

the Economy

the economy

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historical perspective

Brazil's economic history has been marked by a succession of cycles, each resulting from the exploitation of a single export commodity. In the first years of colonisation it was timber (brazil wood). In the 16th and 17th centuries it was sugar cane. In the next century gold, silver, diamonds and emeralds took over. Finally, after a series of inland expeditions, coffee replaced everything else in the 19th and early 20th centuries. Slave labour was relied upon for production until the last quarter of the 19th century. Paralleling these cycles, small-scale agriculture and cattle ranching were developed for local consumption.

Small factories, mainly textile factories, began to appear in the mid-19th century. Under Emperor Pedro II new technologies were introduced, the fledgling industrial base was enlarged, and modern financial practices

historical perspective

were adopted. With the collapse of the slave economy (it was cheaper to pay wages to new immigrants than to maintain slaves), the abolition of slavery in 1888, and the replacement of the monarchy by the republican regime in 1889, Brazil's economy suffered severe disruption. The endeavours by the first republican governments to stabilise the financial environment and revitalise production had barely succeeded when the worldwide effects of the 1929 depression forced the country into new readjustments.

A first surge of industrialisation took place during the years of World War I, but it was only from the 1930s onwards that Brazil reached a level of modern economic behaviour. In the 1940s, the first steel works was built in the state of Rio de Janeiro at Volta Redonda with US Eximbank financing.

The industrialisation process from the 1950s to the 1970s led to the expansion of important sectors of the economy such as the automobile industry, petrochemicals and steel, as well as to the initiation and completion of large infrastructure projects. In the decades after World War II, the annual gross national product (GNP) growth rate for Brazil was among the highest in the world averaging 7,4 per cent until 1974.

historical

During the 1970s Brazil, like many other countries in Latin America, absorbed excessive liquidity from US, European and Japanese banks. Huge capital inflows were directed to infrastructure investments and state enterprises were formed in areas that were not attractive for private investment. The result of this capital infusion was impressive: Brazil's GDP increased at an average rate of eight per cent per annum from 1970 to 1980 despite the impact of the 1970s world oil crisis. Per capita income rose fourfold during the decade, to US\$2 200 in 1980.

In the early 1980s, however, a sudden substantial increase in interest rates in the world economy coinciding with lower commodity prices precipitated Latin America's debt crisis. Brazil was forced into a strict economic adjustment that brought about negative growth rates. The unexpected suspension of capital inflows reduced Brazil's capacity to invest. The burden of its debt affected public finances and contributed to an acceleration of inflation. In 1987 the government

suspended Brazilian interest payments on foreign commercial debt.

The crisis of the 1980s signalled the exhaustion of Brazil's 'import substitution' model and contributed to the opening up of the country's economy. (*Import substitution* is a policy that nurtures local industry by prohibiting the purchase of certain manufactures abroad.) In the early 1990s, Brazil's economic policies were centred on economic stabilisation, opening up the economy to international trade and investment, and normalising relations with the international financial community. This was achieved rapidly: import tariffs were reduced (the average is now 12 per cent), and quantitative restrictions were eliminated, making Brazil one of the very few countries in the world that does not impose quotas on its imports. In 1992 Brazil reached an agreement with both public and commercial creditors to reschedule its foreign debt payments, exchanging old debt for new bonds. This rescheduling marked Brazil's return to the international fi-

historical perspective

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nancial markets. The turning point in the stabilisation process came with the launching of the Real Plan in June 1994. (Brazil's new unit of currency is the real, pronounced ree ál.)

The Real Plan has three main objectives: (1) keeping inflation under control; (2) obtaining a steady and substantial reduction of social imbalances; and (3) achieving long-term sustainable growth of GDP, investment, employment and productivity. In 1998, price increases were the lowest in four decades, around 2 per cent down from more than 2 100 per cent in 1993 before the launching of the Plan. Price stabilisation represented a significant redistribution of income in favour of the most needy. In the period 1995–1997 cumulative GDP growth was 17 per cent, an average of 4 per cent a year, while per capita income average growth was 2,6 per cent. The increase of industrial productivity, which averaged 7 per cent a year in the 1990s, is very important to ensure sustained growth in the future. Since the implementation

of the Plan, net flows of direct foreign investment have skyrocketed, from US\$2,2 billion in 1994 to over US \$30 billion in 2000.

