THE BRAZILIAN ECONOMY

Growth and Development
5th Edition

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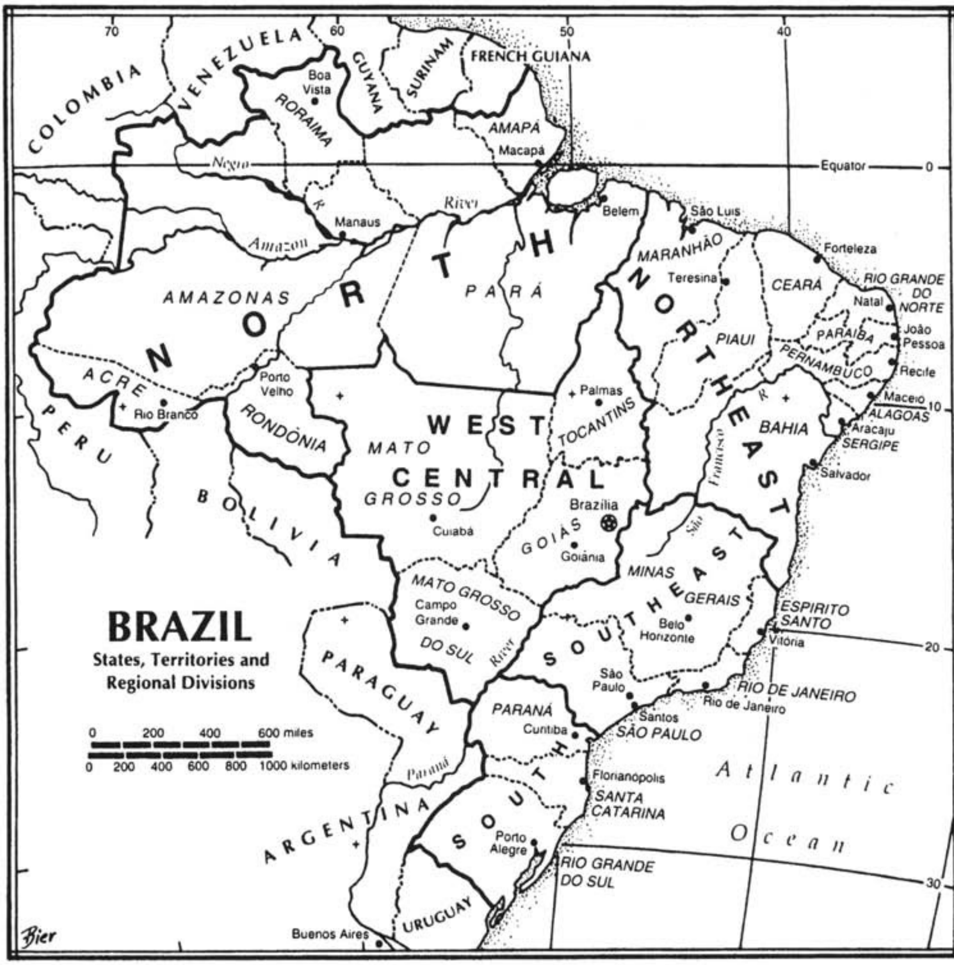
THE BRAZILIAN ECONOMY



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SURINAM
FRENCH GUIANA
PERU
BOLIVIA
PARAGUAY
ARGENTINA
URUGUAY
NORTH
NORTHEAST
WEST CENTRAL
SOUTHEAST
SOUTH
RORAIMA
AMAPÁ
AMAZONAS
PARÁ
ACRE
RONDÔNIA
MATO GROSSO
TOCANTINS
GOIÁS
MATO GROSSO DO SUL
MARANHÃO
PIAUI
CEARÁ
RIO GRANDE DO NORTE
PARAÍBA
PERNAMBUCO
ALAGOAS
SERGIPE
BAHIA
MINAS GERAIS
ESPIRITO SANTO
RIO DE JANEIRO
SÃO PAULO
PARANÁ
SANTA CATARINA
RIO GRANDE DO SUL
Boa Vista
Macapá
Manaus
Belem
São Luis
Forteleza
Teresina
Natal
João Pessoa
Recife
Maceio
Aracaju
Salvador
Palmas
Porto Velho
Rio Branco
Brazília
Goiânia
Cuiabá
Campo Grande
Belo Horizonte
Vitória
São Paulo
Santos
Rio de Janeiro
Curitiba
Florianópolis
Porto Alegre
Buenos Aires
Negro
Amazon
River
São Francisco
Paraná
Atlantic Ocean
Equator
70
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Growth and Development

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To

Marianne and Peter Kilby
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Heloisa and Annibal Villela

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Preface to the Fifth Edition

This revised edition of *The Brazilian Economy* includes three new chapters, and other chapters have been updated. Chapter 10, which is new, brings the analysis of the performance of the Brazilian economy up to the year 2000. Chapter 11, on the external sector, and 12, on the state sector and privatization, contain much new material based on events in the 1990s. Chapter 13, on the restructuring and privatization of Brazil's banking system, is entirely new. Chapters 14, 15, 16, on regional imbalances, the agricultural sector, and the environment, are updated with data analyses up to the end of the 1990s. Chapter 17, on health and the economy, is new, and Chapter 18, on structural changes in Brazil's industrial economy, contains more recent data.

The new chapters were written with the collaboration of a number of colleagues. I wish to thank Edmund Amann (who coauthored Chapter 10), Nader Nazmi (who coauthored Chapter 13), and Antonio Campino and Tiago Cavalcanti (who were the coauthors of Chapter 17).

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I Historical Perspective

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1. Introduction and Overview

Brazil has undergone profound socioeconomic changes since the Great Depression of the 1930s, and especially since World War II. Its economy, which for centuries had been geared to the exportation of a small number of primary products, has in a relatively short period of time become dominated by a large and diversified industrial sector. At the same time, its society, which had been predominantly rural, has become increasingly urbanized.

This rapid socioeconomic transformation can be illustrated with a few numbers. In 1940 only 30 percent of the country's population was urban; by 1970 this proportion had increased to 56 percent, and by 1999 to 78 percent.[1] The contribution of agriculture to the gross domestic product (GDP) declined from 28 percent in 1947 to about 10 percent in the late 1990s (measured in current prices), whereas that of industry rose from not quite 20 percent in 1947 to about 36 percent in the late 1990s. After four decades of intense industrialization, Brazil was producing 2 million motor vehicles in 1997, 26 million tons of steel in 1997, 39 million tons of cement in 1998, about 7.8 million television sets, and 3.7 refrigerators in 1997. It had over 58,000 megawatts of installed electric power capacity in 1998, and over 60 percent of its exports consisted of manufactured products. Its paved road network increased from 36,000 kilometers in 1960 to close to 150,000 kilometers in 1999.[2]

Although agriculture was not the leading sector in these years, its growth was substantial. The country's land area in crops expanded from 6.6 million hectares in 1920 to 52.1 million in 1985, falling back to 41.7 million in 1995,[3] while planted pasture lands rose from 74.1 million hectares in 1985 to 99.6 million hectares in 1995. The country became the world's largest sugar producer and orange juice exporter and the second largest exporter of soybeans, after the United States.

These achievements, however, did not transform Brazil into an advanced industrial society. In terms of the welfare of its average citizen, Brazil remained a less-developed country. Although per capita income in 1998 was US$ 4,570, this number is not a good indicator of general well-being, since the distribution of income was highly concentrated among the income groups and among regions of the country. In 1998, 10 percent of the population received 46 percent of the national income while the poorest 50 percent of Brazil's income groups received only 14 percent of the national income. Per capita income varied regionally to such an extent that in many states of northeast Brazil it was less than half of the national average; in the more advanced regions, it was more than 50 percent higher than the national average.[4]

In 1998, 80 percent of households had access to water supply systems, 36 percent were connected with a general sewage system, 65.6 percent had regular garbage collection services, 94 percent had electricity, 74.6 percent had a refrigerator, 81 percent a television set, and only 32 percent had a telephone.[5] In 1984–89 the physician–population ratio was 1:1,210, changing to 1:746 in 1995, compared with 1:408 in the United States and 1:334 in Sweden; the nurse–population ratio was 1:2,439 in 1995, compared with 114 in the United States and 95 in Sweden. The infant mortality rate per 1,000 was 65 in 1990, falling to 34 in 1997, compared with 7 in the United States and 4 in Sweden.

