress.

By the early 1960s profound imbalances nearly halted economic growth while civil disorder spread. In 1961 and again in 1964 the country was unable to meet its foreign debt obligations. By 1964 inflation at times was running above 100 percent a year, and many dislocations and shortages existed throughout the economy.

The military government that seized power in 1964 faced a monumental task. Between 1964 and 1968 economic growth was subordinated to controlling inflation, instituting a stabilization plan for the economy, and imposing public order. The external debt was rescheduled. Tax reform was instituted, and government deficits were reduced. Labor unions were suppressed and wages squeezed. An inflation adjustment was added to wages, rents, taxes, bonds, and other monetary units, called indexing. A single exchange rate was established, and it was adjusted frequently by mini-devaluations to compensate for differences in inflation rates between Brazil and, largely, the United States. Import restrictions were relaxed, and incentives were provided for exports, particularly manufactured products. In brief, it was an opening of the economy compared with the import substitution policies of the 1950s.

The stabilization policies were effective, judging by the rapid economic growth that occurred between 1968 and 1973. Brazil became one of the fastest growing economies in the world; GDP increased an average of more than 11 percent a year, more than 8 percent a year on a per capita basis. Industrial growth averaged 13 percent a year with manufactured exports increasing by 38 percent a year. Over the period the increase of the foreign debt was modest, and inflation had dropped to 15 percent in 1974. Unused industrial capacity diminished quickly in the rapid growth of the early 1970s. Large, costly projects were planned and started in mining, electric power, metallurgy, and machinery to meet projected demand.

The rapid jump in the world price of crude oil in 1973 and 1974 hit the Brazilian economy at perhaps its weakest point. Growth strategy had depended considerably on the internal combustion engine and particularly the manufacture of cars and trucks, including parts. In the mid-1970s imported crude oil accounted for the bulk of the supply of petroleum products and a large share of the commercial primary energy.

The pinch was immediately felt in the balance of payments. Beginning in 1974 tariffs were increased, some by 100 percent.

Other restrictions further limited the growth of imports, which declined relative to GDP from over 10 percent in 1973 to under 8 percent by 1978. Export incentives were largely retained. The balance of payments difficulties of the mid-1970s coincided with growing concern about the recession in major developed countries (which were resorting to greater protectionism) and popular Brazilian nationalistic feelings about the country's dependence on imports and multinational companies.

The result was renewed interest in import substitution as the strategy for continued economic development. Energy policy pressed conservation and development of domestic sources. Coal mining was to be expanded, and hydroelectric sites were to be developed. A major program to substitute alcohol distilled from domestic crops for imported oil was begun in 1975 without a real understanding of its potential costs. Substantial protection and subsidized official credit was provided, along with other incentives, to stimulate the possibilities of import substitution, which was largely confined to capital- and intermediate-goods industries. Large public investments in mining, steel, petrochemicals, and other basic industries were started.

Official and popular concern has long existed over the large and obvious disparities in incomes and living standards between regions and between groups. In 1976, for example, the Southeast accounted for 65 percent of the nation's industrial establishments, 70 percent of industrial employment, and 77 percent of the value added by industry. The state of São Paulo alone, which had only 19 percent of Brazil's population in 1970, employed 48 percent of the industrial labor force, contributed 58 percent of industrial value added, and supplied nearly half of major export crops, such as coffee, sugar, cotton, rice, and corn. Per capita income in São Paulo was more than double the national average in 1970. In comparison the Northeast, North, and Center-West were undeveloped and poor; most of the population of these regions had an income a small fraction of the national average (see *Rural Society*, ch. 2).

To combat the obvious unequal regional development and living conditions, the government maintained several programs intended to benefit poorer regions. Two of the earliest were the agencies to plan and guide development in the Northeast (SUDENE) and the Amazon (SUDAM). Liberal fiscal incentives were added for investment to foster growth. The federal government, for example, built a large petrochemical complex in the Northeast to encourage additional manufacturers to locate there. Such measures were a start, but regional disparities are not likely to disappear for generations.

A variety of subsidies intended to help poorer elements of the population created a fiscal drain. Many forms of transportation were subsidized. Bottled gas was sold at low prices because of its widespread use as cooking fuel by low-income city dwellers.

Wheat was subsidized at the farm level to encourage production and at the retail level to provide low-cost food in cities. In the 1970s subsidized credit to farmers was introduced to compensate for the higher price farmers had to pay for domestic inputs under the import substitution strategy; the use of this credit increased rapidly and became extremely costly, although it reached only a small proportion of farmers (see Agriculture, this ch.). Observers questioned the cost effectiveness of the various subsidy programs and whether they even reached the very poor in the society.

The government's response to the 1974 oil crisis was to try to maintain reasonably high growth rates while making substantial adjustments in the economy. The result was lower, although still substantial, growth rates between 1974 and 1978 compared with 1968 to 1973, but they were accompanied by increasing inflation and a rapidly expanding foreign debt. In 1978 the rate of inflation was 39 percent and rising. By the end of 1978 the medium- and long-term external debt amounted to US\$46 billion, up from US\$12.6 billion at the end of 1973.

At the beginning of 1979 a series of policy changes was announced. Export incentives were to be reduced in stages while import restrictions would be liberalized. The domestic currency, the cruzeiro (for value of the cruzeiro—see Glossary), was to be devalued more rapidly to compensate for inflation and the effect of changes in trade policy. Adverse weather that hurt exports derived from agriculture, worsening inflation, and a near doubling of oil prices seriously eroded the basis of the policy changes announced at the beginning of the year. Labor disputes increased. By late 1979 the balance of payments had deteriorated seriously.

In 1979 and 1980 important reforms were taken to provide federal authorities more control over investments and borrowings of public enterprises, more flexibility in the use of budget revenues, and more ability to reduce subsidies to producers and consumers (see Fiscal Management, this ch.). In addition, reforms were made to control monetary expansion and the cost of credit (see Banking and Monetary Policy, this ch.). Meanwhile, the cruzeiro was devalued by about 30 percent in December 1979, and other changes were introduced in late 1979 and early 1980 to improve the balance of payments situation and curb inflation. Some of the rapid and numerous changes canceled the effects of earlier measures. In 1980 aggregate demand continued to grow, however. The pressure on prices raised the inflation rate to 110 percent in 1980. The pressure on the balance of payments increased, requiring additional use of foreign exchange reserves.

In 1981 officials used the improved institutional controls to contract aggregate demand. Government expenditures, including investments, were trimmed, credit was reduced, and interest costs on nonsubsidized credit were allowed to rise, reaching 150 percent for a period during the year. Monetary correction (indexing)

and exchange rate devaluations fully reflected inflation after being allowed to lag in 1980. Some tax incentives for exports were restored. The contraction of demand brought on Brazil's sharpest recession since national accounts were started in 1947. GDP fell by 3.5 percent and industrial production, the sector most affected, dropped 9.6 percent. Unemployment grew rapidly in the major cities. The inflation rate reached an annual rate of 121 percent in March but declined the rest of the year, averaging 95 percent for the year. Exports rose 32 percent, as manufacturers sought sales abroad to replace the shrinking domestic market, producing some improvement in the balance of payments.

External Debt

After 1973 Brazil increasingly turned to foreign borrowing. Part of the debt financed large investment projects in both the private and the public sectors. In spite of official policy to slow development, after 1976 public enterprises obtained many of the credits. Borrowing abroad also postponed the necessity of some difficult economic adjustments. Brazil's international credit standing was high, however, and officials obtained favorable long-term repayment schedules.

At the end of 1981 Brazil's medium- and long-term external debt amounted to about US\$61 billion, 69 percent of which was guaranteed by government organizations. Gross foreign borrowing during the year was about US\$19 billion. Interest payments amounted to US\$9.2 billion, an increase partly caused by high international interest rates. Small adjustments in world rates induced significant changes in Brazil's interest payments. In 1981 oil imports and interest payments accounted for nearly all of exchange earnings from commodity exports.

In 1982 international bankers became cautious about lending to developing countries, particularly those with a large outstanding debt. Both Mexico and Argentina were on the verge of defaulting on international obligations during the year. Brazil was second only to Mexico in the largest external debts among Third World countries. Brazil's gross foreign borrowing requirements in 1982 were probably close to US\$20 billion. A substantial portion had been arranged, but after mid-year, financial officials were frequently abroad, reportedly attempting to obtain the final amounts needed to balance international payments.

During 1982 the government ceased releasing some financial statistics. Journalists pieced together apparent developments during the year from banking sources in Brazil and abroad. Reportedly, Brazilian officials had to increase the short-term debt and reduce foreign exchange reserves from US\$7.5 billion to under US\$3 billion in order to meet debt and other international payments during the year. Brazil negotiated a loan from the International Monetary Fund (IMF) and the United States government, steps the authorities had previously avoided because of the conditions

that would be attached.

In late 1982 international bankers were reporting that Brazilian authorities had agreed to severe austerity measures with unpleasant political effects in order to obtain the needed financial help. Some of the austerity measures probably would include a sharp reduction of government subsidies and a stop to the adjustment of wages for very low-income workers—a large proportion of the urban work force—above the rate of inflation. Imports would have to be cut back further. The balance of payments constraint was expected to persist for several years because of the hump in debt service into the mid-1980s. Experts predicted relatively low growth by Brazilian standards. The reaction of the population to austerity measures was expected to be negative.

Fiscal Management

The public sector plays an important role in the Brazilian economy. In 1979, for example, about one-quarter of GDP was collected through taxes by public sector organizations. Allocation of these funds was difficult to trace, however, in Brazil's unusual fiscal and financial structure.

The public sector consists of the federal government, some 500 federal autonomous entities, over 200 special funds, governments of the 23 states and three territories, and about 4,000 municipalities (*municípios*—see Glossary). Until the 1980s attempts to gather and consolidate data from this multitude of organizations had proved less than successful. Even control or timely knowledge of the autonomous and decentralized federal agencies' activities had proved elusive. The federal budget was the only entity for which reasonably complete, consistent, and current data were available, but it accounted for only about 10 percent of public sector expenditures after budgetary transfers. The bulk of public sector investments was made by several hundred public enterprises, most of which reported little about their activities.

A further complication to fiscal management arose from the preparation of a monetary budget as well as the government's regular budget. The monetary authorities prepared the monetary budget, which included many special funds and programs administered by federal agencies (see *Banking and Monetary Policy*, this ch.). Until the 1980s, for example, major subsidy programs and interest on the government's debts were included in the monetary budget and excluded from the federal budget. Through most of the 1970s the federal budget showed a modest surplus. Officials appeared to have discretionary authority where items were entered and chose those that presented the fiscal view desired. Another anomaly occurred during the 1970s when the federal government sold bonds, although the federal budget was in surplus. The proceeds from the sale of securities passed through the monetary budget to meet obligations on federal programs.

While the federal budget showed modest surpluses through most of the 1970s, state budgets incurred increasing deficits, partly because of declining revenues resulting from federally decreed fiscal incentives, particularly for industrial investments and exports. The amount of revenues lost by these incentives was unknown. Public sector enterprises were also increasingly in debt. Although federal authorities began restraining expenditures and investments from the mid-1970s, public enterprises responded slowly. By 1976 many contractors and suppliers had to wait months for payment. In the early 1980s similar complaints continued on federal projects. Public enterprises also resorted to substantial borrowing, often abroad. Limited data indicated that the public sector deficit amounted to around 10 to 12 percent of GDP in 1979, the bulk of which arose from the subsidized credit programs.

Another difficulty in the fiscal system was extensive use of taxes specifically earmarked for particular purposes. The use of earmarked taxes increased during the 1970s, peaking at a little below half of federal tax revenues in 1978. This practice considerably reduced flexibility in the use of fiscal resources and largely negated attempts to establish planning priorities. The earmarking of tax revenues consisted of both tax sharing with state and municipal entities and collecting funds for a specific use. Taxes on petroleum products, public utilities, and electric power, for example, were almost completely designated for use by federal, state, and municipal authorities in the activities from which they came regardless of need or more pressing priorities.

In the late 1970s and early 1980s important reforms were instituted to increase federal knowledge and control over decentralized agencies and improve management of the economy. In 1979 an organization to control state enterprises was established within the presidency as part of the Planning Secretariat. It possessed wide authority to set ceilings on expenditures, borrowing, imports, and personnel levels. Timely reporting was also required of federal agencies. In 1979 a presidential decree required a phaseout of earmarked taxes, which started in 1981. Excluded were those taxes for revenue sharing with lower levels of government and those designated to help the Northeast and Amazon regions. The earmarked taxes not exempt would go to the National Development Fund until 1983, when the fund would cease to exist. From 1984 on, the federal treasury would receive the funds for discretionary and priority uses. This measure was expected to reduce earmarked revenues to only about one-quarter of treasury receipts. In 1980 several subsidy programs, the most important of which was the wheat subsidy, and debt service were transferred from the monetary budget to the federal budget. Additional measures intended to improve fiscal policies and management were taken.

In 1979 indirect taxes on goods and services produced the most federal revenue (see table 5, Appendix). The industrial products tax, a value-added tax, was the major indirect tax. The share of indirect taxes tended to decline in the 1970s largely because of the incentives provided exports. In contrast, income taxes on businesses and individuals became more important after the tax reforms of the 1960s and improved administration. In the mid-1970s public enterprises became increasingly subject to income taxes, which boosted revenues. Taxes on foreign trade provided less than 10 percent of federal revenues in the late 1970s. A variety of other taxes, some newly added or with increased rates, added to total federal revenues, which declined slightly relative to GDP after the mid-1970s.

Federal expenditures declined relative to GDP after the first oil crisis. The major federal current expenditures were personnel costs. The government limited these costs by placing temporary freezes on hiring and restraining wage and salary increases. The major portion of revenues passing through the federal budget was transferred to other agencies and programs outside of the immediate control of federal fiscal authorities. Earmarked taxes were the main funds transferred. Budget transfers increased in the 1970s as a share of GDP because of the expansion of earmarked taxes. Capital investments were the main expenditures in which federal authorities could make major cuts in the last half of the 1970s. Federal capital expenditures declined from 2.4 percent of GDP in 1976 to 0.8 percent in 1979.

The structure of the government and the budgetary process before the 1980s severely limited the ability of federal authorities to manage cyclical adjustments or economic development. The reforms introduced by 1982 facilitated centralized control even though additional changes may prove necessary. The planning Secretariat finally had the necessary authority and data flow to weigh past and present commitments of resources against future availabilities and the needs of the economy. Federal economic policy makers should be in a better position in future years to evaluate the trade-offs in different courses of action and to establish rational priorities.

Labor Force

In 1978 the labor force numbered almost 45 million (see table 6, Appendix). Since 1950 it had grown by an average of 3.6 percent a year, slightly higher than population growth because of the youth of the population and greater participation by women. In 1978 women made up 32 percent of the economically active population, compared with 15 percent in 1950. Agricultural workers continued to increase absolutely but at a

slow pace, averaging 1.4 percent a year. In 1978 agriculture employed 34 percent of the labor force compared with 60 percent in 1950.

Industry and service employment about equally absorbed the rapid growth of the economically active and the marked shift from farm to nonfarm employment. The industrial labor force increased an average of 5.2 percent between 1950 and 1978, reaching 17 percent of the economically active population in the latter year. About half of industrial employment was in small plants and shops, which contributed substantially to the absorption of new workers. In 1978 employment in all service industries totaled 19 million, about 42 percent of the labor force. Growth of service employment averaged 5.3 percent a year between 1950 and 1978. Part of service employment, however, consisted of street vendors and peddlers, eking out a bare existence but hoping for real jobs.

Most observers characterized the workers as industrious, productive, and accustomed to long hours. The work force contained highly trained and skilled people, but many had little education and few skills. Training programs were sometimes necessary.