With a GDP of US\$605 billion in 2004, the Brazilian economy is dynamic and diversified. In 2004 industry was responsible for 38,0 per cent of economic output, agriculture for 6 per cent, and services accounted for 56,0 per cent. The performance of exports, among other areas, reflects the dynamism of the country's economy. From 1992 to 2004 Brazilian exports increased from US\$35,7 billion to US\$96 billion. Over 70 per cent of these exports were manufactured goods. The European Union (EU) absorbs 25,5 per cent of Brazilian exports, the US 24,7 per cent, the Southern Common Market (MERCOSUL) 11 per cent, Asia absorbs 12 per cent, Latin America (non-MERCOSUL) 10 per cent, Africa 3,4 per cent and the remaining exports are distributed over a variety of other markets.

mercotel

On 26 March 1991, the Southern Common Market (MERCOSUL) was created when Brazil, Argentina, Paraguay, and Uruguay signed the Treaty of Asunción. The trade pact took effect as a customs union and partial free trade zone on 1 January 1995. The aim of MERCOSUL is to facilitate the free movement of capital, labour, and services among the four countries.



economic data

The Brazilian workforce totalled an estimated 79,2 million, or 45 per cent of the population in 2003. Overall, the workforce expanded at an average annual rate of 3,2 per cent during the 1980s. Currently, the workforce is expanding at a rate roughly equal to the population growth rate. Women account for 38 per cent of the total Brazilian workforce, up from 28 per cent in 1980.

In 2004, Brazil ranked as the twelfth largest economy in the world.



industrial development

Brazil's industrial development has been brisk during the last two decades. Between 1947 and 1960, when the process of import substitution was at its apex, an outstanding rate of expansion was achieved. After 1960, however, the pace of industrial expansion slowed down, largely because the existing economic infrastructure could no longer sustain the same high rate of growth.

From 1964 onwards the federal authorities undertook a comprehensive programme to overcome these obstacles and to provide an economic environment conducive to the renewed expansion of the industrial sector, both public and private. In the last 25 years Brazil has succeeded in diversifying and expanding the production of manufactured goods and consumer durables. Furthermore, it has established technologically sophisticated industries, especially in the fields of telecommunications, electronic data processing, biotechnology and new materials. Four key sectors – steel, automotive, petrochemicals, and utilities – have played a decisive role not only in the development of the industrial sector, but in the expansion of the economy as a whole.



power generation

power generation

Endowed with hydroelectric potential estimated at 260 million kilowatts (the world's highest), and lacking significant deposits of thermal coal (and, until recent discoveries, of petroleum), Brazil has invested heavily in the planning and building of dams to satisfy the power requirements of a rapidly growing economy. The first hydroelectric power plant began operation in 1889, generating 250 Kw, only half of the power then generated thermally. One century later, the proportion had become dramatically different: 45 871 000 Kw of hydroelectricity to 7 295 000 Kw of thermoelectricity, a ratio of 6,28 to 1.

The Itaipu power plant, the biggest hydroelectric plant in the world, is located on the Paraná River on the Paraguay-Brazil frontier, not far from Iguazu Falls. It is a bilateral project between the governments of Paraguay and Brazil. The Itaipu Treaty was signed in 1966. Construction began in the mid 1970s and by 1985 three of the 18 turbo generators (of 700 MW each) had already started operation. Now, with all 18 turbo generators functioning, power production from Itaipu is 12 600 000 million Kw divided equally between Brazil and Paraguay. The Tucuruí Dam, built in the south-east of the Amazon basin, has added 11 200 000 million Kw to Brazil's generating capacity.

Brazil's power system is composed of two interconnected grids, one for the north and north-west and the other for the south, south-east and west-central. According to the Brazilian Electricity Regulatory Agency (ANEEL), Brazil's total hydropower potential amounts to 260 GW, of which only 25 per cent is being used in the production of electricity by the small, medium and large power plants. Privatising generation and distribution, liberalising grid access, and permitting large consumers to choose their energy suppliers are all expected to increase the development of the vast potential of the Brazilian electricity sector in the near future.

In 2002, 83,7 per cent of all the electric power generation was hydroelectric and the remainder was thermal (natural gas and coal), wind and nuclear.



oil and petrochemical industry

Until 1953 the crude oil production in Brazil was only about 2 000 barrels a day, and the domestic refining capacity was just over twice that figure, making the country heavily dependent on imports. In that year, after long and sometimes difficult debates, Congress enacted legislation establishing the state-owned oil company Petrobras. Having been granted exclusive rights for oil exploration and production, Petrobras quickly set about identifying commercially viable oil deposits to become a self-sustaining, large-scale enterprise. Private enterprise was allowed to participate in the refining and distribution stages. At the beginning of the new century, oil production in Brazil had reached more than 1 500 000 barrels a day, heading for self-sufficiency.