These social indicators describe only national averages. In many regions of the country, the population was living in conditions much worse than these averages indicate. For instance, in the early 1990s in northeast Brazil only 48 percent of urban households had access to a general water supply system, compared with over 85 percent in the Southeast; and only 16 percent of households were connected with a general sewage system, compared with 70 percent in the Southeast. Life expectancy at birth was 88.1 in the Southeast, compared with 60.7 in the Northeast, and the infant mortality rate in the Southeast was 26.8 per thousand in the Southeast, compared with 63.1 in the Northeast.[6]

Policymakers had hoped that besides contributing to the general growth and development of Brazil, industrialization would substantially lessen the economic dependence of the country on the traditional industrial centers of the world. The international division of labor originating in the nineteenth century had given to Brazil, and most Third World countries, the role of suppliers of primary products. Thus its rate of economic activity was largely dependent on the performance of the industrialized centers of the world. It had been hoped that import-substitution industrialization would result in a greater economic independence for the country. In fact, industrialization only changed the nature of the dependency relationship. The import coefficient (import/gross domestic product GDP ratio) did not decline very much, while the commodity composition of imports changed and resulted in the country's being at least as dependent on foreign trade as before for its rate of economic activity. In addition, since industrialization was achieved by massive foreign investment in the most dynamic sectors of industry, foreign influence on the development and use of the means of production increased substantially.

The Brazilian industrialization model was based on the ideology of market economies; that is, under most of its governments in the period when industrialization was being promoted, respect for private property and reliance on private domestic and foreign enterprises were stressed. The state, however, has become directly involved in economic activities to a far greater extent than was originally planned by the country's policymakers. This was due to the financial limitations and technical backwardness of the private domestic sector, the unwillingness of foreign capital to enter certain fields of activity, and the unwillingness of governments to allow foreign capital into some sectors.

This book examines the historical evolution of the Brazilian economy, focusing especially on the process of its industrialization in the twentieth century, the methods used to achieve it, its impact on the socioeconomic environment, and the adjustments of socioeconomic institutions to the structural changes in the economy. This leads us to study the type of economic system that emerged in the process, that is, the mixture of private and state capitalism, some of whose features are distinct from those of mixed economies of Western Europe. Finally, we plan to examine some aspects of Brazil's economic policies and economic system that account for the persistence of underdevelopment in the midst of economic growth.

PHYSICAL AND DEMOGRAPHIC SETTING

Brazil's territorial extent of 3.27 million square miles makes it the fifth largest country of the world, surpassed only by Russia, Canada, China, and the United States. It covers 47 percent of South America. The largest proportion of the territory is made up of geologically ancient highlands. About 57 percent of the land is on a plateau varying between 650 and 3,000 feet; 40 percent consists of lowlands with an elevation of less than 650 feet; and 3 percent exceeds 3,000 feet. North of the city of Salvador there is a gradual rise from the coast to the interior. However, when approaching Brazil from the Atlantic along the central and southern coasts, one has the impression of a mountainous country, since the highland plateau of central and southern Brazil drops off sharply into the Atlantic. The wall-like slope is called the Great Escarpment. It has made access to the interior difficult and has often been cited as a major reason for the slow development of the interior south-central plateau prior to the twentieth century.

With the exception of the Amazon, most of the principal river systems have their sources in central and southeastern Brazil, many fairly close to the ocean. Since, however, the rivers drain inward, there is no natural focus of routes in the most dynamic area of the country; therefore river transportation has not played an important role in the development of Brazil. The Paraná system is fed by tributaries that flow westward into the interior until they reach the main river, which flows southward toward Argentina. The São Francisco River has its source in the south. It flows northward, paralleling the coast for more than 1,000 miles before turning eastward. Most of the river systems descend rapidly as they go through the Great Escarpment, making interior navigation for ocean vessels impossible. For instance, the São Francisco River is navigable for about 190 miles into the interior, until shortly before the Paulo Afonso Falls. Only the Amazon River is navigable far into the interior, and it unites a sparsely populated, underdeveloped, and unexploited region of Brazil.

Brazil is mainly a tropical country and its climates contain few extremes, but "they are by no means so monotonously uniform, or so unbearably hot and damp, that the human spirit is deadened. If the Brazilian people in certain regions appear to be lacking energy, this cannot be interpreted as the inevitable result of the climate until such other elements as diet and disease have been evaluated."[7]

The average temperature on the Amazon at Santarem, a few degrees from the equator, is 78.1 degrees; in the dry northeast, the highest temperature recorded is 106.7 degrees, but further southward along the coast the maximum temperatures are much lower. The average in Rio de Janeiro in the warmest month is 79 degrees. In the highlands of the interior the temperatures are lower than at the same latitudes on the coast. Only the states south of São Paulo ever experience frost.

Rainfall is adequate in most of Brazil. Deficiency is limited to part of the northeast, where there are areas receiving less than 10 inches per year. Most of the northeast receives between 20 and 25 inches. The principal problem of that region is rainfall irregularity: variations between excessive rains and droughts.[8] Very moist areas, with more than 80 inches of rainfall a year, exist in four regions: the upper Amazon lowlands, the coast from Belem northward, scattered parts of the Great Escarpment, and a small section in the western part of the state of Paraná.

NATURAL RESOURCES

Brazil has an abundance of many different types of mineral resources. It has an immense reserve of iron ore (the potential reserves in the 1990s were thought to be about 36 billion tons), manganese (in 1992, estimated reserves were about 136 million tons), and other industrial metals. The country also possesses substantial quantities of bauxite, copper, lead, zinc, nickel, tungsten, tin, uranium, quartz crystals, industrial diamonds, and gemstones.

Until the late 1960s, knowledge of Brazil's total mineral reserves was still limited. The use of modern techniques of surveying and prospecting (e.g., the use of satellites) has resulted in substantial new discoveries.[9] For example, most of the known deposits of minerals until recently were thought to be located in the mountain range running through central Brazil (especially in the state of Minas Gerais). In 1967, however, huge deposits of iron ore (estimated at 18 billion tons) were discovered in the Serra dos Carajas, located in the Amazon region. Also in the late 1960s the Amazon was found to contain large deposits of bauxite. Tin reserves near the Bolivian border have been estimated to be larger than those of Bolivia, and in the 1970s substantial copper deposits were found in the state of Bahia.

In the decades since World War II, there has been a dramatic reshaping of Brazil's sources of energy consumption. In 1946, 70 percent of the country's energy supply was drawn from firewood and charcoal. By the 1990s, however, over 66 percent was being drawn from oil and hydroelectric power. Unfortunately, the fuel resources of the country have not matched its mineral resources. Until recently, the only known coal deposits were located in the southern state of Santa Catarina. This coal is of poor quality, containing a high proportion of ash and sulfur, and therefore cannot be fully used for production of coking coal by the steel industry. About 65 percent of metallurgical coal requirements are met by imports. In the 1970s, some new coal deposits were discovered deep in the Amazon region but have yet to be exploited fully.

Brazil's known oil reserves are inadequate for its needs. Until the early 1970s, most of the known reserves were located in the states of Bahia and Sergipe, but domestic production from these sources furnished only 20 percent of the country's needs in the mid-1970s. Offshore exploitation by PETROBRAS, the government-owned company, has resulted in new discoveries near the town of Campos in the state of Rio de Janeiro, in the state of Sergipe, and near the mouth of the Amazon. The sizes of these discoveries were considerable. By 1984 Brazil's oil reserves stood at 2 billion barrels, of which 600 million were located on land and the rest on the continental shelf. In 1998 domestic oil production amounted to 56.6 million cubic meters, equal to 69 percent of domestic consumption.

The hydroelectric potential of Brazil is one of the largest in the world. It is estimated at 150,000 megawatts. Until the post–World War II period the best sites were considered to be too remote from the major population centers for development, but since the 1950s the development of such sites has proceeded rapidly with the construction of the hydroelectric works at Paulo Afonso Falls and Boa Esperança in the northeast, Furnas and Ilha Solteira in the southeast, and Tres Marias in the state of Minas Gerais. In the mid-1970s work began on the world's largest hydroelectric project at Itaipu, on the Paraguayan border, and in 1983 the first turbines of that project were turned on. By the 1990s only slightly more than 15 percent of the country's hydroelectric potential was being used.