Extensive labor legislation set most conditions of work and established the rights of labor and management. Fringe benefits and other employer costs usually were in the neighborhood of 50 to 70 percent of payroll. Labor unions similar to those in the United States did not exist. There were labor organizations but almost no collective bargaining. The federal government strongly influenced wage rates in addition to working conditions. The constitution guaranteed the right to strike, but federal laws imposed narrow conditions under which a legal strike could be called. After the military takeover in 1964, labor relations tended to be tranquil, but by the late 1970s and early 1980s labor unrest and wildcat strikes mounted as economic growth slowed and inflation rose. An increased voice for labor and more autonomy for unions were issues that the government continued to suppress (see *Liberal Groups*, ch. 4).

After the military takeover, labor organizations were largely disbanded and wage costs controlled. Some of the mechanisms used included a minimum wage set by federal authorities and a formula used to adjust monetary values for inflation. Some economists have argued that an important part of the economic miracle of 1968-74 resulted from the squeeze on real wages. In the mid-1970s wages were allowed to increase, and adjustments nearly compensated for inflation. Later in the 1970s as economic conditions began to deteriorate, the rise of wages was restrained. Changes in the formula to compensate for inflation caused a lag in the adjustment process. The 1981 recession raised unemployment to around 8 to 10 percent in some major urban centers where such statistics were recorded. The prospects for austerity and slow

economic growth in the immediate years ahead posed questions about the reactions of labor, the unemployed, and the larger numbers of underemployed.

Industry

Contemporary studies point to the last decade of the nineteenth century as the beginning of Brazil's industrialization, but such dating is somewhat arbitrary. In the 1880s, for example, over 300 industrial firms were established. By 1890 there were more than 50,000 industrial employees, and the first hydroelectric power plant was in operation. In the earliest industrial census—1907—there were over 3,000 industrial establishments with a total of over 150,000 workers. The 1920 census recorded 13,000 plants and shops employing about 275,000 workers. By 1920 manufacturing was well established, providing 64 percent of the supply of manufactured goods; imports provided the remaining 36 percent. Manufacturing was concentrated in textiles and food processing, and imports of such products were below 10 percent of the total supply.

During the 1920s industrialization slowed. Between 1919 and 1932 manufacturing output increased about 1.5 percent a year. Government attention and funds were concentrated on the support of coffee prices. Nonetheless, the metallurgical and chemical industries made substantial gains. An integrated steel plant, for example, began operation in 1925 to supplement the existing charcoal-fired blast furnaces. In the mid-1920s the cement industry was established. By the late 1930s Brazil supplied virtually all of its requirements for pig iron and cement.

Government policies during the Great Depression curtailed imports, stimulating rapid industrial expansion. Between 1932 and 1940 manufacturing output increased an average of 11.8 percent a year, but expansion slowed to 5.4 percent a year during World War II because of limited access to equipment and raw materials. By 1950 the country had 83,000 industrial establishments employing a total of nearly 1.3 million workers. Textiles and food processing had declined to about 50 percent of the value of industrial production, reflecting the expansion of the industrial base. The government established some important firms in manufacturing—justified on the grounds of strategic or national significance—such as the Volta Redonda steelworks, as part of the long-term development of an integrated steel industry. A number of multinational businesses established large manufacturing and assembly plants in response to government efforts to adopt advanced technology and broaden industrial capabilities.

Industrial output has increased an average of about 9 percent a year since shortly after World War II. Industrialization was the cause for much of the impressive economic growth during this period. In the 1980s the growth of industry will largely determine

conditions in the rest of the economy and the degree of prosperity for much of the population.

Energy

Industrialization required a huge growth in energy consumption and a drastic change in sources. At the end of World War II the bulk of Brazil's energy was supplied by firewood, charcoal, and bagasse—the woody residue of sugarcane processing. Industrialization, with particular emphasis on the automobile and other internal combustion engines as well as a huge roadbuilding program, was adopted in an era of cheap energy. In little more than a generation, compared with centuries in Europe, Brazil leaped from a wood-burning to an oil- and electricity-based economy. The rapid rise of energy costs in the 1970s caught Brazil in a vulnerable position because of a deficiency in fossil fuels. In 1979 oil products supplied about 41 percent of the country's primary energy; hydroelectricity, 28 percent; and coal, wood, bagasse, and alcohol, 31 percent. Government energy policy after the first oil crisis in 1974 focused on conservation and maximum efficiency in the use of energy; search for and exploitation of domestic energy sources; and substitution of domestic energy, particularly renewable sources, for imported supplies.

Oil was first discovered in Brazil in 1939. Proven oil reserves were small, amounting to about 1.7 billion barrels in 1982, plus about 400 million barrels equivalent of natural gas. The crude oil deposits were mainly located in the Northeast and Southeast. In 1981 domestic oil consumption was about 1 million barrels per day (bpd). Domestic production averaged close to 250,000 bpd, leaving the country dependent on imported crude for above 75 percent of total supply. The domestic production goal for 1983 was 300,000 bpd. In 1981 imported fuels (the bulk of which was crude oil) cost US\$11 billion, 50 percent of total imports. Exports of small amounts of surplus refined products amounted to about US\$900,000.

A near monopoly in hydrocarbons (exploration, production, importing, refining, and transportation of petroleum and natural gas) was granted the national oil company, Petrobrás, created in 1953 in response to a wave of nationalism. The largest Brazilian corporation, it was primarily a government-owned (federal and other levels) holding company operating through numerous subsidiaries. Petrobrás, or its subsidiaries, conducted exploration and oil field development at home and abroad; produced, imported, and refined crude oil; owned petrochemical plants that produced a variety of products, such as chemical fertilizer; and carried out transportation and distribution of crude oil and products. In 1977 Petrobrás began negotiating exploration contracts with foreign oil companies to obtain technology and financing to speed up the search for oil, particularly offshore. These contracts again allowed



Petrochemical plant, Camacari
Courtesy WORLD BANK PHOTO/James Pickerell

foreign oil companies to operate in Brazil's territory, although under controlled conditions and in limited areas. Modest new fields were discovered, which permitted a gradual growth in crude oil production in the early 1980s.

After the formation of a national energy policy, officials managed small reductions in petroleum consumption. Oil price-increases were passed on, diminishing the use of vehicle fuel. Conversion of some industries to the use of coal or other oil substitutes contributed to lower consumption. The combination of conservation, substitution, and greater domestic production reduced the country's dependence on imported oil from around 80 percent in the late 1970s to 75 percent in 1981, but it was recognized that the possibilities in such programs were limited.

Much more hope and effort went into a unique plan formulated in 1975 to substitute domestic alcohol for imported fuel in vehicle use. The national alcohol program (called Proalcool) was a bold attempt to use available skills, equipment, and other resources to produce a substitute fuel from renewable sources; it was the world's first large-scale substitution effort and was watched by many other countries. The initial program concentrated on alcohol as a substitute for gasoline, but in the 1980s research and experiments were under way to produce a substitute for diesel-engine fuel from various vegetable oils. Brazil had experience dating back to the 1930s in using alcohol as a mix with gasoline for automobile fuel.

Briefly, Proalcool planned the production of 10.7 billion liters of alcohol by 1985 to substitute for the equivalent of about 148,000 barrels of petroleum per day. Planned alcohol production would supply about 45 percent of projected automobile-fuel consumption in 1985, compared with about 20 percent achieved in 1980. According to the plan, the alcohol would supply about 5 percent of the nation's energy requirements in 1985. The program's estimated cost between 1981 and 1985 would exceed US\$7 billion in 1980 dollars. In 1980 an earlier goal was met in which 3 billion liters of alcohol would substitute for about 20 percent of the gasoline used as automobile fuel.

Brazil has long produced alcohol for chemical use and has the capability to produce the required distillation equipment as well. After the first oil crisis, alcohol production rose more than sevenfold—from 0.6 billion liters in 1973, to 3.4 billion liters in 1980, and to 4.3 billion liters in 1981. The increase went into automobile fuel, which rose from about 14 billion liters in 1973 to over 16 billion liters in 1980. Projected consumption of automobile fuel (gasoline and alcohol) in 1985 is over 20 billion liters, of which an estimated 11 billion liters will be gasoline, 6.5 billion liters will be hydrous alcohol, and nearly 3 billion liters will be anhydrous alcohol. Hydrous alcohol is used in cars built or converted to burn an all-alcohol fuel; anhydrous alcohol is blended (up to 20 percent) with gasoline.

In the 1970s the government required that a portion of the cars produced be capable of burning an all-alcohol fuel. Licensed garages were approved to convert existing cars to use hydrous alcohol. Distribution facilities for alcohol fuel were developed. For several years all-alcohol fuel was substantially cheaper than gasoline, but in the early 1980s it was raised to about 60 percent of the price of gasoline. Sales of cars to burn hydrous alcohol increased sharply in the late 1970s, reaching 77 percent of all car sales in December 1980. Sales of alcohol-fueled cars dropped precipitously in 1981 but picked up in 1982. An exact number was unavailable, but in 1982 about one-half million cars were alcohol fueled.

Hydrous alcohol has about 40 percent fewer calories than gasoline, but motors using it burn only about 20 percent more fuel because it is more efficient. It is corrosive, however, requiring special treatment of the components of the fuel system. By 1982 research reportedly had developed processes that remedied most of the problems. Experts expected that sales of alcohol-fueled automobiles would remain around 200,000 a year in 1982-84, about one-third of annual new car sales.

In 1982 a slowdown in the alcohol program appeared likely. Not all officials were convinced of its practicality. When funds became tight, help for industrial and agricultural projects related to the program was slowed. Expansion of the sugarcane acreage was less



*Construction site, Aguas Claras mine near
Belo Horizonte, Minas Gerais
Courtesy WORLD BANK PHOTO/
Tomas Sennett*

than that needed to meet the 1985 goal. By 1982 contracts for alcohol production facilities had been approved for a total capacity of only 8.9 billion liters. As a result, experts believed that alcohol production in 1985 would probably amount to about 7 to 9 billion liters instead of the planned 10.7 billion liters.

Proalcool experienced considerable criticism, partly because sugarcane provided over 90 percent of the raw material for the production of alcohol up to 1982. Numerous other crops and woody plants could yield alcohol, although the technology for some was not ready for commercial application. Considerable research was being devoted to improve processing of biomass feedstocks for alcohol yields. The more immediate and threatening problem was that Proalcool was attracting fertile farmland away from food production. Manioc, a tuber believed to come originally from the Amazon region, supplied a minor part of the alcohol feedstock. Greater use of manioc would have been more satisfactory in social terms. It grows in poor soils, would provide small farmers a cash crop, would allow distilleries to work a full year instead of only a half year, and would not add to the regional disparity of incomes that sugarcane did; but valid economic and practical reasons made sugarcane the original predominant feedstock (see Agriculture, this ch.). Critics also argued that sugar would be

exported when world prices were high, diminishing the material for and supply of alcohol for fuel.

According to critics, the alcohol program was introduced quickly in response to a serious threat to the economy and the country's development strategy and with inadequate preparation and research. It proved costly in terms of incentives and subsidies for the retail price of alcohol fuel, but by 1983 substantial substitution had been achieved for imported petroleum. Adjustments and refinements in the program seemed likely in the 1980s, based on the experience gained. Scrapping the program seemed less likely, however, if national security considerations were as important in adopting the program as many observers believed.

The country's numerous rivers provided the greatest potential energy source. By 1980 hydroelectric sites had been located that were capable of powering generators of about 213 million kilowatts of capacity and that could produce about 933 billion kilowatt-hours per year. By 1980 about 24.1 million kilowatts of hydro-generating capacity had been installed. Another 23 million kilowatts of capacity was scheduled to be installed by 1990. In 1980 some 86 percent of installed electric-generating capacity and 92 percent of the total electricity produced (137 billion kilowatt-hours) were from hydroelectric generators. Brazil had slight opportunity to conserve on the use of petroleum products in the production of electricity since hydro stations were the overwhelming source.

The world's largest hydroelectric project, the Itaipu Dam, was scheduled to begin operation in late 1983. The dam, a joint project between Brazil and Paraguay, blocked the Rio Paraná where it becomes the border between the two countries (see fig. 3). The dam, nearly 10 kilometers long and 200 meters high, was completed in 1982 after seven years of construction. It will begin operation in late 1983 with two 700-megawatt generators. Additional generators will be installed later in the 1980s with an eventual capacity of 12,600 megawatts. Total cost was expected to be above US\$18 billion (in early 1980 dollars). Brazil provided much of the equipment for the project. Brazil and Paraguay will share the electricity produced, but it was expected that Brazil would purchase a considerable part of Paraguay's share. Half of the power generated will be at 60 cycles per second for Brazil's system and half at 50 cycles for Paraguay's system.

A second large hydroelectric project, the Tucuruí Dam on the Rio Tocantins in the Amazon Basin some 500 kilometers southwest of Belém, was scheduled for operation in 1984. The first stage called for 4 million kilowatts of generating capacity to be installed between 1983 and 1985 with a possible doubling of capacity by the 1990s. Total cost for the first phase was estimated in the early 1980s at nearly US\$3 billion. The dam is located in an isolated part of the country, far from urban centers and in difficult terrain. Electricity from the dam will go to urban centers and mining

developments in the Greater Carajás project (see Mining, this ch.).

Construction schedules on both the Itaipu and Tucuruí dams reportedly were being met. It was particularly important for the latter because a few months' slippage could cause a year's delay resulting from the rainfall pattern. Several large-scale metallurgical projects in the Amazon area were scheduled and dependent on the availability of large amounts of electricity. The shortage of funds and the low level of economic activity in 1981 and 1982 resulted in a stretching out of the completion of ancillary facilities on both the Itaipu and the Tucuruí power plants; but officials attempted to minimize or avoid disruptions to other large development projects.

The Central Electric Company of Brazil (Centrais Elétricas Brasileira—Electrobrás), organizationally under the Ministry of Mines and Energy, has primary responsibility for coordination of planning in the power sector of regional expansion by subsidiaries and long-term orderly growth of the national electric power supply and distribution. Since the 1930s federal and state governments have increasingly taken over private power companies, including some that were foreign owned. Electrobrás was created in 1962 as the holding company and financial agency for the sector and to centralize management. It held the federal government's half-share of the Itaipu project, for example. Electrobrás has generally formulated sound policies and carried them through in one of the world's largest and more complex electric power systems. An integrated grid existed for the more populous areas, and the grid was being expanded. Although electricity was available in many rural areas of the more developed states, electrification was available to less than one-fifth of the rural population nationally. About 85 percent of urban areas had electricity. Electrobrás was a mixed company, but in the early 1980s over 99 percent of the firm's stock was owned by the federal government.

Looking to the future when fewer hydroelectric sites would remain—particularly located relatively close to population and industrial centers of the Southeast—Brazilian officials began to lay the base for nuclear power plants. The country has uranium deposits to provide a domestic fuel source, provided that processing facilities are constructed. In late 1982 Brazilian uranium reserves were officially estimated at 301,500 tons. In 1982 a yellow-cake plant and a plant to produce nuclear fuel elements were completed. Additional processing plants were under construction, or planned, which would provide uranium enrichment and would reprocess spent fuel. The technology and much of the equipment were being imported from the Federal Republic of Germany (West Germany) under a 1975 agreement calling for that country to supply up to eight nuclear power reactors and to assist in establishing a complete nuclear fuel cycle in Brazil. The agreement roused

opposition from the United States and some other countries because it would provide Brazil—which had not signed the Treaty on the Non-Proliferation of Nuclear Weapons—with the facilities and technology that could be used to fabricate atomic bombs (see Foreign Relations, ch. 4).

The first nuclear power plant, Angra I, located on the coast 120 kilometers southwest of Rio de Janeiro, began trial runs in 1982, but defective parts postponed operations until 1983. Angra I was started in 1972 and was supplied by Westinghouse Electric Corporation. It had a capacity of 625 megawatts and cost about US\$1.5 billion. By 1982 work had started on one of the nuclear power sites to be supplied with West German reactors. Brazil had stretched out the construction schedule for nuclear power because of lower growth of demand for electricity and a tightness of investment funds. The 1,245-megawatt-capacity West German nuclear power plants would not be completed until the 1990s, assuming all eight were ordered. In 1982 only two such plants—Angra II and III—reportedly had been definitely contracted.