The reason for this enormous increase is due to Petrobras's search for oil after the oil crises of the 1970s. Foreign companies were also invited to expand the search,

oil and petrochemical industry

particularly offshore near to the coastal cities. As a consequence of new techniques developed by Petrobras, that company holds the world record for ultra-deep sea drilling, having reached a depth of 1 700 m.

The Campos field near Rio proved to be the most productive, but there were several others including some in the Amazon Region. By 2001, Brazil was producing about two-thirds of its oil and gas needs. In addition, since 1998, with the construction of the Brazil-Bolivia pipeline giving

Brazil access to Bolivia's extensive gas fields, natural gas has become more and more important in the country's energy matrix.

Brazil's petrochemical industry has also experienced rapid expansion. Currently, Brazil has three petrochemical complexes, located in the states of Bahia (north-east), Rio Grande do Sul (south) and São Paulo (south-east) with an overall total ethylene production capacity of 1,4 million tons a year.

oil and petrochemical industry

ethanol industry
**ethanol
industry**



To better balance Brazil's petroleum consumption with its crude oil production, intensive research was conducted from the late 1960s through the early 1970s to identify an economically viable alternative to oil as a fuel source. Ethanol, extracted from sugar cane, was chosen as one of these alternatives. The objective of the National Alcohol Programme (PROALCOOL), established in

ethanol industry **77**

1975, was to use ethanol as a fuel substitute for petrol and to increase ethanol production for industrial uses.

By 1985, when the programme had been in operation for ten years, some US\$6,5 billion had been invested in the production of 13 billion gallons (50 billion l) of ethanol, some 500 000 jobs had been created, 2,5 million vehicles were running on pure ethanol, and all the petrol at filling stations had an admixture of 20 per cent ethanol. Brazil now has technology and equipment capable of maintaining a 4 billion gallons (16 billion litres) annual output and of exporting the related technology, equipment and services. Finally, by dramatically reducing the level of carbon monoxide released by motor vehicles, PROALCOOL is contributing to Brazil's efforts towards protecting the environment.



motor vehicles

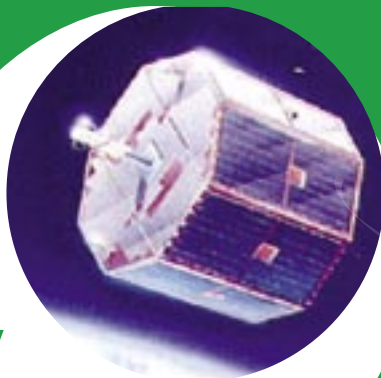
First established in the mid-1950s, during President Kubitschek's administration, the Brazilian automotive industry gained renewed dynamism with the trade liberalization initiated in 1990, the introduction of economic cars in 1993, and the start of the Real Plan in July 1994. Brazil ranks eleventh in the world output of vehicles. In 2001 it produced almost 1,8 million vehicles and earned more than US\$ 4 billion from exports; motor vehicles accounted for almost 8 per cent of the total value of Brazil's exports for the year. It is expected that Brazil will become one of the largest automotive producers in the near future.



Although a Brazilian was one of aviation's first pioneers, the aircraft industry in Brazil only began in earnest 30 years ago. Today the success of planes wholly designed and manufactured in Brazil, mainly by Embraer, and exported to countries on every continent, makes Brazil's aircraft industry the fourth largest in the world. Embraer was Brazil's largest exporter from 1999 to 2001 and the second largest in 2002, 2003 and 2004.

A pioneer in the air

In 1899, four years before Wilbur and Orville Wright flew a heavier-than-air machine at Kitty Hawk, North Carolina, Alberto Santos Dumont, a Brazilian, piloted a dirigible that left from the field of the Aero Club of France, circled the Eiffel Tower, and returned to its base in 29,5 minutes. It was an 11 km trip. In 1906, before official witnesses and a large crowd in Paris, Santos Dumont won the Taça Archdeacon Prize when he flew a self-propelled, heavier-than-air machine for 250 m.



space industry

space industry

The Brazilian space industry has also experienced growth. Through the Brazilian Space Agency (AEB) and the National Institute of Space Research (INPE), it has been involved in the Brazilian Space Programme which comprises the construction of satellites and the launching of space vehicles, as well as wide-ranging collaboration with NASA to integrate Brazil's participation in the International Space Station. Brazil's SCD-2, a data collection satellite which collects environmental and meteorological information from platforms in Brazil and other South American countries, was successfully launched from Cape Canaveral in October 1998. The China-Brazil Earth Resources Satellite (CBERS-1) was launched in October 1999. It is an earth observation satellite that uses remote sensing, among many other tasks, to detect or monitor deforestation, forest fires and floods in the Amazon Region. The CBERS-2 was launched in October 2003.