THE POPULATION

In 2000 the population of Brazil was estimated at 170 million. This makes Brazil the sixth largest nation in terms of population size. Given the country's enormous territory, its population density is relatively low. It stood at 19.6 persons per square kilometer in 1998 (compared with 13.0 in Argentina, 49.0 in Mexico, and 36.0 in Colombia). Considerable variation can be found in population density, ranging from 2.6 per square kilometer in the Amazon region to 27.5 in the northeast and 127 in São Paulo state. In 1991, 6.8 percent of the population lived in the Amazon region, 28.9 percent in the northeast, 42.7 percent in the southeast, 15.1 percent in the south, and 6.5 percent in the center-west.

A distinctive feature of the regional distribution of Brazil's population is the degree of concentration within a few hundred miles of the seacoast. Population penetration into the interior has been notable only in the twentieth century, especially in the south. The building of the interior city of Brasília (which became the federal capital in 1960), the connecting road to that city, and the high rate of road construction activity in the 1960s and 1970s have substantially increased the migration of the population to the interior.[10]

The high growth rate of the population (3 percent per year in the 1950s, 2.9 percent in the 1960s, 2.5 percent in the 1970s, and 2.0 percent in the 1980s) is due to the continuing high birthrate, coupled with a declining mortality rate. This has resulted in a high proportion of the population in the dependent age group of 14 years and below, 39.5 percent in 1995 (compared with 21.5 percent in the United States and 29.4 in Argentina). The rate of literacy of the population 15 years and older increased from 49 percent in 1950 to 61 percent in 1970 and 84 percent in 1995. This is closely connected with the recent high growth rates of educational enrollment. By 1994, primary school enrollment as a percent of the 7–13 age group stood at 90 percent, secondary school enrollment as a proportion of the 14–19 age group was 47 percent, and higher education enrollment as a proportion of the 20–24 age group was 11 percent.

The high proportion of the population in the younger age groups accounts in part for the low labor force participation rate. This rate was 32.9 percent in 1950, shrank to 31.8 percent in 1970, and rose to 65.5 percent in 1995.

The racial composition of Brazil is quite varied. One expert on Brazil's population has stated that "There are few places in the world in which the racial makeup of the population is more involved and complex than it is in Brazil. All the principal varieties of mankind, all the basic stocks into which the human race may be divided—red, white, black and yellow—have entered into the composition of the population of this great half-continent."[11] Until the latter part of the nineteenth century, the population was mainly made up of descendants of Portuguese, Africans, and Amerindians. During colonial times and into the nineteenth century, a considerable amount of miscegenation took place, resulting in a large proportion of today's population being of mixed ancestry. In the latter part of the nineteenth century and first decade of the twentieth century, large immigration from Italy, Portugal, Spain, Germany, Poland, and the Middle East occurred. These immigrants settled mainly in southeastern and southern Brazil. In the second decade of the twentieth century, large numbers of Japanese immigrated, settling mainly in the states of São Paulo and Paraná. It is estimated that there are today over 800,000 Brazilians of Japanese descent.

The diversity in the background of the population has not prevented Brazil from achieving a high degree of cultural unity. With the exception of a small number of Indians deep in the Amazon region, all Brazilians speak Portuguese, with small regional variations of accents (possibly less than in the United States). According to one of the leading interpreters of Brazilian society, "There is a strong and deep feeling among Brazilians of all racial backgrounds and national origins that they form a 'people' and a nation. They share common ideals, common tastes, common problems, common heroes, a common past, and a common sense of humor."[12]

NOTES

1. The source of population data is FIBGE, *Censo Demográfico* (Rio de Janeiro: FIBGE, 1940, 1950, 1960, 1970, 1980). FIBGE, *Anuario Estatístico do Brasil*, 1996. These data exaggerate the degree of urbanization, since the Brazilian census definition of

"urban"extends to all populations living in administrative centers. These might consist of small towns with populations of 500 to 1,000 or large cities. Since the economic activities of the former are often much more rural than urban in character, Brazil's degree of urbanization in 1990 is probably less than the official data indicate. For example, if one were to define urban population as that part that lives in cities of 10,000 and more, the proportion of the population that is urban would fall to 51 percent.

2. FIBGE, Anuario Estatístico do Brasil, 1996.

3. The decline from 1985 to 1995 was partially due to increased productivity in the production of some crops and partially due to greater imports of some food items.

4. FIBGE, *Anuario Estatistico*, 1996.

5. This was changing rapidly in the late 1990s with the use of cellular telephones and the investment plans of recently privatized fixed telephone systems.

6. Willumsen, Maria J. F., "Regional Disparities in Brazil," in *The Brazilian Economy: Structure and Performance in Recent Decades*, edited by Maria J. F. Willumsen and Eduardo Giannetti da Fonseca. (Miami, Fla.: North-South Center Press, 1996), p. 243; *Brasil: Reforma ou Caos*, edited by Heio Jaguaribe (Rio de Janeiro: Paz e Terra, 1989), p. 24.

7. Preston E. James, *Latin America* (New York: Odyssey Press, 1969), p. 389. More detailed information on Brazil's geography can be obtained from FIBGE, *Sinopse Estatística do Brasil*, 1975; Donald R. Dyer, "Brazil's Half-Continent,"in *Modern Brazil: New Patterns and Development*, John Saunders, ed. (Gainesville: University of Florida Press, 1979), pp. 29–50.

8. In commenting on northeastern droughts, Dyer states that "the dry season is regular but drought is not. However, droughts are too frequent to be unexpected, with periods ranging from a one- to four-year duration."Dyer, op. cit., pp. 41–42.

9. "Pesquisas de Recursos Minerais no Brasil," *Conjuntura Econômica*, January 1974, pp. 66–70. See also FIBGE, *Anuario Estatístico*, 1981.

10. T. Lynn Smith, "The People of Brazil and Their Characteristics," in *Modern Brazil*, op. cit., pp. 52–53.

11. Ibid., pp. 53–54.

12. Charles Wagley, *An Introduction to Brazil*, rev. ed. (New York: Columbia University Press, 1971), p. 5.

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2. Historical Perspective

THE COLONIAL ECONOMY

In early colonial times, during the sixteenth century, Brazil was not considered a rich prize by Portugal. Although the territory acquired by the Portuguese crown was immense, it did not bring it the economic windfall that the Spaniards obtained through their conquest of Peru and Mexico, that is, precious metals and a large, settled, and well-organized population that could be used in the mining and the supportive agricultural sectors.[1] The Brazilian territory was sparsely inhabited by nomadic Indians, whose number declined due to diseases contracted from early Portuguese colonists, and who could not easily be disciplined and trained for plantation work.[2]

Brazil derives its name from its first export product—brazilwood (*pau-brasil*). The bark of this tree was used as a dyestuff in Europe. The collection of brazilwood was a rudimentary activity that did not create many permanent settlements and complementary sectors.[3]

The first major export product of Brazil was sugar. Its cultivation was introduced around 1520 and was brought to the Brazilian continent by immigrant cane-milling artisans and sugar traders from the Portuguese-held islands in the Atlantic. The rapid spread of sugar cultivation and exports soon developed into the first of a series of great primary export cycles, which were to dominate Brazil's economic growth until the twentieth century.[4]

EARLY SOCIOECONOMIC ORGANIZATION

The dearth of manpower and the low economic benefits that early Brazil seemed to offer Portugal led to a decentralized political-economic organization of this colony. Trade was mainly in private hands, and the establishment of early settlements was left to *donatarios*. The latter were individuals who received concessions to settle and develop specific areas (*capitanías*) at their own expense. They sold land to colonists and engaged in the promotion of various types of commercial undertakings. Thus, early colonization in Brazil "was essentially a business venture, combined with aspects of private subgovernment."[5] Although in the middle of the sixteenth century a governor-general was appointed to preside over the colony from the city of Salvador, local government was stronger until the latter half of the eighteenth century. Thus, "only the main outlines of policy were set forth in Europe, and the actual implementation and interpretation were left to the governors and municipal councils."[6]

The latter, in turn, were dominated by the owners of large rural estates (*fazendeiros*) and of sugar mills (*senhores de engenhos*), and the center of economic and social life was in the large coastal sugar plantations.[7]

THE SUGAR CYCLE

The first great export product of Brazil—sugar—was produced mainly in the humid coastal zone of northeast Brazil, known as the *zona da mata*. Besides the excellent growing conditions, the region was also favorably located for shipping the product to Europe and for receiving African slave labor. With the scarcity of local Indian laborers, the Portuguese had resorted to importing slaves from Africa (mainly from Angola) to work on the sugar estates.