In 1982 coal reserves were an estimated 22.8 billion tons, primarily located in Santa Catarina and Rio Grande do Sul. The coal was low quality and contained considerable ash and sulfur. Costly facilities were required to process the coal before use, resulting in a loss of more than 50 percent of the coal mined. In 1979 production of usable coal amounted to 4.5 million tons, accounting for about 4 percent of the country's primary energy. The government encouraged substitution of coal for other fuels, particularly petroleum, in industrial uses, such as coal-fired boilers in the few thermal electric power plants and in the production of cement. Officials hoped that the mines would produce 12 million tons of usable coal by 1985. In 1973 Brazil formed a joint company with Colombia to mine high-quality coal for export to Brazil.

Although wood was no longer the important energy source it had been before 1950, it still accounted for 15 to 20 percent of the country's primary energy supply. It was used in isolated small industries and for cooking in rural and low-income urban houses. Charcoal accounted for about 2 percent of the energy supply. It was used in some blast furnaces and for household cooking. Bagasse provided about 5 percent of the energy supply, almost completely in the production of sugar and alcohol. The lack of a woody residue in processing cassava into alcohol, which could provide a fuel source for the processing, was one of the reasons sugarcane was the dominant feedstock.

Mining

Brazil has large deposits of numerous minerals, the full range and extent of which were still unknown in 1982. The country had not been completely surveyed because of the difficulty of access in

many areas. Mining of known deposits (excluding petroleum) contributed about 2 percent of GDP but accounted for about 10 percent of exports in the early 1980s. When ore extraction, metal processing, and metal fabrication were combined, mining and metallurgy contributed about one-sixth of GDP. Mineral production was valued at US\$5.4 billion in 1980 and US\$6.5 billion in 1981.

The country's iron ore deposits (about 60 billion tons) were the second largest in the world, and in 1980 Brazil was second only to Australia in exportation of iron ore and pellets. Production in 1981 was 110 million tons (valued at US\$2.3 billion), and exports were 81 million tons (valued at US\$1.8 billion). Almost all of present production was from mines in Minas Gerais. Extensive deposits in the Amazon Basin were scheduled to begin producing in 1985.

Brazil has the ingredients for a very large aluminum industry: abundant bauxite deposits, a huge hydroelectric potential for cheap electricity, and a large and expanding domestic market. Bauxite production increased from 1 million tons in 1976, to 2.9 million tons in 1979, and 5 million tons in 1981 as new mines were opened. Additional sizable deposits in the Amazon were being developed in the early 1980s that could more than double output by the end of the decade. In 1979 exports of bauxite were substantially smaller in value terms than exports of aluminum products.

Manganese deposits were large, and Brazil was one of the world's largest producers, providing an important domestic raw material and substantial foreign exchange earnings. Potentially the world's richest gold deposit had been discovered and was being worked by rudimentary means; the value of gold production was US\$355 million in 1981. Tin, lead, nickel, chromite, beryllium, and copper, as well as many lesser known metallic minerals and a wide variety of nonmetallic minerals, were produced in significant quantities (see table 7, Appendix).

In the 1980s the focus of mining activities was shifting to the Greater Carajás project in the eastern Amazon region. The project was massive, costly, and risky but offered substantial rewards to investors and the country under favorable conditions. The project area covered some 800,000 square kilometers—roughly the size of France and West Germany together—south and east of Belém and São Luís and on the Tocantins and Araguaia rivers. The difficult, isolated, and sparsely inhabited terrain had few, if any, facilities. Initial development costs were estimated at over US\$60 billion (in 1980 dollars), of which US\$39 billion was for mining development and US\$22 billion was for infrastructure costs. The project would not be completed in the 1980s. The pace of development would depend on foreign financing, the availability of Brazilian funds—particularly from the government—market conditions at home and

abroad, and numerous other factors. In 1981 and 1982 the adverse situation in Brazil and in developed countries imposed constraints that slowed the project. Yet most of the separate undertakings were interrelated; slowing one affected others.

The Greater Carajás Council, an interministerial body, was created in 1981 to oversee and coordinate the project. Public sector companies provided a guiding hand. The government-owned Companhia Vale do Rio Doce (CVRD) was a major actor, branching out from its primary role as an iron ore company into mining and processing bauxite into aluminum and mining other ores. Electrobrás and its subsidiaries were building the large Tucuruí hydroelectric dam and transmission facilities. Other public sector organizations, such as the railroads and shipping, as well as government agencies for Indian affairs, agriculture, and banking, were involved. Yet much of the money, technology, and development effort came from the private sector, largely foreign companies in the individual mining and processing undertakings.

The initial focus of the Carajás project is exploitation of the area's mineral wealth, which amounted to an estimated US\$543 billion in 1980 dollars. Creation of farms and cattle ranches was reportedly in the early plan, but by 1982 little agricultural activity was noted. Presumably, limited funds constrained farming development. The Tucuruí Dam was nearing completion in 1982, but installation of some transmission lines was slowed by a year because of the tightness of financing. The hydroelectric potential in the Carajás area was above 24 million kilowatts.

Mining of iron ore was a major aspect of the Carajás project. Iron ore reserves were estimated at about 18 billion tons. Mining was scheduled to start in 1985 with production of 15 million tons and to stabilize at about 35 million tons annually from 1987 on, although capacity could be increased to 50 million tons a year. A 890-kilometer-long, specially built railroad would carry processed ore to a major port to be built near São Luís in the state of Maranhão. Initially, the railroad will use diesel engines, which may threaten the short-term economic return of ore mining. The railroad will be electrified later when more of the area's hydroelectric sites have been developed. The ore will be exported for the foreseeable future; purchase agreements for 25 million tons of ore a year were a prerequisite of international bankers for development loans. CVRD owns the deposits for the initial mine and is overseeing the railroad and port construction.

The world's largest bauxite deposits are thought to be in the Amazon. Some 2.2 billion tons of reserves have been found, of which 1.1 billion tons were in the Carajás area. Another 1.1 billion tons of proven reserves were in the Trombetas region north of the Amazon River but usually included in the Greater Carajás project.

CVRD had varying degrees of ownership in the bauxite deposits along with large private domestic and foreign firms. The Trombetas mine began producing in 1979 and may export 4 million tons by 1985.

In 1982 Brazil had three alumina refineries and four aluminum smelters. Additional refining and smelting capacity was being constructed at São Luís and near Belém to process Carajás bauxite. The US\$1.4 billion Alumar project (capacity of 500,000 tons of alumina and 100,000 tons of aluminum) at São Luís was scheduled to begin operations in late 1984. A Japanese consortium, participating with CVRD in the giant Belém Albrás refinery and smelter, was reportedly backing out of the smelter project in late 1982 because of low Brazilian and world demand for aluminum and its consequently low price.

Substantial reserves of other minerals are known in the Greater Carajás area. One manganese deposit contained 44 million tons of ore with 42 percent manganese content. This deposit was scheduled for development, but difficulties arose between CVRD and foreign participants, and its status was unclear in late 1982. One copper deposit contained 415 million tons of ore with 0.92 percent copper content, and an additional 600 million tons of reserves existed in other sites in the Carajás area. No copper exploitation was known to have been started, although Brazil imported most of its copper. Nickel reserves of 45 million tons with 1.5 percent nickel content had been confirmed. Gold-bearing ore amounted to an estimated 100,000 tons and was being exploited, although by small-scale operations.

The decision to proceed with the Carajás project came at an unfortunate time. A Brazilian and a world recession had reduced demand and lowered prices in world markets for many products, including aluminum and iron and steel. Considerable excess capacity existed. Interest rates were high. Investors were hesitant to tie up funds in large undertakings in the Carajás project that might be slow to earn a return in an uncertain future. Some Brazilians argued that these minerals would be needed later in the 1980s, and a start had to be made to exploit the area's obvious mineral wealth. Critics charged that Antônio Delfim Netto, the minister-chief of the Planning Secretariat, launched the Carajás project because the large loans that mineral development would attract would ease balance of payments pressures through much of the 1980s, but that the project would not be able to pay for itself in the long run. Much would depend on world market conditions in the next decade or two.

Another setback to the Carajás project was the slippage in completing individual undertakings. The original plan carefully scheduled construction so that various phases would be completed for the next stages. The shortness of funds, particularly government and public sector investments, upset the scheduling. In

1982 journalists reported that contractors were slow to be paid by government organizations and had to cut back work because of cash-flow difficulties. In other instances the government announced delays in completing specific construction projects. How serious the disruptions have been to the schedule of phased construction was not clear in late 1982. Government critics claimed that production and export of minerals had been delayed considerably.

Manufacturing

Until the twentieth century the country's minerals contributed little to the development of manufacturing. Colonial policies restricted Brazil to exporting primary products, such as sugar, cotton, tobacco, and gold, and importing manufactures. Portugal's commercial treaties from the early 1800s until the 1840s continued to open Brazil to imports, particularly from Britain, which made it difficult for any Brazilian manufacturing industry to emerge. Only late in the 1800s was local industry beginning to supply manufactured products on an appreciable scale to the domestic market.

Until the 1960s manufacturing was mostly import substitution—developing domestic production to replace goods formerly imported. Government policy at times encouraged local manufacturing and at other times, in pursuit of other policy goals, achieved that result accidentally. The two world wars and the depression of the 1930s stimulated domestic industry because of the difficulties of obtaining imports. Import substitution started with consumer goods, particularly food processing and textiles, which branched out to include finished clothing. Important additions in the 1920s included an integrated steel plant and a cement plant. Direct investment by international firms in plants to produce rubber products, chemicals, and aluminum, and to assemble vehicles broadened the industrial base in the 1930s and 1940s.

By 1950 manufacturing produced a broad range of products. Food, beverages, and tobacco accounted for 25 percent of the value added from industrial activity and textile products and shoes another 24 percent; these two broad manufacturing industries remained by far the largest in the economy, but their importance had declined from nearly 70 percent of value added in the 1920 census. Chemicals, nonmetallic minerals, metals, and machinery—the basic heavy industries—were added and grew substantially between 1920 and 1950; their combined contribution to value added in the latter year was 33 percent. Many of the manufacturing plants built in the 1930s and 1940s were large scale and modern. Moreover, institutions were established to train scientists and conduct research and development in order to advance the technology available to industry.

After World War II Brazil's economic officials made a deliberate shift to a policy of fostering industrialization as the means for rapid economic growth. Studies of the economy by various international

economists in the 1930s and 1940s pointed to the vulnerability of relying on the export of a few primary commodities. The war reinforced the message of the studies. The hazards of shipping and the closed markets during the war stimulated domestic industry. After the war, officials sought to continue the alteration of the structure of the economy rather than return to a focus on exports of primary products.

Between 1945 and 1962 industry grew at an average rate of 8 percent a year, and industrial output increased nearly fourfold. Import substitution remained the basic objective, but the possibilities in food and textile industries were largely exhausted. Growth was concentrated in transport equipment, metal products, electric machinery, and chemicals and pharmaceuticals by public investments and encouragement of direct investment by foreign firms, particularly those in automotive fields. Import substitution created balance of payments pressures, however, along with other distortions. Even the substantial inflow of foreign capital was insufficient to compensate for the slow growth of exports, and by the early 1960s the importation of needed goods was restrained by controls. The stabilization program of the 1964–67 period resulted in slow growth of the economy and manufacturing (3.6 percent a year) but corrected many of the problems for the rapid growth that followed.

Between 1968 and 1973 manufacturing industries grew at the remarkable average rate of 13.9 percent a year, and manufactured exports grew at 38 percent a year. Part of this growth resulted from putting to use idle manufacturing capacity, but numerous policy changes also contributed. The former system of multiple exchange rates, which afforded a high level of protection to favored industries, was replaced by a single rate that was devalued frequently in small amounts to avoid overvaluing the domestic currency. Tariff levels were reduced and import restrictions liberalized, although in a stop-and-go pattern. A number of fiscal and credit incentives were established to affect investment in industries that manufactured for export. Public investments also fostered growth in key industries. Foreign firms were encouraged to locate in Brazil through specific incentives and a hospitable political environment.

The sharp price increases for crude oil in 1973 and 1974 created immediate balance of payments problems. The response of policymakers was to reimpose import restrictions, stress import substitution, and expand the foreign debt. Since the early 1960s import substitution possibilities had been largely confined to machinery, chemicals, fuel, and miscellaneous manufacturing. After the first oil crisis, government policy spurred expansion in these fields, accompanied by large public and private investments, particularly in steel, nonferrous metals, electric power, petrochemicals, fertilizers, and pulp and paper. The goal was self-sufficiency by 1980. Demand in the economy was declining, however, and idle capacity became a problem as projects were completed. After 1976 the public investment program had to be slowed, lowering demand for machinery

and construction materials. Manufacturing expanded at an average of only 6.8 percent a year between 1974 and 1980. Incentives were maintained for exports, but expansion of manufactured exports slowed, averaging only about 17 percent a year (in constant United States dollars) between 1975 and 1980.

In 1981 manufacturing fell by 9.9 percent. Some industries were much more severely affected than others. Consumer durables dropped 27 percent, including a 35 percent fall in car production. In contrast, consumer nondurable goods declined by only 2 percent. Capital goods industries were depressed; production levels were nearly 19 percent below 1980. In the first quarter of 1981 capacity utilization of manufacturing was down to 78 percent generally and was lower in the more depressed industries. The recession forced manufacturers to find cost-saving techniques and to rationalize their operations. Another positive result was an increase of manufactured exports as foreign sales were sought to replace the contracting domestic market. Economists were predicting that a slow recovery of the economy and industry would begin in 1982, but many firms were in financial difficulty.

The steel industry exemplified some of the problems the economy faced in 1982. Domestic demand for steel products expanded at a high rate after the 1940s. Because the country possessed large iron ore reserves, a usually expanding domestic market, and the potential for export, government planners approved substantial additions to capacity in the early 1970s during the economic miracle. In 1980 steel output exceeded 15 million tons, placing Brazil tenth in world production and ahead of traditional producers, such as Britain, Belgium, and Czechoslovakia. The public sector was highly active in basic steel, having seven operating companies that accounted for 60 percent of sales in 1981, substantially lower than in earlier years. About 32 private companies, primarily Brazilian owned, contributed mostly specialized products to steel production. In 1982 steelmaking capacity was about 18 million tons, but production would probably be close to 13 million tons. By 1985 capacity could reach 25 to 28 million tons if projects under construction are completed. One modern private plant completed in late 1980 was operating at 50 percent capacity in 1982 with financial costs twice as high as income. A highly sophisticated government-owned steel mill having a production capacity of 2 million tons a year was several years behind schedule and had incurred large cost overruns. It was considered a white elephant even before its completion, and in 1982 its fate was uncertain. Steel exports were about 2 million tons, providing a small export surplus over imports in value terms between 1979 and 1981. Officials faced hard decisions and difficult financing with the overcapacity and shortage of funds.

Apart from recession-induced problems, Brazil had a large, broad-based manufacturing sector capable of producing automobiles,

airplanes, large ships, heavy construction equipment, computers, modern communications systems, plastics, machine tools, and many other products (see table 8, Appendix). Broadening of manufacturing capabilities was rapid after World War II. In 1962, for example, traditional manufacturing (food, textiles, wood and furniture, and publishing and printing) contributed 49 percent of the value of production compared with 34 percent in 1980. Other industries, largely heavy industry, expanded substantially faster than traditional ones. In 1980 the value of chemical production (17 percent) and of metallurgy (nearly 17 percent) were each greater than the value of food processing (14 percent). When various types of machinery and equipment were consolidated, the value of production exceeded 19 percent of the value of manufacturing.