The rapid spread of sugar growing turned the *zona da mata* into a monocultural area. The volume of sugar exports expanded steadily for a century. The increased production was based on the extension of land under cultivation (since there was a large available supply) and the growth of the slave population rather than on changes in the production process and increased productivity. Most of the sugar was grown on large estates (the number of slaves working on an average-sized estate at the time amounted to about 80 to 100).[8]

The only domestic economic linkage at the time was the northeastern interior (the *agreste* and *sertão* areas), whose surplus agriculture output fed the population of the sugar zones. The population of the interior consisted of Portuguese immigrants and their slaves, fugitive slaves, and *caboclos* of mixed blood. They practiced both cultivation and ranching on a fairly primitive basis, but were able to produce enough of a surplus to support the growth of the export sector.

The sugar export sector was profitable for a variety of economic factors: the estate owners and those engaged in marketing, financing, shipping, and slave trading. Traders also made substantial profits from importing, since the colony was almost totally dependent on foreign manufactured products and even on some imported foodstuffs.

In this analysis of Brazil's colonial past, Celso Furtado calls attention to a fundamental difference between the productive structure of Brazil and the English colonies in North America. A large part of the latter consisted of small agricultural properties, whereas Brazil's export agriculture consisted of large monocultural estates. As a consequence, income in North America was much more evenly distributed than in Brazil. This explains the early appearance of a large internal market in the former, which set the basis for an early development of an independent commercial and industrial sector. The smallness of the Brazilian market, due to the concentration of property and income, served to maintain the stagnant colonial economic structure in Brazil.[9]

Although appealing, this argument may not be totally relevant for the colonial period. Economies of scale were less important in industry and commerce at that time than they were to be in the nineteenth and twentieth centuries. One could also argue that since the economy had a natural comparative advantage in sugar and cotton, the development of industries would not have been an efficient way to allocate resources.

Furtado also provides a most convincing analysis of the failure of the early sugar export economy to have significant repercussions on the economy. He suggests that most of the surplus went either to the commercial classes, who invested their gains abroad, or to estate owners, who spent large sums on imports, both consumption and investment goods (which included slaves).[10] He points out how in an export-oriented slave economy the relation between investment and income is very weak, since most of the expenditure is made on the importation of manpower and capital, whereas the maintenance of slaves is paid for mostly in kind. The investment represented by the use of slaves to work on local infrastructure also had no counterpart in money flows.

Since the monetary economy was thus very circumscribed, export stagnation had little effect on the economy at large, and was felt only through a decline in the import of goods and slaves, and a general decline in the relative importance of the money economy.[11] The only internal repercussions that the sugar economy had were on the cattle economy of the interior. Export declines would cause an atrophying of this sector because it would shift increasingly toward a subsistence type of economy (i.e., a self-sufficient sector outside the money economy). Migration from the depressed sugar economy to the interior and the switching of economic activity from export cattle raising to subsistence would result in a process of what Furtado calls "economic involution"—the exact opposite of growth and development.[12] This process would often occur in the country's economic history. It shows, in effect, how Brazil's particular socioeconomic organization did not permit export booms to have lasting secondary effects on the society. For export-led development to occur, many prerequisites were necessary that were not present in Brazil.

By the early part of the seventeenth century, Brazil had become the world's leading sugar supplier and, according to Glade, "had supplanted Asiatic spices as the staples of Anglo-Portuguese trade and Brazilian exports were equally well-known on the European continent."[13]

As the seventeenth century wore on, the export boom began to fade. The decline of sugar exports was not due to the failure of technological improvements to occur in Brazil. The cost of Brazilian sugar was still 30 percent lower than that of sugar from British-owned plantations in the Caribbean. The cause of the decline was the development of an increasing quantity of sugar supplies in the British, Dutch, and

French colonies, which had preferential access to the respective "mother country" markets.

The sugar plantations did not disappear. Their declining cash income was offset in part by declining money costs "as slave breeding within the firm offered at least a partial substitute for purchased slave imports."[14] As described earlier, some lands were redirected toward subsistence agriculture or to the growing of foodstuffs for the expanding coastal population. Around Salvador some lands were switched to the production of tobacco and, later, in the middle of the eighteenth century, to the growing of cacao. Some cotton had always been grown in northeast Brazil and would, on occasion, produce brief export booms in the late eighteenth century (at the time of the American Revolution) and in the nineteenth century (e.g., during the American Civil War).[15]

The legacy of the sugar export cycle was negative. The organization of agriculture in the northeast's interior remained primitive, and in the coastal plantations, agricultural techniques continued to be archaic. The slave system had kept human resources underdeveloped,[16] and the distribution of assets and money income was extremely concentrated. Much of the windfall profits of the sugar cycle had been appropriated by Portuguese and foreign intermediaries, whereas a large part of the profits accruing to the *fazendeiro* and *engenho* owners was spent on imported consumer goods rather than technical and infrastructural improvements.

THE GOLD CYCLE AND THE RISE OF MERCANTILIST CONTROL

A new burst of growth was launched in the 1690s with the discovery of gold in what is now the state of Minas Gerais. Despite the precariousness of the communication system of the day, the news of the discovery spread rapidly and soon the previously empty region was full of migrants searching for the precious metal. Gold metal production increased steadily between 1690 and 1760 (there was also some diamond output, although on a minor scale). It has been claimed that Brazil was responsible for half of the world's gold output in the eighteenth century.[17]

The gold export cycle shifted the center of economic activity to Brazil's center-south. Migrants came from all over Brazil. Many northeasterners left their declining area for the gold regions. These even included planters, who brought along their slaves. Also streaming in were farmers and ranchers from the rustic south and new immigrants from Portugal. Many new towns emerged in the mining districts. Acting as service centers for the extraction activities, they contained more complex occupational structures than had existed in earlier Brazilian towns. An artisan sector emerged for the first time and private banking groups appeared, catering to the needs of the mining and commercial sectors.

A large proportion of mining was of the placer variety, which could be operated on a small scale. Since the capital and labor requirements per production unit were therefore small, an increased participation in mining enterprises was possible and as a consequence the concentration of income was smaller than in the northeast.[18]

The mining sector of Minas Gerais had considerable linkage effects. The demand for food in the towns and mining centers was a stimulus to agricultural production not only in Minas Gerais but also in what is now the state of São Paulo, areas farther to the south, and even in the northeast. As the shipment of gold to the ports was done by pack animals, the demand for such animals as mules had an impact on many supplying regions in the south. The export of gold and diamonds also financed a growing volume of imports of consumer goods and mining supplies.

The mining boom resulted in the emergence of Rio de Janeiro as a major port. It became the principal center through which the minerals were exported and through which manufactured imports came. It was not long before Brazil's major mercantile houses, financial institutions, and various other service activities were located there. In 1763 the administrative center of this Portuguese colony was shifted from Salvador to Rio de Janeiro.

With the substantial increase in the value of its Brazilian colony, the Portuguese government drastically tightened its administrative controls. The mining districts were carefully supervised in order to minimize evasion of payment of one-fifth of the gold mined to the crown. Individual sailings were forbidden; all ships had to be part of officially supervised convoys. Special trading monopolies were established. Local manufacturing was tightly controlled, and goods that could be supplied by the metropolis were not allowed to be produced in Brazil.[19]

The minimization of internal linkages with a new manufacturing sector kept the factors of production of the colony in a very primitive state. The latter was also the result, in part, of the neglect of education, which had been practically nonexistent before 1776 (except for the scattered efforts of the Jesuits prior to their expulsion in 1759). Even after 1776, the few schools that functioned had little impact on the cultural level of the population.[20] The transportation infrastructure was purposely kept primitive in order to better control smuggling. This kept the dimensions of the internal market very limited for a long time.[21]

The gold cycle came to an end in the latter part of the eighteenth century, when most of the economically viable mines had become exhausted. Some of the mining population then drifted toward the central plateau of Brazil, where they carried on ranching; others went to southern Brazil, where they engaged in agricultural pursuits. Many remained in Minas Gerais, also turning toward agricultural activities, much of it of a subsistence nature.

In the second half of the eighteenth century, a revival of export agriculture also occurred in northeast Brazil. This was especially the case with cotton exports. Most notable was the rise of cotton growing and exporting from Maranhão, Pernambuco, and Bahia.[22] Sugar exports, which had never disappeared completely, revived in the late eighteenth century, originating not only from the northeastern area but also from São Paulo.

Glade summarizes the situation of Brazil at the end of the eighteenth century well. He states that the curtain . . . fell upon two distinctly separate Brazilian states. In the north, the coastal-*agreste-sertão* complex lay prostrate, a society nearly immobilized by its internal institutional structure once the old-time dynamism had gone from the external trade links . . . southward, the first act, based on gold and diamonds, had also come to a close. But there, a rather more versatile and open society remained, poised, as it were, in a sort of developmental entr'acte. Already the stage was being readied for the second presentation—a longer work with coffee as its theme.[23]

THE COLONY'S LAST YEARS

When Napoleon occupied Portugal in 1807, the royal family, under British protection, set sail for Brazil. In 1808 it established the capital of the Portuguese empire in Rio de Janeiro. The creation of government jobs and the effects of the government payroll on the service and manufacturing sectors stimulated the growth of this city. The crown also undertook construction designed to improve the infrastructure serving the new seat of government.

The abolition of mercantilist controls helped to increase trade. Both Portuguese and foreign merchants and finance houses increased their activities, aided by the founding of the first Banco do Brasil in 1808. This bank functioned both as a bank of issue and as a commercial bank until 1829.

During this period, a printing press was brought to Brazil for the first time. The crown also founded a number of higher educational institutions and brought numerous European scientists and technicians to Brazil as consultants. It also tried to stimulate various types of industrial establishments. These did not take root, however, due to the flood of imported goods, mainly from Britain. The British had been granted special access to the Brazilian market in return for guaranteeing the naval defense of Brazil.

The king returned to Portugal in 1821, leaving his son behind as regent. As, after a while, it became obvious that Portugal would restore Brazil to a subordinate colonial status again, the increasing discontent throughout Brazil drove the regent to declare independence in 1822. From that date until 1889, Brazil was an independent country governed by a monarchical system whose head was an emperor, at first Dom Pedro I, who, after a regency period of nine years from 1831 to 1840, was followed by his son Dom Pedro II.

THE CENTURY AFTER INDEPENDENCE

At the time of independence, in fact the year after its declaration in 1822, the population of Brazil was estimated at 3.9 million, of which 1.2 million were slaves.[24] Considering the immensity of the country's territorial existence in relation to the number of inhabitants and the communication difficulties that still existed throughout most of the nineteenth century, it is a remarkable historical phenomenon that the country did not break up into smaller independent countries, as occurred in the Spanish-American empire.

During the nineteenth century, Brazil easily fitted into the world economic order dominated by Great Britain. The latter had become the nucleus of the industrial center of the world, exchanging its manufactured products for food and raw materials from the periphery. The latter consisted of countries whose economies were completely dependent on the exports of such products. Brazil became a typical example of such a country. Its economy was dependent on one major primary export product (coffee) and a few minor ones (sugar, cotton, cocoa); throughout most of the period, its economy was open to foreign (mainly British) manufactured products and foreign (mainly British) capital, which flowed into the country and was designed to build a financial, commercial, and transport infrastructure that would link the country more efficiently into the nineteenth-century world economic order.

THE COFFEE CYCLE

Although coffee was introduced into Brazil in the early part of the eighteenth century, it was at first grown as a specialty item. It was consumed mainly domestically and in the coffee houses of major European cities. With the improvement of European and North American living standards, resulting from the progress brought about by the industrial revolution, coffee consumption expanded rapidly. By the fourth decade of the nineteenth century, coffee was the principal export item of Brazil.[25]

The rapid growth of coffee exports in the nineteenth century is shown by the following data for decadal exports (1,000 bags, each of 60 kg):[26]

1821–30	1831–40	1841–50	1851–60	1861–80	1871–70	1881–90
3,178	10,430	18,367	27,339	29,103	32,509	51,631

In the decade 1821–30, coffee accounted for 19 percent of total exports, and by 1891 this share had risen to about 63 percent.

Until 1880, the bulk of Brazil's coffee was grown to the north and west of Rio de Janeiro (mostly in the Paraíba Valley) and also in the northeast (the Cantagalo region). The production techniques were rudimentary, based on black and mulatto slaves who lived mostly outside the money economy. The plantation was run by the owner, the fazendeiro, who presided "as a powerful patriarch over the social and political affairs of the immediate area, in addition to controlling the economic activities of the plantation itself."[27] In the prerailroad days the coffee was shipped by mule train to the port of Rio de Janeiro. The handling of coffee between the *fazenda* and the export houses was conducted by commission agents (*comissários*).[28]

As the good lands of the Paraíba Valley were becoming exhausted around the 1880s, coffee production moved south to the state of São Paulo and then westward in that state. In the 1860s, British capital and engineers built a railroad over the coastal escarpment separating the central plateau of São Paulo from the port of Santos, and in the next decades railroads were built deep into the São Paulo coffee zones. São Paulo's coffee production grew rapidly in the 1880s and 1890s. By 1890, the amount of coffee passing through Santos was equal to that of Rio de Janeiro, and by 1894, it had become the world's most important coffee export center.[29]

The westward expansion in São Paulo resulted in the development of large coffee estates, since only a relatively small number of persons had the economic and political power necessary to establish and defend titles and to place new lands into production. These employed an increasing number of free laborers, and even before the abolition of slavery in 1888, they promoted European immigration. After abolition, there was a massive influx of immigrant labor, mainly from southern and eastern Europe (especially from Italy).[30]

There can be no doubt that coffee exports were the engine of growth throughout most of the nineteenth century. Also, as in the latter part of the nineteenth century the coffee economy had shifted to São Paulo, so the economic center of the country gradually shifted to that region, where it has remained until the present day. The secondary effects of the São Paulo coffee economy—employment of free immigrant labor, foreign investment in infrastructure, capital accumulation of coffee growers, and, as is discussed in a later chapter, the derived growth of industry—were to deepen the regional dualism between the center-south and the rest of Brazil (especially taking into account the northeast).

Some students of Brazil's economic history, especially Celso Furtado, have identified the backwardness of the country vis-à-vis Europe and the United States as being due to the privileged position of England as a supplier of manufactured goods and to the lack of an important native commercial class. Thus, political power was in the hands of the land-owning classes whose interests were compatible with the nineteenth century international division of labor. Furtado emphasizes his points by comparing the Brazilian and U.S. postindependence situations. The influence of the small farming sector and the commercial classes and the independence war against the supplier of manufactured goods are taken by Furtado as important institutional factors explaining the nineteenth-century progress in the United States in contrast with the socioeconomic stagnation of Brazil.[31]

In this discussion of the rise of the coffee economy, Furtado is very sensitive to noneconomic phenomena. He points to the differences between the formerly dominant sugar estate owners and the newly emerging coffee estate owners. In the heyday of sugar, commerce was a monopoly of the Portuguese. Thus, sugar estate owners, divorced from commerce, never developed into outward-looking entrepreneurs. The coffee producers, however, were intimately linked to the commercial end of their sector. They were also much closer than the sugar owners to the capital of the country. Thus, they were much more aware than other classes of the potential role of the state in affecting their economic interests. This insight is of fundamental importance in understanding the state support that the coffee sector obtained in the twentieth century.[32]

OTHER EXPORTS

Although coffee was dominant throughout most of the nineteenth century, other primary export products continued to be present in the country's export list. Sugar production expanded mainly because of a growing domestic market, since the value of annual export growth was less than 1 percent. The latter was due to the competition of beet sugar in protected European markets, to the sugar production in the United States, and to the competition of lower-cost Cuban sugar.[33]

Cotton exports did not fare much better than sugar; they rose by only 43 percent in the 1850–1900 period. High transportation costs from the interior to the ports seem to have been one of the major causes for the slow growth of these exports.[34] Tobacco exports from Bahia appeared in the last decades of the nineteenth century. These never became significant because of the poor production practices that made Brazilian tobacco uncompetitive in the international market. At the close of the nineteenth century, cacao exports from southern Bahia made their appearance. After the introduction of a high-yielding variety of cacao from Ceylon in 1907, plantations expanded rapidly, and Brazil became one of the world's leading exporters of the product.

A spectacular export boom began in the Amazon region in the last decades of the nineteenth century. Since at that time the region was the world's main source of rubber, the rapidly growing demand for the product and rising prices resulted in the rapid penetration and settlement of the area by both domestic and foreign business groups. Much of the labor to gather the sap of the scattered wild rubber trees came from northeastern Brazil, especially from Ceará. The calamitous drought of the 1870s had resulted in the availability of a large pool of labor ready to migrate to the Amazon. Rubber exports rose from an annual average of 6,000 tons in the 1870s to 21,000 tons in the 1890s and 35,000 tons in the first decade of the twentieth century. In the latter period, Brazil was supplying 90 percent of the world's rubber, and by 1910 the product accounted for 40 percent of Brazil's exports.[35]

In the 1870s, seeds of the rubber trees (*hevea*) were smuggled out of Brazil for experimentation in London's Kew botanical gardens. By 1895, plantations were established in Asia, and by 1899, the first Asian rubber appeared in the world market. The growth of the world rubber supply by the second decade of the twentieth century caused prices to decline dramatically. By 1921 rubber prices were less than one-sixth the 1910 level. Brazil could not compete with the much cheaper Asian product and gradually lost its entire share of the world market.