Of all the Latin American countries, Brazil gave the greatest amount of explicit attention to technology to help the industrialization process. From 1920 on, various research and development institutions were created, and the training of engineers and scientists was encouraged. Institutions for funding such activities were added. An example of the progression was development of airplane production. The first airplane was built in Brazil in 1910, but the impetus for development of an aircraft industry came in 1940 with the creation of the Ministry of Aeronautics, which stimulated research. In 1946 a technical institute to train aerospace engineers was created, followed by a research center in 1954. A team at the research center developed the design of the Bandeirante airplane in the early 1960s as a replacement for aging American DC-3s widely used on Brazil's dirt-strip backcountry airports. The Bandeirante team was transferred to a newly formed public-private Brazilian aeronautics enterprise (Empresa Brasileira Aeronautica—Embraer), in which the government provided incentives for private investors to purchase over 90 percent of the company stock. The Bandeirante proved a success and was modified for various users at home and abroad (see Defense Industry, ch. 5). Embraer, formed in 1967, built other planes, including some under license from foreign firms. By 1980 Embraer was one of the larger aircraft companies in the world. Economic studies suggested that over one-fifth of industrial expansion between 1959 and 1970 resulted from technological advancement.

One means of advancing technology was to encourage investment by foreign firms in manufacturing plants in Brazil. Government policy generally provided incentives and a hospitable environment for direct foreign investment, but such investments fluctuated for various reasons. In 1979 foreign firms held an average of 22 percent of the equity in all manufacturing industries, down from 34 percent in 1971. Foreign equity varied considerably in 1979 from 96 percent in tobacco manufacturing, to 66 percent in pharmaceuticals, 57 percent in transportation equipment (mainly cars and trucks), 19 percent in chemicals, 11 percent in metallurgy,

and very small amounts in some traditional industries.

In the 1970s Brazilians again became concerned with direct foreign investment controlling the economy. Various measures were adopted to lessen foreign participation. In the mid-1970s foreign companies could no longer buy Brazilian companies considered by the government as important in priority industries. Public sector companies (an important element in the economy) also gave preference to sales from wholly owned Brazilian companies. Public investment and, therefore, equity increased in manufacturing. Nationalism crept into commercial and investment policies, but declining demand, lower profits, and other factors also helped discourage foreign investors.

In the 1970s public sector ownership in manufacturing continued the increase that had begun in the 1940s. The publicly held equity in manufacturing firms increased from 18 percent in 1971 to 22 percent in 1979. The public sector was dominant in chemicals (64 percent of total equity in 1979), reflecting government activity in oil refining and petrochemicals. The public sector owned 38 percent of equity in the metallurgical industry, primarily steel. Government equity in other industries was expanding but represented only a small part of total ownership shares. Private domestic investors increased their equity in most industries and raised their share of total equity in manufacturing from 47 percent in 1971 to 55 percent in 1979.

Brazil's industry operated in a protected market. In 1973 the nominal average tariff on manufactured imports was 57 percent. In 1980 the market was even more highly protected, nominal tariffs ranging from 23 percent to 203 percent and averaging just above 100 percent. The increased tariffs and other measures were imposed after the first oil crisis to restrict imports. The protection appeared excessive and fostered production for the domestic market at the expense of exports. Studies suggested that Brazil's long-term use of import restrictions since World War II had not promoted efficient and socially costly manufacturing industries. Although efficiency varied considerably among firms and between industries, Brazilian manufacturing was generally judged competitive with that in other countries, and the growth of manufactured exports since 1967 supported the findings of individual studies.

Most manufacturing firms were small; many were little more than shops. In 1970 (the last industrial census available in late 1982) firms employing up to 99 workers made up almost 98 percent of the 142,110 establishments and employed 50 percent of the industrial labor force but contributed only 36 percent of the value added by manufacturing. Medium-sized firms (employing 100 to 250 workers) were little more than 1 percent of the total and provided 15 percent of industrial employment and 17 percent of value added. Large firms (employing over 250 workers) numbered 1,213 (just under 1 percent) and provided 35 percent of

employment but accounted for 48 percent of value added. The importance of small firms to employment and large firms to output was obvious.

Brazil's industry is highly concentrated in the Southeast—the states of Minas Gerais, Rio de Janeiro, Espírito Santo and, especially, São Paulo. In 1976 this region's share of total industrial employment was 70 percent and of total value added, 77 percent. In the 1960s the government established programs and provided liberal incentives to locate industry in disadvantaged regions, particularly the North and the Northeast. The programs stimulated industrialization outside of the Southeast, suggesting that geographical concentration peaked in the 1960s, but available data indicated that the deconcentration achieved by 1976 was small.

The South had the second largest share of manufacturing. In 1976 this region had 21 percent of the firms, 19 percent of industrial employment, and 15 percent of value added manufacturing. Manufacturing increased substantially in the Northeast, but its relative share continued the decline reflected in industrial censuses since at least 1940. In 1976 the Northeast had 10 percent of the manufacturing firms (15 percent in 1940), 8 percent of industrial employment (18 percent in 1940), and 6 percent of the value added (9 percent in 1940). The North contributed only 0.6 percent of the value added by manufacturing in 1976. Industrialization in the North and Northeast expanded more slowly than the national average in spite of the special incentive programs.

Agriculture

From the earliest years of the colonial era, agriculture has held center stage in the economy. Plantation agriculture was the country's link to the world economy. Large holdings dedicated to monocultural export crop production and dependent on slave labor formed the basis of the agrarian economy. Beginning with sugar cultivation in the sixteenth century, economic trends have been dictated by a series of "boom-bust" agricultural cycles. Cotton, cocoa, rubber, and coffee followed sugar. In each case Brazil brought reserves of land into cultivation, specialized in the export crop of the hour, and attained a position of dominance in the world market only to be supplanted by other producers and to suffer economic reverses as world prices declined. "Booms" were inexorably followed by "busts" and a period of stagnation until another "boom."

Agriculture in the 1980s offered both contrasts and continuities with this pattern of development. The agricultural sector continued to play a significant role in the economy, but in terms of neither domestic production nor exports did a single crop dominate the way sugar, coffee, or rubber had at their apexes. The government had aggressively pursued a policy of industrialization and diversification of exports. Policymakers relied on agriculture

to provide the food, fuel, and labor for industrial growth.

In the 1970s soybeans outpaced Brazil's traditional agricultural income earners: coffee, cocoa, and sugar. There was as well a general rise in the number of agricultural products exported. Largely as a result of government incentives favoring processed goods over raw crops, the volume, value, and variety of semiprocessed and manufactured agricultural products increased substantially. The notable changes in output tended to divert attention from the long-term continuity in the structure of agriculture. Large landholdings retained their dominant position. Land use remained extensive; gains in productivity were limited. Export and commercial crops garnered a disproportionate share of the best land, as well as of improved inputs, research funding, and developed infrastructure. There has been a general neglect of most common foodstuff items: manioc, corn, and beans. In the mid-1970s the government started funding centers for research on specific food crops. As a whole, however, what Brazilians ate was grown by small farmers on marginal land under primitive conditions; what they exported was the domain of large landowners holding the most desirable land and having access to modern agricultural technology.

Land Tenure

Landholding continues to be concentrated: a relative few control reserves of land disproportionate to their number. This pattern of landownership dates almost from the colony's inception. Faced with the task of forestalling French claims to Brazil and lacking population reserves to settle the region, the Portuguese crown gave vast land grants to a few. Colonization was an alternative to effective military control of the Brazilian coast. Within decades of the initial settlement, the best coastal land had been divided into large sugar plantations. The backlands followed soon thereafter with enormous cattle ranches; a steady supply of animal traction was almost as essential as slave labor to sugar mills. Wealthy plantation owners endeavored to own their own cattle ranches to ensure a dependable source of draft animals. The crown made belated efforts to reverse the process of land accumulation; in 1695 a single grant was limited to 14,400 hectares, and soon thereafter the maximum was dropped to 10,800 hectares. Throughout the eighteenth century there were periodic royal threats to expropriate uncultivated land. Although the system of land grants was formally abolished in 1822, from 1830 onward public lands could be leased on the basis of squatters' rights without any size limitation. There has been little curb on the accumulation of vast landholdings and still less incentive to use land intensively. The pattern has been to abandon land and move farther toward the frontier as soils became exhausted and yields declined.



*Farmers of German descent processing erva
maté (tea), Santa Cruz, Rio Grande do Sul
Courtesy P.A. Kluck*



*Tobacco seedlings, Santa Cruz, Rio Grande do Sul
Courtesy P.A. Kluck*

According to the 1975 agricultural census, slightly more than half of all agricultural establishments (farms) controlled less than 3 percent of all farmland. At the other end of the scale, less than 1 percent of all farms held more than 40 percent of the land. The level of concentration holds whether one looks at land in temporary or permanent crops and, practically speaking, regardless of the region of the country. There is, however, variation in both the extent to which landholdings are concentrated among the largest farms, i.e., those of more than 1,000 hectares, and the level of land fragmentation to which small holdings are subject. Farms of 1,000 hectares or more have their greatest share of all land in the North and Center-West where they represent 54 and 69 percent of agricultural land, respectively (see table 9, Appendix).

Land distribution has been basically unchanged over the past half-century. The share of small, medium, and large farms has been generally stable since 1920 (see table 10, Appendix). Although the average holding in 1975 was only one-quarter of what it had been in 1920, most of this decrease was absorbed by larger holdings (those over 100 hectares in size); relative to those farms' size, the decline has been minimal. In relative terms the smallest holdings fared the worst; the average size of farms of less than 10 hectares declined by 20 percent between 1940 and 1975. Mid-sized farms (from 10 to 100) were roughly equal to their 1940 averages (see table 11, Appendix).

Farm size was maintained by bringing new land under cultivation; total hectares held by farms nearly doubled between 1920 and 1975. The last half-century has been an almost constant process of expansion onto virgin agricultural land. The push into Paraná began in the 1920s and finally leveled off in the 1950s. Then in the late 1950s and throughout the 1960s there was expansion into Goiás and Mato Grosso do Sul, encouraged in part by the relocation of the capital to Brasília. In the 1970s farmers brought increasing amounts of land in Rondônia, Acre, and Roraima under claim if not into production. The rise in land under cultivation accounts for most of the increase in crop production (see Land Use, this ch.).

The move into Paraná brought productive agricultural land under cultivation and generated sufficient income to invest in infrastructure. Moves in the 1970s were into increasingly remote regions. At the same time, increases in the cost of oil made transportation and marketing more expensive. Infrastructure in recently settled regions was rudimentary. Amazonian settlements also required substantial investments in agricultural research. Much of the remaining frontier land was tropical forest; once cleared, its thin topsoil was rapidly leached, and yields declined within several years of first planting. Satellite surveys discovered areas of rich topsoil in the Amazon Basin, however. Research in the late 1970s demonstrated a number of promising possibilities

for sustained-yield agricultural production in the tropics. Some agronomic studies found that properly managed pasturage actually stabilized tropical soils and enhanced their fertility. A research station in the Peruvian Amazon maintained yields of some 10 tons of grain per hectare annually for nearly a decade through a complex system of crop rotation. It remained to be seen whether tax incentives would be changed to favor intensive land use rather than extensive clearing and abandonment of land. Given the relative availability of new forestland, it was doubtful that most farmers or ranchers would choose land management systems capable of generating sustained yields. An early 1980s survey of cattle ranches in Pará, for example, found that 80 percent had been abandoned.

Although the country's extensive land reserves and growing rural-urban migration alleviated the problem of land fragmentation, more than half of all farms had less than 10 hectares. The level of fragmentation was most acute in the Northeast where, overall, some 70 percent of all holdings were of less than 10 hectares. In Paraíba and Pernambuco the proportion rose to three-quarters of all holdings; in Maranhão nearly 90 percent of all farms had less than 10 hectares.

One corollary of concentration in agricultural holdings is that intensity of land use varies inversely with farm size. Further, with the exception of cotton in Alagoas, coffee in São Paulo, and cocoa and sugar in some regions, agricultural surveys through the mid-1970s consistently found that large holders do not outproduce small farmers on a per hectare basis, and small farmers tend to use their limited resources more intensively than do large landowners. This relationship holds true even when allowance is made on the quality of land. It is not simply that large farms include a greater portion of land inappropriate for crop production within their boundaries. Some surveys found that sharecroppers rank higher in factor productivity than do landowners; they tend to use their limited land, labor, and capital more productively. It is also true regardless of region: large holdings in the South and Southeast tend to outperform their counterparts in the Northeast, but small holdings still use land more intensively across the board. What is produced does have an impact on returns to scale and intensity of land use. Among large landholdings, cattle ranches use land least intensively, and coffee plantations much more so.

The Northeast provides an instructive, albeit extreme, example of the relationship between land size and use. In that region holdings of less than 10 hectares maintain an average of half their land in cultivation; among the largest farms the proportion falls to a scant 10 percent. On farms of more than 500 hectares some 85 percent of the land is used for neither crops nor fodder. These farms control nearly half of all agricultural land and contribute less than one-third of output. Small holdings, accounting for 1.4

percent of farmed land, produce roughly 7 percent of agricultural production. Looking at expenditures per hectare, including labor, mid-sized farms spend one-quarter the rate of those with less than 10 hectares; holdings of more than 500 hectares spend less than one-tenth the rate of the smallest farms.

Large holdings use labor and capital less intensively than do small holdings. Labor input drops steeply as the farm size rises. Capital expenditures per hectare also drop, but not as precipitously as labor, so that large and mid-sized holdings tend to have higher capital-to-labor ratios than do smaller holdings. As a rule the largest holdings woefully underutilize labor while the smallest overuse it. Again, the Northeast provides a useful example: the smallest holdings use from 25 to 45 times the labor per hectare that the largest holdings do. Most of the smallest farms make use of family labor that simply has not been absorbed by nonagricultural employment or wage labor off the family farm. On large holdings the marginal productivity of labor is estimated at double the wage rate.

The data from agricultural surveys do not readily lend themselves to long-term comparisons between the factor use and productivity of various sized farms over time. On crops and regions for which adequate comparable data are available, the relationship between agricultural output and farm size remained roughly constant from the early 1960s through the mid-1970s. Economists estimate that a division of unproductively used land into parcels of the sort envisioned by the Land Reform Statute of 1964 would result in an overall increase of agricultural output in the range of 15 to 25 percent (see Government Policy, this ch.). In the Northeast, Brazil's poorest region and the one in which problems related to land distribution and use are most acute, such a redivision would double the number of farms. It would absorb significantly higher levels of labor than the extant agricultural system. Increases in foodstuff production would lower prices for consumers, although the magnitudes are difficult to project. A 1978 World Bank (see Glossary) study found that the number of families able to afford a minimally adequate diet would rise by more than 100 percent. In addition, the projected redistribution would provide full-time employment for another 500,000 workers.

Tenancy—in the sense of operator of a farm—is strongly geared toward ownership. In 1975 (the last agricultural census for which information was available in late 1982) slightly more than 60 percent of all farms were owner operated. The national average obscures significant regional variation in the incidence of landownership (see table 12, Appendix). The preponderance of landowners among all agricultural establishments reflects the large number of small proprietors in Brazil. Approximately one-fifth of all farms are held by simple squatters' rights or, less frequently, occupied without payment but with an owner's tacit or formal consent.

Farms occupied without title or without a rental or sharecropping agreement are found principally in the North, where they account for half of all farms and more than one-third of the land, primarily because of the region's recent settlement. There continues to be considerable confusion over land titles, and relative chaos in landholding has accompanied the move onto frontier land (see *Rural Society*, ch. 2). The early phases of land settlement are rarely under government control, and it requires years to bring order to land titles.

The government has initiated a number of efforts to resolve land conflicts. The National Institute for Colonization and Agrarian Reform (Instituto Nacional da Colonização e Reforma Agrária—INCRA), the agency in charge of administering the Land Reform Statute and organizing government-sponsored settlement projects, has recently redirected its efforts. INCRA by the early 1980s was focusing on resolving land conflicts among migrants who came to the North on their own initiative. The agency issued more than 100,000 land titles annually in 1980 and 1981; in 1982 INCRA expected to grant more than 300,000 titles. In late 1981 the government halved the length of occupancy (from 10 to five years) necessary for squatters to establish title to unclaimed land. The change was expected to benefit roughly 100,000 squatters.