The net effects of the rubber boom on the Brazilian economy were hardly discernible after its collapse. The income generated was mostly spent on imports from abroad and on wildly conspicuous consumption (as exemplified by the famous opera house built in the jungle city of Manaus).

PUBLIC POLICIES IN THE NINETEENTH CENTURY

In the decade and a half prior to independence, the Portuguese court "in exile" made efforts to diversify the sociocultural and economic life of Brazil, especially in Rio and its vicinities. This was manifested in the founding of the first Banco do Brasil in 1808, the first modern-style bank in Latin America; the founding of a stock exchange in Rio; the importation of the first printing press; the contracting of technicians; and the assistance provided to various types of industrial undertakings (like the development of metallurgical shops in Minas Gerais and São Paulo).[36] As discussed in Chapter 3, many of the early industrialization efforts were nullified after independence by the open-door policies to industrial imports. Although import duties existed throughout the period, they, along with export duties, were the principal source of government revenues and rarely had protectionist effects.

One of the principal government development measures in the second half of the nineteenth century was the promotion of railroad construction. The main policy tools consisted of subsidies and guaranteed rates of return.[37] Unfortunately the railroad network developed was deficient in many ways. Different lines had different gauges, as they were constructed and operated by a variety of independent firms. They linked plantations to the port, and there was a tendency for many lines to meander instead of linking the interior with the port in the most efficient way. The resulting transportation system did not link the country into a more unified market. Brazil's railroad trackage grew from 14 kilometers in 1854 to 474 in 1864, 3,302 in 1884, 16,306 in 1904, and 33,106 in 1934.[38]

Most of the railroads were constructed by British firms. In 1870, four British companies owned 72 percent of Brazil's railroad trackage. After the suspension of the rate of return guarantees in 1901, most construction of additional trackage was in the hands of the government, which also gradually took over an increasing number of foreign private lines.[39]

Throughout the nineteenth century, the central government was intermittently active in promoting immigration and colonization. Prior to independence, the Portuguese crown attracted a group of Swiss colonizers by paying their passage and providing the means for them to start a settlement.[40] The existence of slavery made the spread of such schemes difficult, although some others were carried out in southern Brazil in the 1820s and 1830s with German immigrants. Only with the end of slavery in the south did large-scale immigration to that area begin. After abolition in 1888 and the establishment of the republic in 1889, immigration reached large-scale proportions.[41]

Immigration was to have a positive effect on the economic development of Brazil, especially in the south, since it provided the country with a large number of economically ambitious people. Also, "the public subsidization of immigration was, for the short-run, a reasonably effective substitute for investment in education as a means of building up the quality of human resources in the economy."[42]

Toward the end of the century, the government became active in protecting Brazil's major export sectors. Government-guaranteed earnings and import tariff exemptions for equipment were used as incentives for investments in heavily capitalized central sugar mills (*usinas*).[43] And in the first decade of the twentieth century, as Brazil's coffee production was outstripping world demand, resulting in declining prices, the state of São Paulo placed a ban for five years on new coffee tree plantings, and in 1907 São Paulo (with some cooperation from the state of Minas Gerais and Rio de Janeiro) initiated the first of the valorization schemes (although this was known as the Convênio de Taubaté, the program was carried out almost single-handedly by the state of São Paulo). Using at first proceeds from export taxes and later foreign loans (which had central government guarantees), São Paulo bought large amounts of coffee that were withheld from the market in order to stabilize prices.[44]

NOTES

1. William P. Glade, *The Latin American Economies: A Study of Their Institutional Evolution* (New York: American Book-Van Nostrand, 1969), chs. III and IV.

2. Caio Prado Junior, *Historia Econômica do Brasil*, 12th ed. (São Paulo: Editôra Brasiliense, 1970), pp. 35–36; H. B. Johnson, "The Portuguese Settlement of Brazil, 1500–1580," in *The Cambridge History of Latin America*, vol. 1, *Colonial Latin* , Leslie Bethell, ed. (Cambridge: Cambridge University Press, 1984), pp. 253–286.

3. Prado Junior, op. cit., pp. 24–27; Mircea Buescu and Vicente Tapajos, *Historia do Desenvolvimento Econômico do Brasil* (Rio de Janeiro: A Casa do Livro, 1969), pp. 29–31.

4. Before 1548 an annual average of two ships sufficed for the Brazilian colony's trade. Forty years later, the annual average had reached 45, and by 1620 the number stood at 200. Ronald Dennis Hussey, "Colonial Economic Life," in *Colonial Hispanic America*, vol. IV of *Studies in Hispanic American Affairs*, A. Curtis Wilgus, ed. (Washington, D.C.: George Washington University Press, 1936), p. 334.

5. Glade, op. cit., p. 156.

6. Ibid.; see also Buescu and Tapajos, op. cit., pp. 100–104.

7. The best-known work describing this society is Gilberto Freyre, *The Masters and the Slaves* (New York: Alfred A. Knopf, 1946). Freyre's description, however, is far from complete. For example, he ignores the free sugarcane growers who were somewhere between the "masters" and the "slaves." Freyre more accurately describes the northeast of the nineteenth century (especially Pernambuco) than anything else. See also Stuart B. Schwartz, "Colonial Brazil, 1580–1750: Plantation and Peripheries," in *The Cambridge History of Latin America*, vol. II, *Colonial Latin America*, Leslie Bethell, ed. (Cambridge: Cambridge University Press, 1984), pp. 423–500.

8. Prado Junior, op. cit., pp. 34–38; Buescu and Tapajos, op. cit., pp. 33–34.

9. Celso Furtado, *Formação Econômica do Brasil*, 11th ed. (São Paulo: Companhia Editôra Nacional, 1972), pp. 30–31.

10. Ibid., pp. 45–46.

11. Ibid., pp. 50–52.

12. Ibid., p. 64. Buescu and Tapajos present some estimates of Brazil's cattle herd in the sixteenth and seventeenth centuries, op. cit., pp. 36–37.

13. Glade, op. cit., p. 162.

14. Ibid., pp. 163–171. For some quantitative estimates of sugar exports in selected years during the colonial period, see Buescu and Tapajos, op. cit., pp. 24–23, 128.

15. Prado Junior, op. cit., pp. 81–82.

16. In another book Caio Prado Junior gives a very negative appraisal of slavery's influence on economic and social development: "The universal use of slaves in the different trades and occupations of economic and social life ended by influencing the attitude to work, which came to be regarded as contemptible and degrading." See his *The Colonial Background of Modern Brazil* (Berkeley and Los Angeles: University of California Press, 1967), p. 325.

17. Glade, op. cit., p. 166; Buescu and Tapajos, op. cit., pp. 38–40. See also *Estudos Econômicos* 13, spec. no. (1983), which contains a collection of articles on the colonial economy in the seventeenth and the eighteenth centuries; A. J. R. Russell—Wood, "Colonial Brazil: The Gold Cycle," in *The Cambridge History of Latin America*, vol. II, *Colonial Latin America*, Leslie Bethell, ed. (Cambridge: Cambridge University Press, 1984), pp. 547–600.

18. Furtado, op. cit., p. 76; Glade, op. cit., p. 167.

19. Prado Junior, Historia, pp. 50–59.

20. Prado Junior gives a succinct picture of the educational level of the colony:

> No attempt was made to make up for the isolation in which the colony was compelled to exist by providing even an elementary system of education. The meager instruction given in the few official schools that existed in some of the colony's largest centers did not go much beyond the teaching of reading, writing, and arithmetic. . . . Created after 1776, these schools were generally neglected and understaffed, the teachers badly paid, the pupils unruly, and the classes unorganized. The cultural level of the colony was extremely low and the crassest ignorance prevailed. The few scholars who distinguished themselves were in a world apart, ignored by a country utterly unable to understand them. (The Colonial Background, pp. 160–161).

21. Buescu and Tapajos, op. cit., pp. 110–111.

22. Prado Junior, *Historia Econômica*, pp. 82–83.

23. Glade, op. cit., p. 171.

24. Prado Junior, *Historia*, p. 346. Earlier estimates of Brazil's population were as follows:

1550	15,000
1600	100,000
1660	184,000
1690	300,000
1776	1,900,000

25. Thomas H. Holloway, *The Brazilian Coffee Valorization of 1906: Regional Politics and Economic Dependence* (Madison: State Historical Society of Wisconsin for the Department of History, University of Wisconsin, 1975), p. 5.

26. Prado Junior, *Historia*, p. 160.

27. Holloway, op. cit., p. 5; see also Stanley Stein, *Vassouras, A Brazilian Coffee County, 1850–1900* (Cambridge, Mass.: Harvard University Press, 1957).

28. Holloway, op. cit., p. 6.

29. Ibid., pp. 7–9.

30. Ibid., pp. 15–17. From 1887 to 1906 around 1.2 million immigrants entered São Paulo, of whom more than 800,000 were from Italy.

31. Furtado, op. cit., pp. 111–113.

32. Ibid., pp. 114–116.

33. David Denslow, "Exports and the Origins of Brazil's Regional Pattern of Industrialization," in *Dimensões do Desenvolvimento Brasileiro*, Werner Baer, Pedro Geiger, and Paulo Haddad, eds. (Rio de Janeiro: Editora Campus, 1978); and "As Origens da Desigualdade Regional no Brasil," in *Formação Econômica do Brasil: A Experiencia da Industrialização*, Flavio R. Versiani and José Roberto Mendonça de Barros, eds., Serie ANPEC Leituras de Economia (São Paulo: Editora Saraiva, 1977).

34. Denslow, "As Origens . . . ," pp. 59–60.

35. Prado Junior, *Historia*, pp. 236–241; Glade, op. cit., p. 297.

36. Glade, op. cit., p. 299; Werner Baer, *The Development of the Brazilian Steel Industry* (Nashville, Tenn.: Vanderbilt University Press, 1969), ch. 4.

37. Annibal V. Villela and Wilson Suzigan, *Política do Governo e Crescimento da Economia Brasileira, 1889–1945*, Serie Monográfica, no. 10, 2nd ed. (Rio de Janeiro: IPEA, 1973), pp. 378–383. Villela and Suzigan note that the system of railroad concessions was subject to abuse: "The concessions were often given as favors to influential persons, who sold these as a monopolistic privilege. Also, the guarantees of rates of return on invested capital did not lead to the most rational layout of lines. The latter were often longer than necessary and technically imperfect" (p. 381).

38. FIBGE, *Anuario Estatístico do Brasil, 1939*, p. 139.

39. Ibid., pp. 383–384.

40. Glade, op. cit., p. 303.

41. Ibid., p. 306; Douglas H. Graham, "Migração Estrangeira e a Questão da Oferta da Mão-de-Obra no Crescimento Econômico Brasileiro, 1880–1930," *Estudos Econômicos* 3, no. 1 (1973): 10–13.

42. Glade, op. cit., p. 306.

43. Ibid., p. 303.

44. Holloway, op. cit.

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3. Early Industrial Growth

THE PRE–WORLD WAR I PERIOD

The few attempts at promoting the production of manufactures in the last years of colonial Brazil were nullified by the open-door policies of the postindependence government. Most pronounced was the presence of British goods, which for many years had privileged access to the Brazilian market. Merchandise from other European countries and the United States also appeared after commercial treaties were negotiated in the 1820s.[1] The tariff of 1828, which set import duties at 15 percent, ushered in the most liberal trade period.

Tariffs were raised in the 1840s, reaching an average of over 30 percent ad valorem by 1844. Altough the primary aim of increased import duties was the raising of government revenues, they had some protectionist side effects, resulting in the establishment of a number of textile firms. The state also provided tariff exemptions for raw material and machinery imports used by national enterprises. The latter were also exempted from paying local excise taxes.[2] By 1852, 64 factories and workshops had benefitted from these privileges. They could be found in such fields as textiles, apparel, soap, beer, foundries, glassware, leather products, and so on.

Under the pressure of coffee interests, which favored cheaper imports, some of these tariff policies were revoked in 1857, and duties were lowered. In the 1860s tariffs were raised again for fiscal reasons to an average of 50 percent, and in the following two decades further measures of protection were occasionally introduced.

The few workshops that existed in the middle of the nineteenth century were especially concentrated in the textile sector. A number of textile firms were founded in the mid-1840s, as a result of the above-mentioned tariff of 1844 and the special privileges granted for importing machinery. A further expansion of the number of textile firms in operation occurred in the first half of the 1870s in the Rio de Janeiro and São Paulo areas. Although by 1885 a total of 48 textile firms were in existence, their total impact was minor, as evidenced by the fact that all firms together only employed a little over 3,000 workers.[3]

The available statistical evidence indicates that Brazilian industrial growth became significant during the 1880s and continued for the following three decades. For example, Table 3.1 shows a more than tenfold increase in cotton textile production between 1885 and 1905 and almost a doubling of output in the 10 years thereafter. Just prior to 1914, output of textiles had already reached 85 percent of the country's apparent consumption. The output of clothing, shoes, beverages, and tobacco products in 1912 had attained about 40 percent of the 1929 production (see Tables 3.2 and 3.3). When one considers that in the late 1920s Brazilian textile mills

Table 3.1
Cotton Textile Industry Production, 1853–1948

Year	Number of Mills	Workers	Production (1,000 Meters)
1853	8	424	1,210
1866	9	795	3,586
1885	48	3,172	20,595
1905	110	39,159	242,087
1915	240	82,257	470,783
1921	242	108,960	552,446
1925	257	114,561	535,909
1929	359	123,470	477,995
1932	355	115,550	630,738
1948	409	224,252	1,119,738

Source: Stanley Stein, *The Brazilian Cotton Manufacture* (Cambridge, Mass.: Harvard University Press, 1957), p. 191.

produced nearly 90 percent of domestic consumption, the high output prior to 1914 suggests that even then a very large proportion of consumption was supplied by domestic producers.[4]

Indicators of capital formation, shown in Table 3.4, which are available only from 1901 on, rose uninterruptedly until 1914. They reached very high levels in the half decade before World War I. Apparent consumption of cement increased twelvefold (from 37,300 tons in 1901 to 465,300 in 1913); steel consumption increased by more than eightfold (from 69,300 tons to 589,000 tons); and the importation of capital goods almost quadrupled in the same period. The extent of industrial growth in the latter period is also evident in the 1920 census, whose data refer to the year 1919. Of 13,336 industrial establishments that existed in that year, 55.4 percent were founded prior to 1914; and the average size of these firms, as measured by number of employees or installed power capacity per worker, was larger than those established during World War I (see Table 3.5).

Table 3.2
Indicators of Real Product, 1911–19
(1929 = 100)

Year	Textiles	Clothing, Shoes, and Other Textiles	Beverages	Tobacco	Total*
1911	75.4	41.7	37.2	38.2	60.9
1912	79.2	47.3	47.0	42.5	65.8
1913	76.5	46.8	53.8	46.6	65.3
1914	62.0	35.4	48.4	42.2	53.5
1915	91.9	38.9	38.6	40.9	70.8
1916	86.4	47.2	40.8	53.3	70.6
1917	100.9	52.2	38.6	41.3	78.5
1918	91.0	52.1	40.2	46.4	73.4
1919	105.6	54.0	48.8	65.0	85.4

*1919 weight was used in calculating the index of this column.

Source: Annibal V. Villela and Wilson Suzigan, *Política do Governo e Crescimento da economia Brasileira* (Rio de Janeiro: IPEA/INPES, 1973), p. 432.

The industrial structure that developed in this early period of growth was dominated by light industries. Textiles, clothing, shoes, and the food industries accounted for over 57 percent of industrial output in 1907 and for over 64 percent in 1919.