Less than 20 percent of all farms and a minute portion of agricultural landholdings (under 5 percent) are worked under sharecropping or rental arrangement. Sharecroppers give a portion of their harvest to the landowner and often must put in a certain amount of labor on the owner's fields. Renters pay, either in cash or produce, a specified fee for the use of a parcel of land for a specified period. Renting is most common in the Northeast, where the level of land fragmentation makes it essential for small farmers to rent in order to supplement their own plots of land. Renting and sharecropping are subsidiary arrangements for large landowners in all regions. Nationwide only 1.2 percent of all land is sharecropped; in no region does the figure approach 5 percent of land. Similarly, except for the North and the South, where approximately 6 percent of the land is rented, little land finds its way into the rental market. That large owners let relatively little of their holdings contributes significantly to the generally low level of intensity with which land is used.

At best, renting and sharecropping give access to small plots of land. Renters and sharecroppers are concentrated among smallholders: more than half have less than five hectares (see table 13, Appendix). Small proprietors reportedly rent or sharecrop to supplement their production, although the exact extent to which this occurs is not known. Nonowning terms of tenancy are not common for larger holdings; nonetheless, they do occur, and the distribution of rented and sharecropped land among the various size categories reveals the same patterns as that among landowners.

Rented and sharecropped land is concentrated. Less than 4 percent of all renters, holding parcels of 100 hectares or more in size, control nearly 70 percent of all rented land. Slightly more than one-quarter (with less than one hectare) garner less than 1 percent of the rented land. The top 1 percent of sharecroppers have nearly 40 percent of the sharecropped land; the lower half (with parcels of less than five hectares) have approximately 10 percent.

Although overall land distribution has been relatively stable since 1940, the share of the various tenure categories has changed substantially, as has the distribution of sharecropped, owned, rented, and squatter farms. Although still a majority, in 1975 owner-operated farms had declined relative to most other kinds of tenure. The percentage of squatters had more than tripled, and that of renters and sharecroppers was roughly one-third its 1940 level. Occupants increased their share of landholdings substantially—probably a reflection of the growing pace of frontier settlement. The average land size declined for all kinds of tenure except squatters. The steepest decreases were registered for renters and sharecroppers, whose average holding in 1975 was 15 percent that of 1940.

A number of changes in the 1960s and 1970s were implicated in the drop in sharecropped and rented land. Incentives for increased beef and dairy production indemnified coffee growers for switching from that crop (a labor-intensive one) to pasture. Rising soybean prices further encouraged a switch from coffee. The national alcohol program (Proalcool) may have had a similar effect (see Energy, this ch.). Finally, legislation designed to regulate the conditions of employment and tenancy in agriculture has had as a side effect a decline in economic opportunities for those the laws sought to protect.

Land Use

Land use in Brazil is characteristically extensive; farmers realize gains in production by bringing more land under cultivation rather than using land, labor, or capital more intensively. Of the more than 300 million hectares in farmland in 1975, less than 40 million hectares were in crops and another 166 million hectares were in pasture, of which roughly one-quarter was improved. Most of the increase in agricultural output since 1960 has been brought about by increases in the area in crops; yields per hectare have generally held constant. In the 1970s, however, yields did improve for soybeans, cocoa, and some fruits and vegetables, while they declined for several major foodstuffs—manioc, beans, wheat, and rice among them. Corn, accounting for roughly one-quarter of cropland and second only to soybeans in value in the late 1970s, is typical of the pattern; yields fluctuated little in the 1970s while a gradual increase in planting generated a minimal 1.6 percent annual growth in production. Brazil's vast land reserves have

permitted extensive land use without seriously eroding output. Frontier land brought under cultivation in the 1960s and 1970s, however, was further removed from the most densely settled regions. Making these regions effective food suppliers to urban areas involved substantial costs in infrastructure (see Land Tenure, this ch.).

There has been a distinct dichotomy in agricultural technology among farmers. Improved inputs have been largely limited to prosperous farms geared toward export crop production. They have enjoyed significant research funding, access to credit and modern inputs, and developed infrastructure. Traditional foodstuff items have been largely neglected. Until the 1970s they were infrequently the subject of agricultural research, and those who grew them rarely had access to improved seed, fertilizer, or pesticides. Beginning in the 1970s the government made efforts to redress the balance. Crop-specific research centers for, among others, rice, beans, manioc, fruit, corn, and sorghum, were started. Research and funding of extension services grew by nearly 25 percent annually in the 1974-78 period. There were attempts to target funds to the poorer Northeast. Nonetheless, in the late 1970s the use of modern inputs remained heavily concentrated among farms geared to export crop production, especially those in the South and Southeast. Soybeans, sugarcane, wheat, and coffee accounted for approximately 60 percent of the fertilizer used; on a regional basis the North and Northeast used only 10 percent of the fertilizer. São Paulo and Rio Grande do Sul in 1977 had half of the country's tractors, Paraná and Minas Gerais another 29 percent. Ninety percent of the area planted in wheat used improved seeds, and 70 percent of that planted in soybeans did so; at the other end of the scale, less than half the area planted in corn used improved seed varieties, and only 4 percent of the acreage in beans did so.

Crops

Farm production rose by an estimated 5 percent in 1981 (see table 14, Appendix). In late 1982 the government projected a decrease of similar magnitude in that year's harvest. Coffee and soybeans registered the steepest drops; experts expected coffee production to be down by one-half, and soybeans, by some 14 percent. Since the 1950s there has been an increasing shift to manioc at the expense of most other foodstuffs. Manioc is the only crop to show consistent gains as a percentage of output. From the early 1950s through the late 1970s cereals declined in relative terms. Both corn and rice production suffered as a result of the wheat incentive program. Changes within those crops grown primarily for export have been more striking. Export crops' share of agricultural output (by value) fluctuated from roughly half in the early 1950s, to scarcely more than one-third in the mid-1960s, and back to one-half in the late 1970s. The largest change was the

expansion in soybean production coupled with the relative decline of coffee and cotton (see *Agricultural Exports*, this ch.). Indeed, soybeans accounted for most of the export sector's overall growth, as well as differences between the growth rates of export crops and domestic foodstuffs. From 1955 through 1979 the average annual growth rate (in value) of foodstuffs declined by one-third, while that of exports more than doubled. Without soybeans, however, export crop growth was negligible, and the growth rate of total agricultural production dropped by four-fifths.

Food crops tend to be grown by smaller landholders, and their cultivation is dispersed. Regional specialization is limited. Corn output is slightly concentrated in the Southeast and South, rice in the South and, to a lesser degree, in the Center-West. Beans are grown everywhere, but the South exports a surplus to other regions. Manioc likewise is found everywhere, but especially in the Northeast. Roughly 70 percent of corn, 75 percent of beans, and 80 percent of manioc are grown on holdings of less than 50 hectares. In the South rice is grown on large holdings, but in the Center-West half of all production comes from holdings of less than 50 hectares.

Although coffee production declined generally in the 1970s, coffee growers enjoyed high earnings. A decline in volume contributed to higher prices; real prices for coffee growers moved upward at an annual average of approximately 13 percent from the mid-1960s to the early 1980s. At the same time, the portion of processed coffee exported grew by leaps and bounds. Planting shifted from the freeze-vulnerable regions of Paraná into Minas Gerais (government incentives aided in the process). There was also significant modernization of the sector; new varieties and improvements in tree care and processing equipment helped offset the drop in the area planted. Allowing for annual weather-related variation, productivity rose substantially from 401 kilograms per 1,000 trees in 1960 to 708 kilograms in 1978. The average age of coffee trees dropped.

Cotton, although its drop in export earnings was more precipitous, showed similar trends. Raw cotton declined while yarn and fabric exports absorbed the output of cotton. High prices for textiles (some two and one-half times those for raw cotton in the 1970s) facilitated the switch. By the early 1980s, however, policymakers feared rising tariffs against textiles. Nonetheless, cotton declined in yields and profitability in the 1970s. Cotton lost land to sugarcane and soybeans alike.

Cocoa, like coffee, benefited from modernization in the 1960s and 1970s. In 1965 Brazil represented 8 percent of world cocoa production; by 1978 its share was nearly 20 percent. In common with other export crops, there has been a shift toward processed cocoa derivatives. Prices rose throughout the decade; farmers reaped substantial profits, the size of the planted area enlarged,

and yields improved. Production, heretofore limited to Bahia, expanded into Pará and Rondônia. The mini-boom raised questions as to whether Brazil's increased output might not further depress world prices, which were expected to weaken in any event in the mid-1980s.

Soybean expansion outstripped that of all other crops. For roughly a decade (1966-77) the area harvested grew at an astounding 31 percent annually; by the late 1970s soybeans ranked second to corn in terms of land use. Production rose from scarcely more than 1 million tons in 1969 to 15.5 million tons in 1981. Yields as well increased by roughly 50 percent between 1967 and 1981. The most substantial increases came in the early 1970s; thereafter, output and acreage grew less rapidly. Production spread northward from Rio Grande do Sul into Paraná and São Paulo. The shift helped mid- to large-sized farms beset by the decline in coffee production in those regions. The drop projected for 1982 reflected a combination of drought, prices, and a drop in the area planted.

Livestock

The country has one of the largest livestock populations in the world; in 1980 the herd included some 91 million cattle, 36.5 million swine, 18 million sheep, and nearly 400 million poultry (see table 15, Appendix). Except for minor annual fluctuations related to herd replacement and market forces, most livestock have increased steadily since roughly 1920. From 1940 to 1980 cattle herds have grown at an average 3 percent annually, swine at 1.8 percent, and poultry at a hefty 5.5 percent. (The most substantial rates for poultry came in the 1960s and 1970s.) Cattle herds are concentrated in Minas Gerais, Rio Grande do Sul, Goiás, Mato Grosso, and São Paulo (see table 16, Appendix). European breeds, such as Hereford and Angus, are raised in the southern regions; zebus are more common in tropical climates. Holsteins are the predominant dairy cattle. The growing poultry industry is centered in the Southeast and South, principally São Paulo. Indeed, in 1979 that state's poultry accounted for nearly 20 percent of all chickens by value. Livestock production, particularly cattle raising, has traditionally relied on vast reserves of pastureland; during the 1970s, however, the use of improved rations and forages did increase.

Beef and veal production in the mid-1970s and early 1980s fluctuated between 2.1 and 2.5 million tons annually. Production in 1981 and projected production for 1982 registered increases of approximately 5 and 10 percent, respectively. Experts attributed the rise to ranchers' slaughtering more animals than herd maintenance would normally require. Experts expected that the trend would bottom out in 1982 and that ranchers would begin rebuilding their herds in 1983. Government incentives fueled exports; in contrast with most agricultural products, fresh beef exports grew

more rapidly than processed items. Pork production rose until 1980, when a 35-percent increase in the farmers' minimum price combined with consumers' fast-eroding disposable income. Production dropped slightly in 1981, and the decline was expected to continue through 1982 (see table 17, Appendix).

Poultry was the fastest growing sector of livestock production. Production increases continued into the 1980s at a slackening pace, with an average annual growth rate through 1982 estimated at 13 percent. Exports played a major role in expanded production; their share in production grew from less than 1 percent to 21 percent in six years (1975-81). The Middle East and Soviet Union were the chief markets.

Dairy production was hampered by government price controls and the decline in consumers' purchasing power in the early 1980s. The general impact of retail price controls on fluid milk has been to encourage dairy farmers to shunt milk into processed dairy products and to limit overall investment in the dairy herd. The portion of milk destined for fluid milk consumption was 50 percent in 1975, when price controls were instituted; it declined to 33 percent by 1978. Even a partial freeing of retail milk prices in April 1982, coupled with producer price increases of roughly 60 percent in 1981, helped little. Dairy producers contended that prices were still too low. Production of milk expanded slightly; that of other dairy products remained steady. Sales were reportedly down by nearly one-third in 1981.

Forestry and Fishing

Brazil has one of the largest forest reserves in the world. Most stands are in the Amazon Basin and were almost wholly inaccessible until the highway building of the 1970s. Lumbering is generally viewed as one of the region's most lucrative prospects. The Amazon forest includes literally hundreds of varieties of tropical hardwoods. The South has extensive stands of softwoods, principally Paraná pine. Cultivated trees include eucalyptus, tropical pine, Gmelina (Queensland beech), and the black acacia.

Firewood and charcoal are used extensively in Brazil. Charcoal is used in industry as well as for home cooking and heating. Flue-cured tobacco places great demands on the wood reserves of the South. In the late 1970s the country lumbered between 55 to 60 million cubic meters of logs and some 155 million cubic meters of firewood annually. Charcoal production stood at approximately 2.5 million tons a year. Most charcoal and firewood came from natural stands. Cultivated and natural forests contributed about equally to lumbering.

Exports expanded in the late 1970s (see table 18, Appendix). From 1975 through 1980 the total value of exports quadrupled. Growth was particularly fast paced from 1978 through 1980, when increases in value averaged nearly 60 percent each year. Pro-

*Farmer in rice field,
state of Maranhão*
Courtesy WORLD BANK
PHOTO/Jaime Martin-Escobal



cessed and derived products enjoyed the highest growth rates; they increased their share of total value from roughly two-fifths to two-thirds during this period.

The country's forests offer numerous extractive products. Rubber, carnauba palm wax, Brazil nuts, maté, babassu palm oil, and piassava (fibers used in ropes, mats, and the like) are the main commercial products, representing some 80 percent of the value of all extractive products in 1977. Rubber production, centered in Amazonas and Acre, was 10,651 tons in 1977 and was valued at roughly Cr\$156 million. The carnauba palm, native and unique to the country, grows in the Northeast. Over 90 percent of total production and value comes from Piauí, Ceará, and Rio Grande do Norte. The wax, combed from the plant's leaves, is used in the manufacture of phonograph records, paint, candles, polishing pastes, and colored waxed papers. Soap manufacture uses babassu oil; Maranhão accounts for the lion's share of production. The government designated the babassu to play a subsidiary role in the energy crop program in 1975. Maté leaves, used in a tea-like

beverage popular in southern Brazil, Argentina, Paraguay, and Uruguay, is produced in Rio Grande do Sul, Santa Catarina, and Paraná. Black acacia trees are grown commercially in Rio Grande do Sul for the tanning extract found in the bark.

The country's long coastline and extensive river systems offer a potentially rich fishing resource. In the early 1980s the fishing industry remained poorly developed, and production was geared to the domestic market. Annual exports were roughly 25,000 tons, valued at the equivalent of approximately US\$100,000 in the late 1970s. The best saltwater fishing is off the coast of Rio Grande do Sul; that state exports fish to Rio and the Northeast. Although the South continued to be the largest producer by volume, the Southeast and Northeast played a significant role as well (see table 19; table 20, Appendix). Fish stocked in irrigation reservoirs provided a portion of the Northeast's catch. The giant pirarucu, found in the Amazon and other large rivers, was salted like cod and sold throughout the country.

Government Policy

Throughout the 1950s and the early 1960s, agriculture was handicapped by a variety of policies designed to encourage import substitution and industrialization. Both the overvalued exchange rate and direct controls to ensure food supplies to domestic markets affected farmers adversely. Real spending on agricultural research declined; policymakers made only ineffective efforts to stabilize farm prices. The highway system was expanded into the interior—a move that generally aided farmers. Modest sums were allocated to agricultural credit, and fertilizer use was subsidized. Agricultural exports received some preference. Overall, however, the government relied on Brazil's extensive frontier to increase agricultural production. After 1964 the military regime liberalized trade policy, eased price controls, and instituted currency exchange reforms. The moves came in the midst of rising world prices for some of Brazil's export crops, chiefly soybeans. At the same time, policies favoring manufactured exports gave rise to a number of export-oriented industries specializing in processing agricultural products.

After the 1973 oil crisis the country faced a worsening balance of payments coupled with growing inflation (see *Growth and Structure of the Economy*, this ch.). The combination generated mixed policy results for farmers. There was an increase in agricultural price controls in an effort to hold down the cost of living in urban areas. At the same time, policymakers continued to subsidize manufactured exports. By the early 1980s a number of trends combined to make the government increasingly aware of agriculture's importance. Poor harvests in 1978 and 1979, fears of protectionist policies against Brazilian manufactured exports on the part of the industrialized world, the spiraling external debt, and the costly oil



*Farmer hauling sugarcane to market,
Santa Cruz, Rio Grande do Sul
Courtesy P.A. Kluck*

import bill all underscored the salience of agriculture to Brazil's continued economic growth. The regime increasingly counted on that sector to augment the domestic food supply (and thus cut inflation) and to contribute to exports (and so limit the balance of payments deficit). By the same token, policymakers hoped that the sugar alcohol program would reduce dependence on imported oil. Finally, the Second National Development Plan (1980-85) emphasized agriculture's significance in creating new jobs and alleviating poverty.

Since the mid-1960s credit has been the government's principal policy instrument in dealing with the agricultural sector. The Agricultural Credit Law 4829 (1965) was designed to help finance production and marketing costs, spur capital formation, give incentives to the adoption of improved technology, and enhance the small- to mid-sized producer's position in the marketplace. Implicitly, the legislation attempted to redress the imbalance created by the policies of the 1950s that penalized agriculture. It was an effort to compensate farmers for the price and currency controls aimed at encouraging industrialization at the expense of agriculture. The notion was that subsidized credit would indemnify farmers the price they paid for the overvalued cruzeiro and the increased costs

they faced through import substitution, i.e., buying higher priced Brazilian manufactures rather than cheaper foreign imports.

Cheap agricultural credit subsidized farmers' purchases of a variety of improved inputs; fertilizer, tractors, and improved seeds were the most prominent. All of these were the subject of import-substitution policies in the 1960s and 1970s, so agricultural credit has helped farmers absorb the higher cost of domestically produced products. Fertilizer was a partial exception; although domestic prices have been higher than the world market, domestic prices have generally lagged behind the prices farmers received for their crops, and fertilizer became relatively cheaper. In the mid-1970s, however, fertilizer prices rose significantly, and the government responded with a 40 percent subsidy. The number of tractors and the use of fertilizer grew sharply in the 1960s and 1970s. The stock of tractors increased 11 percent annually (1960-77), and fertilizer use, roughly 20 percent (1965-79). Farmers' use of improved seeds has been limited to a few crops, mainly soybeans, wheat, and cotton, followed by lesser amounts of rice and corn.

Nominal interest rates for agricultural loans were lower than those of other forms of credit. In the 1970s, especially, they ran well below the rate of inflation, and farmers enjoyed negative real rates of interest. Small loans, in theory targeted to small farmers, ran 1 to 2 percent less than the rates for large loans. A variety of incentives and controls encouraged the flow of credit to the agricultural sector despite the low interest rates. A certain percentage of commercial banks' sight deposits was earmarked for agriculture. A substantial portion came from federal budgetary transfers. The Bank of Brazil was slated for Cr\$1.7 trillion in credits, the Central Bank for another Cr\$200 billion, and commercial banks for Cr\$600 billion (see Banking and Monetary Policy, this ch.).

The supply of credit to farmers grew dramatically in the 1970s (see table 21, Appendix). Credit expanded some fivefold, while agricultural production grew roughly two and one-half times. In 1975, a peak year, credit was greater than the net value of agricultural production. Loans dropped slightly in real terms in 1977—a combination of high inflation and monetary policies limiting the supply of money. Livestock credit took most of the loss. Credit rose again in 1978: livestock producers recouped their losses while crop producers suffered. In 1979 the regime exempted production credit from restriction. Nonetheless, inflation continued to take a substantial bite out of farmers' credit cruzeiros. In 1981 credit in real terms was scarcely more than two-thirds its 1975 value. In 1982 the government allocated Cr\$2.5 trillion, an increase of more than 60 percent over the nominal value of 1981 agricultural loans. Most observers, however, anticipated a decline in real value once inflation's toll was tallied.

Interest rates for agricultural credit were set well below market

rates. In 1979, a year in which the inflation rate was in excess of 75 percent, production loans cost farmers 13 to 15 percent; investment loans, 13 to 21 percent; and the much used storage loans, 15 to 18 percent. Beginning in 1980 the government made sporadic attempts to bring the cost of agricultural credit more in line with the market. There was a halfhearted effort at indexing that brought the nominal rate on some loans to 36 percent when the annual inflation rate was around 100 percent. The regime eventually dropped indexing in favor of a general rise in nominal interest rates and a series of changes in the amount of financing available to individual producers. On the 1982 crop the nominal interest rates were in the range of 35 percent in the Northeast and North and 45 percent in the rest of the country. Large producers were able to finance up to half their production costs (down from 60 percent), and medium producers could underwrite up to 70 percent of their costs (a decline from 80 percent). Small farmers continued to be eligible for 100-percent financing.

In late 1982 there were limited national data indicating which farms get these bargain loans. A study in the early 1970s by the United States Agency for International Development (AID) found that small producers were disadvantaged in the grab for credit. It was not only a matter of their relatively deprived position in the rural economy but also the credit program's unwieldy administration. High overhead costs encouraged large loans if only to cut processing expenses. Policymakers revamped the program in an effort to reach more small farmers. Nonetheless, the distribution of credit by size of loan in the mid-1970s still revealed a significant measure of concentration. Loans of the equivalent of US\$25,000 or more (some 4 percent of loan contracts) represented more than 50 percent of all credit. Those of less than one-tenth that amount—nearly three-quarters of all contracts—received 11 percent of credit. A 1977 survey of credit use in São Paulo underscored the concentration in credit resources. Forty percent of all farms, those of less than 20 hectares, received roughly one-third of all loans but less than 10 percent of credit. Farms of 200 hectares or more (8 percent of all farms) commanded nearly 40 percent of agricultural credit.

In view of the minimal real cost of credit, a surprising percentage of farms of all sizes forgo the bargain. The São Paulo study found less than one-third of all farms surveyed used any credit. The finding is amazing in that São Paulo uses credit more intensively than virtually any other state. Small- to mid-sized farmers were the most committed credit users on a per hectare basis; they accounted for 15 percent of farm area and 28 percent of agricultural credit. Overall, farms of that size used more than five times the credit per hectare of their counterparts of 200 hectares or more.

Between 1975 and 1979 some 80 percent of agricultural credit went to six crops: soybeans, wheat, rice, corn, coffee, and sugarcane.

Soybeans alone received 20 percent. There were noteworthy imbalances in the ratio of credit to agricultural output. In 1977, for example, wheat received 11 percent of credit and contributed 3 percent of gross agricultural output; rice garnered 16 percent of credit and produced half that percentage of gross output. In general the credit system has favored grains and export crops to the detriment of basic foodstuffs. Black beans received some 3 percent of credit, but its portion of gross output was double that percentage. Manioc, accounting for a scant 1 percent of credit, represented 11 percent of gross production.

Credit use was strongly oriented to the South and the Southeast. The South, with 23 percent of the nation's farms and some 14 percent of its agricultural land, received roughly two-fifths of credit in the late 1970s. São Paulo alone received 23 percent of all credit. The Northeast, having nearly half of all farms and one-quarter of the farmland, obtained less than 15 percent. On a per hectare basis the regional disparities were even more marked. The South's credit per hectare was nearly three times that of the Northeast. São Paulo outdistanced the Northeast by more than 400 percent.

The minimum-price program is the government's major price interventionist strategy. Congressional Law Number 1506 (1951) laid out the basic provisions, but the program has since undergone a variety of political and administrative transformations. The program's intent was to reduce the price uncertainty that farmers face in making production decisions. Through its minimum-price supports, the government tried to smooth out price variation throughout the crop year for producer and consumer alike. In addition, the government hoped that minimum prices would stimulate increased production.

Minimum prices functioned in two ways: the government could either buy crops directly through the Federal Government Acquisition program (Aquisição do Governo Federal—AGF) or use a system of federal loans against crops by Federal Government Loan (Empréstimo do Governo Federal—EGF). Direct purchases and payments (the AGF side of the program) were made locally through agents of the Bank of Brazil and agents of the federal government. The government then held the stocks as a buffer to be sold at a more propitious time. AGF purchases were the smaller portion of the program; throughout the 1970s they represented about 10 percent of the value of the EGF loans. AGF was a significant component of the minimum-price program in the North and Northeast in the early 1970s, but by the mid-decade the Center-West and South accounted for more than half of all direct purchases. Rice, corn, and sisal (in that order) were the main crops the government bought.

EGF loans included two main varieties: with or without an option to sell to the government. In the case of loans with an

option to sell to the government, the farmer received 100 percent of the crop's minimum price for a stipulated period. If the price exceeded the minimum, the individual sold on the open market; if not, the farmer simply did not repay the loan, and the stocks reverted to the government. The great advantage of these loans from the farmer's viewpoint was that they did not carry storage fees or interest. In the late 1970s the government made a number of changes to bring more small farmers into the loan program. "Pre-EGF" loans were designed to give the smallholder short-term credit immediately before and after harvest and so tide the farmer over for the period between delivery to a storage facility, classification, and payment. A substantial portion of "pre-EGF" funding was targeted for the Northeast.

The EGF loans enjoyed tremendous expansion in the 1970s, as did credit. Even with the contraction in real spending after 1977, the real value of the loans grew at an average annual rate of approximately 30 percent. The most spectacular growth occurred at mid-decade; the real value more than doubled each of two consecutive crop seasons (1972-73 through 1974-75). Continued efforts to channel funds to the Northeast had only limited success. The Center-West and South received nearly 90 percent of EGF credit over the decade. Overall, the program tended to intensify regional and crop disparities, much as agricultural credit had. Roughly half the allocation went to producers and cooperatives, the other half to processors and distributors, who were eligible only if they could demonstrate that they had paid farmers at least the minimum price for farm commodities. In the Center-West and South producers predominated, while in the North and Northeast processors did. Soybeans and cotton accounted for 57 percent of total funds; corn and rice supplied another 33 percent.

EFG interest rates, like those of the credit program, were heavily subsidized. Government attempts to control expenditures in this field followed the pattern set by credit. There were cutbacks in the late 1970s. In 1981 rates were raised to roughly 45 percent for producers and cooperatives and to 50 percent for processors. Eligibility for these loans was cut to 60 to 70 percent of the previous year's financing for most crops.

A shortage of storage facilities and late announcement of minimum prices during an agricultural year have impeded the program's impact on farmers' production decisions. For much of the 1970s there were sizable annual price fluctuations for specific crops, which hampered any long-term specialization or production strategy on the part of farmers. Minimum prices rose with most agricultural market prices during the early 1970s. For the rest of the decade real minimum prices declined in the face of steep inflation. It was the storage credit that EGF loans provided, rather than the price supports themselves, that drew farmers to the program. In 1980-81 minimum prices increased significantly;

black beans, corn, and manioc registered some of the largest gains. In 1981-82 minimum prices—renamed *basic prices*—were indexed in an effort to make price supports more responsive to inflationary trends.

There was a variety of other programs affecting prices and supplies of agricultural products. The government maintained a complex network of price controls at the farm level as well as at the wholesale and the retail levels. It paid the cost for its own stockpiles and distribution system for a number of commodities in order to curb urban price increases and ensure a reasonably secure (short-term) supply of foodstuffs to urban areas. There have been efforts to increase storage capacity.

Coffee growers have long had access to special price supports, credit, and storage facilities. In the early 1980s the government continued to play an extensive role in the marketing of wheat, and self-sufficiency in wheat production remained a high government priority. The government was the sole purchaser of the grain, served as the only supplier to mills, and established the retail price. Policies subsidized producers, millers, and consumers alike. After the early 1970s, however, most of the subsidy had been in favor of consumers. The level of farmers' subsidy remained constant, whereas that of the consumer soared—a reflection of official efforts to shelter city dwellers from rising world prices for wheat. Retail prices for fluid milk were fixed; this policy's main impact seemed to have been to divert milk supplies into processed dairy products (see Livestock, this ch.). The maximum retail price of beef was controlled. Beginning in 1975 the government initiated a program to freeze beef for sale in the off-season.

The Land Reform Statute of 1964 was one of the military regime's earliest laws. Land reform had been a vital topic during the waning days of João Goulart's presidency (see The Presidency of João Goulart, ch. 1). Political efforts to draft land reform legislation were hamstrung by the 1946 constitution which, although it empowered the state to redistribute private property for the commonweal, did so only with full cash payment before expropriation. The military chose to attack the problem of land reform through the progressive taxation of unproductively used land.

The core of the Land Reform Statute is a complex land classification scheme whereby each farm is rated according to its productive capacity. The basis of the scheme is identified as the module (since 1979 the fiscal module). The module measures the amount of land in a given municipality necessary to support four adults while generating a slight surplus for "social and economic progress." Based on the number of modules a farm represents, it is classified as a *minifundio*, a rural enterprise, or a *latifundio*. A *minifundio* is a farm having less than one module. A rural enterprise is a holding that meets the government's standards of productivity in land use, economic efficiency, yields, and employment. A *latifundio* is any

farm larger than a module that fails to qualify as a rural enterprise, or a holding of 600 or more modules. *Latifundios* are taxed at a higher rate and (ultimately) threatened with expropriation. Family farms of less than 25 hectares are exempt from taxes; land sales among those of less than one module are, in theory, regulated in an effort to limit further land fragmentation.

A number of circumstances have limited the statute's impact. The value of unimproved land is based on the owner's assessment. Throughout the 1960s and 1970s underreporting was frequent, and audits were virtually nonexistent. For much of the period delinquent tax payments were not readjusted to reflect inflation. Overall, tax rates were hardly such that landowners were deterred from keeping land that they were not using productively.

In late 1979 the regime changed the tax structure, exempting many more farms from any tax liability and making tax rates much more progressive. The new basic tax rate increased rapidly for farms failing to meet minimum levels of efficiency. It doubled the first year a farm fell below the minimum, tripled the second year, and quadrupled the third and following years.

A landholder could still avoid the steeply rising tax rates by filing a plan for land use development with INCRA. The impact of the 1979 change depended on the extent to which the agency's limited resources permitted adequate policing. Procedures to cross-check land tax records with income tax returns and loan applications could—if applied rigorously—cut down on underreporting. Although higher and more progressive than previous measures, the new land tax still did not tax owners at a rate that would deter individuals from speculating in land as a hedge against inflation.

Agricultural Exports

In the early 1980s Brazil was the third largest exporter of agricultural products in the world; it ranked first in coffee and frozen orange juice concentrate, second in cocoa and soybeans, and fourth in sugar and unmanufactured tobacco. Agricultural exports remained a major source of foreign exchange earnings, despite a decline in their overall portion of exports. In the 1970s they continued to represent some 40 to 50 percent of total export sales. Historically, agricultural exports had been the country's sole source of income and growth. Brazil's economic history was, to a large extent, the history of sugar, cotton, tobacco, cocoa, rubber, and coffee. Although the 1970s saw a significant diversification in exports, the government still relied on agriculture to produce foreign exchange to help meet the balance of payments crisis. The importance of agricultural exports was underscored in the early 1980s in the midst of fears that Brazilian industrial goods might meet increasing protectionist barriers on the part of its trading partners.

From 1964 through 1968 agricultural exports accounted for some 85 percent of all exports; in 1981 they were scarcely more than 40 percent. During the same period there was a steep rise in the value and volume of semiprocessed and manufactured agricultural products relative to raw agricultural commodities. Between 1964 and 1978 unprocessed commodities declined from some 73 percent of exports to less than 30 percent; at the same time semiprocessed goods rose from 9 to 15 percent, and manufactured agricultural products skyrocketed from roughly 3 to 14 percent. The relationship held for volume and value alike. The average annual growth rate for semiprocessed and manufactured agricultural exports was more than double that of raw products. The rate of change was greatest from 1968 through 1973, but the trends continued throughout the decade.