The basic force behind this early industrial growth was the coffee boom based on free immigrant labor. Substantial infrastructural investment to service the coffee sector (railroads, power stations, etc.), financed by planters and foreign capital,[5] provided the setting for greater local industrial output and gradually created a demand for locally produced spare parts. The large immigrant population employed in the coffee and coffee-related sectors provide a large market for cheap consumer goods. Thus, in describing events in São Paulo, Warren Dean noted:

> The very first products to be manufactured . . . were those whose weight-to-cost ratio was so high that even with the most rudimentary technique they cost less to produce than to buy from Europe. . . . The most important activities employed local agricultural materials, notably cotton, leather, sugar, cereals, and lumber, or nonmetallic minerals, especially clay, sand, lime, and stone.[6]

Most of the early Brazilian industrialists were importers who at a certain stage in their activities found it worthwhile to produce goods domestically instead of importing them. This was especially the case with textiles. For instance, it has been found that of 13 textile firms started in the nineteenth century and still functioning in 1917, 11 were controlled by importers.[7] These enterprises were financed by both

Table 3.3
Industrial Production Index, 1920–39
(1929 = 100)

	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
Total	78.0	77.1	89.1	106.4	88.9	89.6	88.8	95.9	103.5	100.0	95.2	103.1	103.4	118.6	133.9	152.9	174.9	187.1	199.4	224.6
Mining	126.8	99.8	108.4	94.2	81.3	93.6	95.8	85.7	104.7	100.0	91.1	85.8	82.3	86.2	85.0	96.3	104.5	128.3	140.1	137.7
Manufacturing total	76.9	76.6	88.7	106.7	89.1	89.5	88.6	96.1	103.4	100.0	95.3	103.5	103.9	119.3	135.1	154.2	176.5	188.4	200.7	226.6
Nonmet. minerals	93.0	101.6	104.9	132.0	125.9	87.9	82.7	70.8	97.8	100.0	87.8	151.2	145.4	208.9	282.5	332.0	426.5	498.6	558.3	619.5
Metal products	43.7	46.2	47.5	59.7	51.7	62.7	56.1	53.1	78.0	100.0	81.9	71.9	90.2	130.5	155.3	172.2	202.0	225.3	274.1	397.7
Paper products	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	67.7	51.2	84.1	100.0	80.3	120.7	102.2	238.8	290.8	424.1	459.7	564.9	566.6	781.9
Leather products	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	106.8	100.0	121.0	118.7	107.8	137.2	146.1	172.8	152.8	175.3	160.1	161.0
Chemicals and pharmaceuticals	55.5	52.1	58.7	79.4	82.8	87.8	96.8	105.1	108.8	100.0	100.3	66.4	73.4	82.7	79.2	105.0	113.2	133.6	138.3	151.2
Perfumes, soap, and candles	47.5	46.5	62.6	72.6	84.0	73.0	73.1	97.1	112.9	100.0	77.9	77.0	95.6	107.8	153.7	157.0	285.9	221.0	255.9	259.2
Textiles	106.6	104.1	116.7	166.5	110.2	105.8	105.6	122.1	123.9	100.0	97.2	125.6	127.4	131.0	145.7	165.4	195.8	207.5	219.8	247.0
Clothing and shoes	61.7	55.0	63.6	65.6	77.8	76.2	72.9	86.6	95.5	100.0	70.8	75.0	67.3	71.2	74.6	94.7	110.9	121.0	113.8	124.8
Food products	63.2	66.7	86.2	77.8	79.2	86.7	88.3	90.2	93.4	100.0	107.9	102.3	99.3	111.6	116.9	128.6	132.4	120.9	125.5	124.9
Beverages	64.2	63.2	73.2	76.1	70.0	75.5	81.0	92.6	96.4	100.0	83.5	70.3	76.3	79.8	81.7	97.3	107.7	110.4	110.5	129.6
Tobacco	67.6	61.5	72.4	70.2	67.0	85.8	69.5	81.6	91.7	100.0	86.7	87.7	85.5	88.5	135.5	102.0	121.2	143.4	148.4	120.3

Note: Indexes for each industry group are weighted according to the average of its proportion in the value added to manfacturing industry during the census years 1919 and 1939.

Source: Annibal Villela, Sergio R. da Silva, Wilson Suzigan, and Mario J. Santos, "Aspectos do Crescimento de Economia Brasileira" (Rio de Janeiro: Fundação Getúlio Vargas, 1971); estimates are based on data in FIBGE, *Anuário Estalístico do Brasil*, 1939/40; IBGE, *Rencenseamento Geral do Brasil* for 1920 and 1940; and Ministerio da Agricultura, Serviço de Estatística da Produção.

Table 3.4
Indicators of Capital Formation

Year	Apparent Consumption of Cement (1,000 tons)	Apparent Consumption of Steel (1,000 tons)	Quantum Index of Imports of Capital Goods (1939 = 100)
1901	37.3	69.3	56.8
1902	58.8	107.0	31.7
1903	63.8	111.2	38.0
1904	94.0	127.3	41.3
1905	129.6	170.6	62.3
1906	180.3	220.3	66.1
1907	179.9	295.0	93.0
1908	197.9	267.6	96.4
1909	201.8	304.5	102.9
1910	264.2	362.3	118.7
1911	268.7	369.2	153.6
1912	367.0	506.6	205.3
1913	465.3	589.3	152.5
1914	180.8	200.5	63.4
1915	144.9	95.2	25.2
1916	169.8	96.9	32.2
1917	98.6	87.0	32.0
1918	51.7	50.0	36.9
1919	198.4	155.1	64.6
1920	173.0	279.7	108.1
1921	156.9	200.7	125.8
1922	319.6	201.6	91.5
1923	223.4	219.4	119.4
1924	317.2	349.6	151.0
1925	336.5	373.5	209.2
1926	409.7	399.4	154.7
1927	496.6	435.8	124.3
1928	544.2	483.1	133.2
1929	631.5	514.3	184.7
1930	471.7	259.2	99.7
1931	281.4	143.9	33.6
1932	310.0	165.7	28.9
1933	339.4	277.0	47.4
1934	449.6	343.6	82.9
1935	480.4	345.4	123.7
1936	563.3	386.7	114.5
1937	646.3	505.4	143.2
1938	667.5	355.7	122.5
1939	732.6	429.8	100.0
1940	759.2	414.5	56.4
1941	776.8	368.3	86.5
1942	818.8	262.8	67.1
1943	753.4	325.5	176.1
1944	907.4	492.6	166.7
1945	1,025.5	465.6	82.7

Source: Annibal V. Villela and Wilson Suzigan, *Política do Governo e Crescimento da Economia Brasileira* (Rio de Janeiro: IPEA/INPES, 1973), p. 437; for steel, Ministerio da Agricultura, Serviço de Estatística do Sindicato Nacional da Industria do Cimento; for imports, Ministerio da Fazenda, Serviço de Estatística Econômica e Financeira.

Table 3.5
Industrial Establishments According to Date of Founding, 1920

Date Founded	Establishments Number	Establishments Percentage	Number of Workers per Establishment	Horsepower per Worker	Value of Output (Percentage)
Until 1884	388	2.91	76	1.01	8.7
1885-89	248	1.86	98	1.48	8.3
1890-94	452	3.39	68	1.08	9.3
1895-99	472	3.54	29	1.05	4.7
1900-04	1,080	8.10	18	1.01	7.5
1905-09	1,358	10.18	25	1.17	12.3
1910-14	3,135	23.51	17	1.15	21.3
1915-19	5,936	44.51	11	1.02	26.3
Date unknown	267	2.00	16	1.77	1.6
Total	13,336	100.0	20*	1.13*	100.0

*Weighted averages.

Source: *Recenseamento do Brasil*, vol. V, *Indústria*, for 1919, p. 69.

importers and coffee planters. The former also had special access to European creditors in financing the importation of machinery.

The inflationary credit expansion (known as the *encilhamento*) in the 1890s has been mentioned by some analysts as a contributing element in the establishment of new industrial enterprises in that decade.[8] Others, however, have claimed that existing evidence does not sustain this hypothesis.[9]

The occasional attempts at tariff protection since the 1840s do not seem to have been an important contributory force to industrial growth.[10] The same could be said for direct government aid to certain sectors, which was authorized only infrequently. It is true, however, that for specific sectors (special concessions and/or subsidies to railroads, steel firms, etc.) direct government help was crucial. Finally, occasional devaluation of the Brazilian currency vis-à-vis the British pound, by raising the price of imported goods, accelerated industrial growth.[11]

Returning to our quantitative presentation, it is of interest to note the substantial increase in productive capacity in the eight years prior to World War I. It was seen in Table 3.4 that all indicators of capital formation grew more rapidly in that period than at any time before. This substantial spurt was due in part to the increased import capacity of those years and also to the appreciation of the currency vis-à-vis the pound sterling in the period 1905–13. This lowered the price of foreign goods and caused large increases in the importation of machinery. It should be noted in Table 3.5 that the firms founded in the period 1905–14 were more capital intensive (as measured by horsepower per worker and excepting the relatively few firms established during 1885–89) than firms founded either before that time or during World