At the same time, there was a general diversification in the agricultural products exported. From 1964 through 1968 two crops accounted for fully half of all agricultural exports, 11 did so by the late 1970s. Soybeans enjoyed a meteoric rise in both domestic consumption and export. Introduced in the early 1960s, by 1977 soybeans accounted for 18 percent of total export earnings and fully one-quarter of agricultural export earnings. Brazil's share in the world soybean market grew dramatically; when the United States placed a temporary embargo on soybean exports in 1973, Brazil stepped into the void. Brazilian soybeans represented 3 percent of the world market in 1970, but by 1975 they were 75 percent of all world trade in that crop. After that year whole bean exports dropped relative to soybean meal and oil; in 1978 Brazil accounted for nearly half the meal and one-third of the oil in world trade. Soybeans particularly benefited from government policies favoring semiprocessed and manufactured exports.

The transformation in agricultural exports was linked to the government's efforts to encourage domestic manufacturers. Policies taxed raw crops; there were a variety of restrictive export policies that aimed at ensuring raw materials for local industries and agro-industries. And whereas unprocessed commodities were taxed, semiprocessed and manufactured agricultural goods received a net subsidy. The government's thinking was that the markets for semiprocessed and manufactured goods were less mercurial than those for the raw products that Brazil had traditionally relied on. Some economists questioned whether the effort was worth the loss in export earnings (at least in the short term) from raw crops when their prices were high. In the early 1980s the earnings of soybean and cocoa (semiprocessed and manufactured) products ran behind those the raw products offered in the late 1970s. Similarly, Brazil's savings from oil imports through the alcohol and gasohol produced from sugar in 1980 were less than might have been earned from sugar exports. This does not take into account the impact an exporter of Brazil's volume might have had on world prices. Econo-

mists also questioned whether the processing and manufacturing industries that relied on government subsidies were efficient; in the late 1970s there was evidence of significant idle capacity in cocoa and soybean processing plants.

Agricultural export earnings in the early 1980s were up from a late 1970s plateau. In 1980 Brazil earned the equivalent of roughly US\$9.4 billion from agricultural exports, a nominal rise of nearly 30 percent from the previous year's earnings. In 1981 agricultural earnings held steady at virtually the same level. The general rise masked considerable variation in the markets that different crops enjoyed. Traditional export commodities—coffee, cocoa, and sugar—faced lower world prices; earnings dropped by roughly one-third between 1980 and 1981. These crops' portion of agricultural export value declined from half to some 36 percent (see table 22, Appendix).

Soybeans (including processed soybean products), frozen orange juice concentrate, and meat and poultry products took up most of the slack. Soybean exports were up 32 percent; at 13 percent of total exports—roughly one-third of agricultural exports—they were the single largest export commodity. The steepest rise was in refined soybean oil. From 1979 through 1981 earnings from that product expanded an astronomical 21 times. Between 1980 and 1981 the export value of refined soybean oil grew by nearly 650 percent. Meat products' contribution to export earnings grew by some 60 percent and frozen orange juice concentrate by 95 percent. At least part of the strong performance by processed agricultural products reflected the impact of incentives favoring them over raw commodities. The government was, as well, aggressively seeking export markets in an effort to meet the bill for oil imports and a worsening debt repayment schedule.

Projections in early 1982 for the rest of the year called for an increase of roughly the equivalent of US\$1.5 billion. Brazil was counting on a rise in sales of frozen orange juice concentrate (because of a January 1982 freeze in Florida) and better international coffee prices (because of a reduction in Brazil's crop) to offset anticipated lower prices for soybeans, sugar, and cocoa. In addition, broilers and other meat products, maintaining a trend of recent years, were expected to earn well, although there was fear that poultry prices might decline.

Banking and Monetary Policy

Brazil's financial system expanded and broadened with the rapid growth of the economy after 1920; through its effective mobilization of domestic and foreign resources, it contributed to the rapid growth. The economy's protracted and substantial inflation, however, led some observers to hypothesize that price instability favored the high rates of economic growth. Chronic inflation was endemic. Domestic prices rose continuously after 1933. Since 1950 the annual rate of inflation has ranged between a low of 11 percent in 1952 and 110

percent in 1980. Inflation was relatively moderate, averaging 17 percent a year until 1958, after which it began to soar, fueled in part by large public sector deficits arising mainly from transportation subsidies. Reforms in the period 1964-67 obviously did not correct the problems. Some economists contended that the changes, which created a highly unusual financial system, were a fundamental cause of the inflation raging in the early 1980s.

Banking

The banking system of the early 1980s dated from the reforms introduced shortly after the military coup of 1964. In December 1964 the National Monetary Council (Conselho Monetário Nacional—CMN) was established to formulate the country's credit, monetary, and foreign exchange policies, replacing an earlier policy body. The CMN was headed by the minister of finance, and its members initially were other economic ministers and the heads of major government banks. By the early 1980s the council had been enlarged to 21 members, including more than one-third from the private sector. The CMN issued annual monetary budgets setting forth changes in major money variables expected in the coming year.

The same law that established the CMN also created the Central Bank of Brazil, which assumed functions previously spread between the Bank of Brazil and other government financial agencies. The Central Bank was governed by a board of directors appointed by CMN. The powers of the Central Bank included issuance of currency as authorized by CMN; control of money; acceptance of deposits from banks, both required and voluntary; rediscounting; control of credit; control of foreign capital; and purchase and sale of securities issued by itself, the federal government, and federal enterprises. It also supervised other banks and administered several Special Funds created by the federal government. The Central Bank was under the Ministry of Finance, and its president was a member of CMN. Its independence was restricted.

The Bank of Brazil, created in 1808, was the country's largest bank, and by some measures it was the largest commercial bank in the world. In the early 1980s the federal government owned 75 percent of its shares; other investors, including private concerns, owned the remainder. Its shares were actively traded on the stock exchange. It had an extensive branch network in Brazil and abroad. The Bank of Brazil functioned partly as a commercial bank, accepting deposits from and making loans to the public, and as the financial agent of the national treasury, it received tax receipts. It made payments and transfers under the federal budget, paid the public debt, enforced minimum prices for farm products, provided the bulk of rural credit, carried out foreign exchange and trade controls, served as a check clearinghouse, received deposits of government agencies, and held voluntary reserves of the commercial banking system. The bank also administered some of the Special Funds.

The law establishing the Central Bank did not clearly define the relative autonomy and limits of action between it and the Bank of Brazil. In addition, the latter was designated executive agent for the Central Bank. A special account was established between them that became a means of transferring Central Bank funds on a large scale to the Bank of Brazil for lending through government programs. In effect there was a sharing of monetary authority between the two banks. The Central Bank lacked the independence to control many variables granted many central banks.

The source of funds for the Central Bank and the Bank of Brazil was large and varied. Deposits of other banks, compulsory and voluntary, were kept with them. Until 1980 proceeds of the sale of new federal debt, which was growing although the federal budget showed a surplus after 1972, accrued to the two banks and not to the treasury. In addition, funds were received from the treasury as transfers and from proceeds and taxes collected for the many Special Funds created under various government programs. In 1979 there were more than 200 Special Funds of varying importance. The Bank of Brazil also held deposits of the public as part of its commercial banking, but the importance of these deposits declined as a source of funds in the 1970s.

The National Economic and Social Development Bank (Banco Nacional do Desenvolvimento Econômico e Social—BNDES) was the primary source of long-term industrial financing. It was created in 1952 (as the BNDE) as an autonomous federal bank to encourage domestic manufacturing, especially heavy industry and projects in the North and Northeast. In 1967 it became a mixed corporation with private investors. Loans and equity investments went to both the public and the private sectors. In 1978 the bank had four almost completely owned subsidiaries and worked through 51 other development and investment banks acting as agents. Sources of funds included certain earmarked tax receipts, the resources of one of the Special Funds, allocations from the federal budget, and borrowing through the issuance of bonds, some of which were sold in foreign countries.

Between 1964 and 1966 a system to finance housing was established. It consisted of a bank to act as central bank for the system, the federal savings bank, five state savings banks, and a number of credit societies and private savings and loan associations. The system's main source of funds included the proceeds of an important Special Fund as well as savings deposits of numerous individuals. In 1978 the number of dwellings financed by the system totalled 340,000 and accounted for 22 percent of all loans to the private sector. The system produced net savings that were channeled to the Central Bank and the Bank of Brazil for lending through the purchase of government securities.

There were a large number of additional banks, including a few federal (largely regional), several state, and many private. State banks engaged in commercial, investment, and/or development banking. Private financial institutions were specialized, usually con-

ducting commercial banking, investment banking (largely working capital), finance companies (for consumer durables), and insurance companies. A number of foreign banks conducted commercial operations in the country.

The number of commercial banks and branches proliferated in the 1950s and 1960s. Policies in the 1970s favored consolidation, and the number of commercial banks, both public and private, shrank through mergers and otherwise. A conglomeration process also occurred in which large financial companies often included a commercial and an investment bank, a finance company, an insurance business, a foreign trade company, and institutions to channel investments into projects where there were incentives, such as in the Amazon and the Northeast. Ties between financial and industrial conglomerates developed. The concentration in the 1970s suggested to some observers a decline in competitiveness in financial activities and perhaps some misallocation of scarce resources.

Another important measure initiated after the military coup was monetary correction or indexing. Indexed treasury bonds were introduced, the values of which were periodically adjusted for changes in wholesale prices, to restore confidence in the atrophied capital markets and to permit funding of fiscal deficits without expanding the money supply. Monetary correction was applied to taxes in order to halt the benefit of late tax payments in an inflationary situation and to avoid the tax increase arising from the escalation of prices. Monetary correction spread to numerous additional elements, such as wages, savings accounts, and some loans.

The theory of indexing was to provide a complete, automatic, and objective adjustment of the values of approved assets for past inflation. In practice, the indexing formula became subject to manipulation for policy purposes. The periodicity of adjustment was altered for different conditions and goals. The formula was changed to include official projections of future inflation. Officials made other changes. Between 1972 and 1978 indexed treasury bonds lost 17 percent of their value because of the formulas used. In 1978 monetary correction understated inflation by 6 percent. In 1980 the authorities announced that monetary correction would amount to only 45 percent regardless of the rate of inflation, which turned out to be 110 percent. The preannounced limits on monetary correction were dropped in 1981 after the failure of the previous year. The changes in indexing have had uneven impacts over time on various economic activities.

Between 1966 and 1970 three compulsory savings funds were established. Their intent varied, but in general they forced savings from which employees could draw for various purposes. In a sense they provided supplemental benefits in case of unemployment, sickness and, particularly, retirement. The funding varied considerably but usually consisted of payments by employers based on payroll, sales, and other formulas. The federal housing bank, the federal savings bank, and the Bank of Brazil each administered one of the

funds. The funds were charged with dual responsibilities—to the worker owning the account and to national development—an apparent conflict. These funds grew substantially during the 1970s, in 1978 amounting to nearly one-fifth of the country's total financial assets and one-tenth of GDP. The accounts in the funds were indexed and earned low fixed interest.

Passbook savings accounts, limited to individuals, were an important source of investable funds. These accounts were indexed and earned 6 percent a year. A very large number of families held such accounts. About 70 percent of the accounts were in federal or state savings banks, and 30 percent were held in private savings and loan institutions that were part of the housing finance system.

The reforms since 1964 have had the effect, perhaps unintended, of increasing the importance of the public sector in the financial system while reducing the funds available for lending at market rates by both private and public sector banks. At the beginning of 1979 outstanding loans to the private sector were Cr\$2.1 trillion (approximately US\$100 billion). Direct lending by the Central Bank, the Bank of Brazil, and the housing finance systems—the first-stage institutions—amounted to 30 percent, and they provided an additional 21 percent to other institutions for further lending, thus accounting for 51 percent of the funds for loans to the private sector and 44 percent of the funds lent by other institutions. Virtually all long-term lending, except for housing by private savings and loan institutions, was controlled by the first-stage public banks.

The government has long used credit incentives to promote economic activity in certain sectors and geographical areas. After 1964 many credit incentives were added, and the responsibilities of specific banks further narrowed the distribution of credit. By the late 1970s nearly all of the direct and indirect lending by first-stage institutions was directed toward specific sectors and purposes, including 95 percent of their lending to commercial banks. Most of the direct lending was at nominal interest rates that amounted to a subsidy. The first-stage institutions provided the major source for credit subsidies. In the late 1970s commercial banks had to earmark 27 percent of demand deposits for loans at subsidized rates to agriculture and small- and medium-scale industries.

The reforms and other measures produced a handicapped financial system for the efficient mobilization of scarce financial resources and for effective control of money variables. The Central Bank and the Bank of Brazil became the major sources of funds that were lent under selective credit programs and often at subsidized rates. In effect, commercial banks largely became retailers of funds from first-stage institutions. A major segmentation of financial markets occurred. A declining portion of funds was available for lending at interest rates set in an open market. The interest rates set in the open market increased, making borrowing more costly to the few that had to rely on this kind of credit and adding to the inflow of foreign funds,

which increased the foreign debt. As inflation increased, it became more imperative for business to obtain subsidized loans. The use of subsidized loans increased, fueling inflation. The subsidies were financed primarily by the Central Bank and the Bank of Brazil through the monetary budget rather than appearing as a fiscal or budget deficit, which would be the case in most countries. These two institutions had conflicts of responsibilities in their sharing of monetary authority. Their responsibility for control of credit clashed with their responsibilities to provide open-ended credit for several programs.

In the 1970s subsidized credit went largely to agriculture, which was given increasing priority after the first oil crisis, and to a lesser extent to manufactured exports and industry. Rural credit, the bulk provided by the Bank of Brazil, increased 4.5 times between 1969 and 1976 while agricultural production approximately doubled (see Government Policy, this ch.). In the years 1975-77 agricultural credit amounted to approximately the value of agricultural output. Some critics contended that one-fifth to one-third of agricultural credit was diverted to other uses. The subsidy in the interest rate was large; rates averaged a negative 40 percent in 1978. The subsidy increased with the rise of inflation in 1979 and 1980. By 1979 the total subsidy involved in credit to agriculture and other sectors was estimated at about 10 percent of GDP.

Policies

After 1974 and particularly after 1976, the monetary authorities applied a contractionary money policy to restrain aggregate demand. Limiting monetary growth proved exceedingly difficult. Conventional tools restricted commercial credit. Between 1974 and 1978 compulsory reserve requirements increased from 15 percent to 32 percent of demand deposits. At the end of 1978 only 40 percent of demand deposits in commercial banks were available for unrestricted lending. Officials attempted to sterilize the expanding money base caused by capital inflows and increasing subsidized credit. The effect, however, was to limit the funds for unrestricted lending and to raise market interest rates, sucking in additional foreign capital.

Control of credit creation by federal financial institutions proved elusive. The Bank of Brazil was the largest source of credit expansion, largely resulting from extension of subsidized rural credit but also including loans to industry and to stimulate exports. As the rate of inflation increased after 1973, the value of repayments shrank, requiring increasing credit just to maintain the real level of lending programs. The subsidy in nominal interest rates of official lending also increased with inflation.

In 1979 a change of strategy was announced to combat rising inflation, which amounted to 43 percent in 1978. A temporary freeze was placed on retail prices, the liquidity of the commercial banking system was decreased sharply (thereby raising market interest rates), and restrictions were imposed on the inflow of foreign funds. Lend-

ing by the Bank of Brazil to agriculture increased, partly because all limits on production credits were removed. A small increase was made in the subsidized interest rates for agriculture. In August wage adjustments were changed from annual to twice yearly, based on a new consumer price index (INPC) computed by the government statistical agency. Adjustments were above the rate of inflation for low-wage workers and less for higher paid employees. In September ceilings were placed on commercial interest rates, which reduced real returns. The shift of the public away from savings and holding financial assets accelerated; they turned toward real property, consumption, and hoarding of goods. Commercial credit was rationed by banks, not by cost; big firms with financial ties appeared to be favored. Conditions deteriorated, and inflation for 1979 was 80 percent.

In December 1979 a sweeping package of economic measures was announced, which came to be called the "Christmas package." The objective was to encourage capital inflows to the private sector and to rationalize trade and interest rate policies. The cruzeiro was devalued by 30 percent to make up for a lag in mini-devaluations. Interest rates on official lending became subject to partial indexing, increasing borrowing costs, and reducing implicit subsidies. Controls on foreign capital were removed.

For 1980 the monetary budget projected monetary expansion at 50 percent, close to the inflation target of 45 percent. Officials pledged to control credit expansion. Important institutional changes were made. The voluntary reserves of commercial banks deposited with the Bank of Brazil were transferred to the Central Bank, significantly reducing the former's resources for autonomous lending. Agricultural lending still had no limit, but excess lending to agriculture had to be compensated by lower lending to other sectors to maintain overall credit targets. The shift of reserves provided the Central Bank direct control over credit expansion by private banks. Banks were required to report activities weekly to the Central Bank to permit it to make timely adjustments in the money supply.

In January 1980 the government announced that monetary correction would be limited to 45 percent and devaluations to 40 percent regardless of the amount of inflation, which was rising monthly. The intent was to break inflationary expectations. A consequence was to undo the attempt to adjust interest rates upward for administered credit programs. The unlinking of these rates to changing prices again made them nominal rates. The limits on monetary and exchange corrections appeared to stimulate rather than dampen demand, partly the result of the continuing shift by individuals and institutions away from financial assets toward real property and consumption. Inflation rose to 110 percent in 1980.

In late 1980 and early 1981 the government reversed many of the policies of the previous two years. Full monetary and exchange

corrections were restored for 1981. Interest rates on commercial loans were freed. Working capital loan rose to 150 percent a year at one point but eased back to about 125 percent. A restrictive monetary policy slowed credit expansion. Some progress was made toward consolidating the monetary and fiscal budgets, and the public sector deficit was reduced to 6.2 of GDP compared with 9.1 percent in 1980. The reduction was mainly achieved by cuts in direct and indirect subsidies in the monetary budget and less spending by public sector enterprises. The country dropped into a severe recession, and inflation fell to 95 percent in 1981.

By 1982 some of the expansionary bias in the financial system had been removed. Policymakers had more current information and control of fiscal and financial institutions. It was not clear whether enough changes had been made to cure the country's chronic inflation, however. The Bank of Brazil still retained access to Central Bank resources through its special account. Authorities continued to focus on outstanding credit balances rather than interest rates in administrative credit programs, the latter causing greater subsidization in periods of growing inflation. The Central Bank did not appear to have the independence that some economists believed necessary before inflation could be controlled.

Foreign Trade

Throughout the country's long history of development, foreign trade has played a critical role. In 1981 exports amounted to only 8 percent of GDP, and imports just slightly less. The large domestic market and the variety of economic activities dwarfed those associated with foreign trade. Nonetheless, the goods imported were almost all essential to the functioning of the economy. Exports were imperative to continue payments on foreign loans needed to further economic development. The low ratio of foreign trade to national output belied its pivotal position. The population and its prosperity remained as critically linked to world markets in the 1980s as the 1580s. Economic development and diversity had not eliminated dependence on the rest of the world.

Officials recognized foreign trade's key role. More mechanisms existed to influence the flow of international goods and payments than were applied in other sectors. High tariffs and numerous additional barriers, including federal trading companies and banking regulations requiring prepayment of deposits for imports, controlled the influx of foreign goods. Controls changed frequently. After 1974 the general policy was to restrict imports as the balance of payments constraint became more severe, although liberal treatment was accorded priority imports. Exports were encouraged under a variety of programs with a multitude of acronyms. The extensive export incentives caused significant revenue losses to the budget and to the added burden of subsidized credit in the financial system.

The December 1979 Christmas package had devalued the cruzeiro by about 30 percent to reduce its overvaluation. To prevent windfall profits to producers, an ad valorem tax of up to 15 percent was levied on basic agricultural exports, such as coffee and soybean products. Soybean exporters resisted by withholding their products, and the tax was withdrawn by mid-1980. The Christmas package eliminated most tax subsidies for manufactured exports and prior deposits for imports. The "law of similars," which protected domestic products from similar imported ones, was abolished. Other measures were included. The package had been drafted for gradual implementation but was introduced quickly because of deterioration in the balance of payments caused in part by oil price increases. The overall intent of the package was to liberalize the foreign trade regime somewhat and to return to the more outward orientation of the economy of the early 1970s.

In the early 1980s officials announced a 40 percent ceiling on exchange-rate devaluation during the year regardless of the amount of inflation. The monetary correction for inflation was also divorced from actual price movements (see Policies, this ch.). The ceiling on exchange rate adjustment was necessary to sustain the required capital inflow after the maxi-devaluation, but because inflation was 110 percent compared with the exchange adjustment of 40 percent, the currency became overvalued, thereby hurting exports. In 1981 officials returned to full adjustment of the exchange rate to inflation through mini-devaluations. Some export subsidies were restored, particularly those that committed industries to long-term export goals (especially the automobile and other consumer durable industries). Also in 1981 export financing was exempted from credit limits, subsidized credits for export production were made available, and controls over imports were tightened.

Imports

In 1981 imports amounted to US\$22.1 billion. Fuel, essentially crude oil but including some coal, cost US\$11 billion, almost half of total imports. Imports of intermediate materials other than fuels amounted to US\$5.7 billion; capital equipment and materials, US\$4 billion; and consumer and miscellaneous goods, US\$1.4 billion. In 1980 imports were US\$23 billion and in 1979 were US\$18.1 billion. In the latter year, imports of consumer goods were primarily wheat and cooking oils and fats; imports of intermediate materials were largely chemicals, metals, and a variety of other products, including fertilizers and plastics; capital goods imports were essentially machinery because the bulk of transportation equipment was produced domestically (see table 23, Appendix). In 1980 petroleum imports amounted to US\$10.2 billion, compared with US\$4.5 billion in 1978.

The source of imports was strongly influenced by oil purchases. In 1980 Iraq ranked second (US\$2.8 billion) as the source of total

imports, Saudi Arabia third (US\$2.1 billion), Kuwait seventh (US\$776 million), Iran ninth (US\$734 million), and Venezuela eleventh (US\$570 million). The war between Iraq and Iran forced Brazil to scurry for a variety of sources of crude oil in 1981 and 1982. The United States has long been Brazil's major source of imports, accounting for 18 percent in 1980 (US\$4.1 billion). Other major sources of imports in 1980 were West Germany (US\$1.6 billion), Japan (US\$1.1 billion), Canada (US\$814 million), Argentina (US\$757 million), and France (US\$665 million).

Exports

In the 1970s the need to expand exports became even greater in order to pay for oil price increases and the growing debt service. Exports rose from US\$2.7 billion in 1970 to US\$23.3 billion in 1981, an average increase of over 21 percent a year. Even in the recession year of 1981 exports increased by nearly 16 percent compared with 32 percent in 1980. Most of the expansion during the 1970s came in manufactured goods, which rose from US\$366 million in 1970 to US\$6.1 billion in 1979 (an increase of nearly 37 percent a year).

In 1979 exports of agricultural products were 40 percent of the total, manufactured goods slightly over 40 percent, minerals 9 percent, and semiprocessed and miscellaneous items accounted for the remainder. Some classifications placed manufactured exports above 50 percent because of the processing of various agricultural and mineral products. Coffee, including beans and instant, remained the country's largest export, accounting for 15 percent of total exports compared with over 73 percent in the 1950s. Soybeans, including meal and oil, were the other major agricultural export (see table 24, Appendix). Iron ore and pellets accounted for most of the mineral exports. Exports of manufactured goods included a wide range of products, of which automobiles and trucks were the most important. In 1980 exports of military equipment exceeded US\$1 billion and were projected to reach US\$2 billion in 1983 (see Defense Industry, ch. 5). By the late 1970s Brazilian construction firms were engaged in large projects in developing countries, particularly in Africa and the Middle East (see Foreign Relations, ch. 4).

During the 1970s Brazil greatly increased the number of countries it traded with, as new markets were sought for the growing exports of manufactured products. About 26 percent of Brazil's exports in 1979 went to a large group of countries, mostly developing nations. Nonetheless, Brazil's exports remained heavily concentrated among industrialized countries. In 1979 the United States was the largest market (US\$2.9 billion), followed by West Germany (US\$1.1 billion), Japan (US\$887 million), and the Netherlands (US\$782 million). In fact, in that year the United States, Canada, Western Europe, and Japan (comprising most of the



*Port of Santos
Courtesy WORLD BANK PHOTO/Tomas Sennett*

membership of the Organization for Economic Co-operation and Development—OECD) purchased 60 percent of Brazil's exports. Among Brazil's 10 largest export markets, only Argentina (US\$718 million), Chile (US\$363 million), and Poland (US\$434 million) were not OECD members. In 1979 the Soviet Union bought US\$226 million of Brazil's exports.

Balance of Payments

Brazil often has had balance of payments difficulties. All too frequently since the 1800s, difficulties stemmed from a large foreign debt incurred to avoid domestic adjustments. The pattern was similar during the 1970s but not identical. In the past the fundamental problem was the collapse of the foreign price for an export commodity on which the country was overly dependent. In the 1970s the huge price increases for crude oil sharply shifted Brazil's terms of trade for the worse. Exports exhibited strong growth and diversity. The government took numerous steps to curtail imports and to make major adjustments in the economy. Foreign borrowing increased, however, to maintain relatively high rates of economic growth and to facilitate structural changes in the economy. By the early 1980s the country again faced serious balance of payments constraints; international bankers were worried about repayment and slowed further loans, while export markets were becoming more protectionist because of a worldwide recession.

Officials usually desired more exports than imports because of the normal outflow of payments on service accounts. The trade balance in 1970 showed an excess of exports over imports of US\$232 million. In 1974 the trade balance turned sharply negative by US\$4.7 billion. Restriction of imports and the growth of exports had reduced the imbalance to a negative US\$2.8 billion by 1980. In 1981 an export surplus of US\$1.2 billion was achieved because of government policies that further restricted imports, encouraged exports, and induced a domestic recession.

Meanwhile, foreign indebtedness had been increasing. The gross external medium- and long-term indebtedness rose from US\$5.3 billion in 1970 to US\$53.8 billion in 1980. Interest payments expanded quickly on this mounting debt, from US\$234 million in 1970, to US\$6 billion in 1980, and US\$9.2 billion in 1981. Largely because of growing interest and oil payments, Brazil's current account balance deteriorated from a deficit of US\$1.7 billion in 1973 to US\$7.1 billion in 1974. By 1980 the current account deficit exceeded US\$12 billion (see table 25, Appendix). Brazil's economy and current account remained very sensitive to crude oil prices and international interest rates.

The world monetary system was crumbling in the early 1970s when the first oil crisis came. The international financial system was suddenly flooded with petrodollars, i.e., the excess liquid assets of the main oil exporters, largely in the Middle East. The international banking community began recycling the petrodollars through loans. The quick increase in liquidity relaxed bankers' usual caution—too much so, according to critics. By the early 1980s a few jolts had shaken world bankers, and they began to reexamine their exposure in various countries. In 1981 and 1982 Poland, Mexico, and Argentina, all large borrowers, came close to defaulting on their international obligations. Poland was behind on payments when a new schedule was negotiated. Other countries also had to reschedule their debts. Mexico, which surpassed Brazil as the largest Third World debtor, in 1982 had to impose drastic emergency measures to retain control of its international financial situation.

Brazil easily borrowed abroad in the 1970s because of the high liquidity in the international financial system. Credits were obtained for numerous economic projects from suppliers and from international bankers seeking financial returns. Brazil even was able to provide some aid and credit to other developing countries. In some years Brazil's capital inflow was higher than needed to balance foreign currency payments, allowing a buildup of reserves. Brazil's high credit standing permitted officials to negotiate long-term repayment schedules rather than have a large part of the debt on short-term.

Nonetheless, a day of reckoning was approaching, and the second oil crisis, of 1979-80, speeded it up. High international

interest rates in the early 1980s further hastened the day. Each year, more had to be borrowed just to meet payments on earlier loans unless Brazil suddenly developed new earning power for foreign currencies, which had not happened by late 1982. After the mid-1970s officials slowly restrained new and stretched out in-progress development projects to lessen the need for foreign borrowing. Even so, in 1980 net interest payments were US\$6 billion, and amortization of principal was almost US\$7 billion. That year debt service amounted to 65 percent of earnings from exports, and debt service and oil imports exceeded total commodity exports. In 1981 Brazil's new medium- and long-term borrowing was above US\$17 billion, and net interest payments amounted to US\$9.2 billion. The total medium- and long-term external debt stood at US\$61.4 billion at the end of 1981.

In 1982 the international banking community turned more cautious toward Brazil. By mid-year, arranging the remaining credits to balance international payments had become extremely difficult. By late in the year, Brazil was reportedly in desperate straits, although the information was fragmentary and consisted mostly of newspaper articles. Government authorities ceased publishing the status of the country's international reserves, which by November reportedly were less than one month's imports, or in the neighborhood of US\$1 to 2 billion. Late in the year the country also sold gold to obtain foreign currencies. The short-term debt was unknown, but bankers suggested figures in the range of US\$11 to US\$18 billion. Some bankers related Brazil's rapid increase of short-term debt to that of Mexico before its crisis. Rumors abounded late in the year that Brazil was negotiating a large credit from the IMF and perhaps the United States. Although the severity of the situation was not known, Brazil was in serious financial difficulty.

Brazil's immediate future was one of austerity, largely because of balance of payments difficulties. How austere depended in part on the deterioration in the balance of payments and the country's debt profile during 1982. Even before mid-1982 officials indicated substantial planned cuts in imports, public sector expenditures, and growth rates to meet scheduled debt service through the mid-1980s. If the situation were as bad as news accounts reported in late 1982, the next several years would probably be a period of very low growth, severe pressure on wages, elimination of subsidies and a straining to export as much as possible. How labor and other elements in the society would react to austerity and the movement toward democracy in the political system remained a major question.

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Much has been written on Brazil's economy; it is an interesting and challenging subject for economists. Celso Furtado's *The Eco-*

conomic Growth of Brazil and Werner Baer's *Industrialization and Economic Development in Brazil* provide valuable background material. William Tyler's *The Brazilian Industrial Economy* and John Dickenson's *Brazil* supply data and text covering varying portions of the 1970s with particular emphasis on industrialization. Mario Henrique Simonsen, a former planning minister, has written an unusually informative, brief survey of the period since the 1950s, emphasizing the financial system, "Brazil—Economic Outlook—Prospects for the Eighties." *Doing Business in and with Brazil* by Paul Garland provides valuable material on the various government entities and descriptions of the many incentive and other programs. The *Financial Times* (London) usually publishes annually (often in November) a several-page survey of Brazil. The United States Department of Commerce's *Foreign Economic Trends and Their Implications for the United States: Brazil* provides important current statistics and information on recent policy measures. Of course, the Brazilian government's annual statistical yearbook, *Anuário Estatístico do Brasil*, supplies a mass of statistics, although not all figures are as up-to-date as one would like.

Edward Schuh's *The Development of Brazilian Agriculture* describes that sector at about 1970; Solon Barraclough's *Agrarian Structure in Latin America*, though limited to the 1960s in most of its data, remains useful. Caio Prado's *The Colonial Background of Modern Brazil* and Furtado's *The Economic Growth of Brazil* provide excellent background reading on agricultural development. The publications of the Foreign Agricultural Service of the United States Department of Agriculture deal with current agricultural production, trade, and policy issues. For information on government agricultural policy, the reader might consult Richard Meyer et al.'s "Rural Capital Markets and Small Farmers in Brazil, 1960-1972," Paulo de Araujo and Meyer's "Agricultural Credit Policy in Brazil," and William Saint's "Farming for Energy." Albert Berry and William Cline, in *Agrarian Structure and Productivity in Developing Countries*, have a useful section on land-holding and productivity in Brazil. Manuel Correia de Andrade's *The Land and People of Northeast Brazil*, updated and translated into English, is a detailed portrait of agriculture in the country's poorest region. *The Agricultural Economy of Northeast Brazil*, by Gary Kutcher and Pasquale Scandizzo, is likewise valuable. (For further information and complete citations, see Bibliography.)