As a consequence of its privileged geographical location near the equator, the Alcântara Launch Centre is one of the most promising sites available for the launching of commercial satellites and other loads.

The International Space Station

The International Space Station (ISS), being built by 16 countries (US, Russia, Canada, Japan, United Kingdom, Belgium, the Netherlands, Denmark, Norway, France, Spain, Italy, Germany, Sweden, Switzerland and Brazil), will be the largest in-orbit laboratory ever made. It already provides a micro gravity environment for basic, applied and commercial research in physical, chemical and biological processes. The ISS will also serve as an important means for engineering development and as an observation platform for earth and space science researchers.

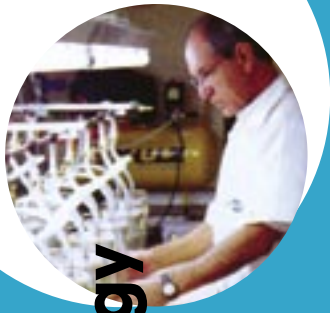


communications

communications

The present Brazilian telecommunications system links Brazil to the world through communication satellites. Television, radio and telephone systems make it possible to reach any part of the country or the world right away. The government plays a major role in providing telecommunication services. After the US, Great Britain and France, Brazilian television was the fourth in the world to go on air daily, and TV Globo, the most well-known Brazilian television station, is the fourth largest television network in the world, surpassed only by the three largest American stations – ABC, CBS and NBC. The Brazilian telephone

system has been greatly expanded in recent decades as well, serving more than 15 000 localities. Privatisation in the 1990s has brought competition to the sector and huge investments to upgrade and expand the network. Nowadays, more than 53 million fixed telephones are in use, as well as 65 million cellular telephones. Brazil also has over 2 500 radio stations. In the late 1980s some 58,9 million radios and 36 million television sets were in service. The country has more than 529 daily newspapers, but most have a relatively small circulation. Major dailies include: *O Dia*, *O Globo* and *Jornal do Brasil* in Rio de Janeiro; *Folha de São Paulo* and *O Estado de São Paulo* in São Paulo; and *O Estado de Minas* in Belo Horizonte. Brazil ranks seventh among the nations that most use the Internet.



biotechnology

Brazil is the world leader in sequencing the genome of plant pathogens. In the year 2000, Brazilian researchers attracted world attention when they announced the mapping of the genes of the *Xylella fastidiosa* bacterium, which is responsible for diseases in several economically important cultures: variegated citrus chlorosis in oranges, Pierce's disease in grapevines, phoney peach disease, coffee leaf scorch, and other diseases in plums, almonds and pears. In 2002, *Nature* magazine registered the sequencing of the genes of two other bacteria by Brazilian laboratories: *Xanthomonas axonopodis* pv. *citri*, which causes canker in citrus fruits, and *Xanthomonas campestris* pv. *campestris*, which causes black rot in broccoli, cauliflower and cabbage. Brazil is also the second largest contributor to genetic research on cancer to the Gene Bank, a world-wide net which files all the data relating to the human genome.



agriculture

agriculture

From the earliest years of the colonial era, agriculture has held centre stage in Brazil's economy. Plantation agriculture was the country's link to the world economy. The agrarian economy was based on large holdings dedicated to a single export crop and dependent on slave labour for its production. Beginning with sugar cultivation in the 16th century, the country's economic trends have been susceptible to a series of boom-bust agricultural cycles. Cotton, cocoa, rubber, and coffee followed sugar.

The 1970s saw a general rise in the number of agricultural products exported. Soybeans outpaced Brazil's traditional agricultural earners – coffee, cocoa and sugar. The volume, value and variety of semi-processed and manufactured agricultural products have increased substantially, largely as a result of government incentives favouring processed goods over raw crops.

Agriculture in the 1980s continued to play a significant role in the country's economy, but no longer did a single crop dominate in the way sugar, coffee, or rubber had at their peaks. Through fiscal incentives and special credit facilities, the Federal Government strongly promoted greater efficiency in rural areas. Furthermore, efforts were made to alter the movement of people from rural communities to urban areas by extending equal social benefits, establishing rational schemes for agrarian reform, stimulating hitherto uneconomical smallholdings and, in general, improving the quality of life in areas that are quite remote from the main centres. This has permitted Brazilian farmers not only to produce more for the domestic market, but also to increase their exports.

The various programmes undertaken in the last two decades to promote diversification of crops have borne impressive results. The production of grains has grown consistently, including wheat, rice, maize and particularly soybeans. In 2004 Brazil produced 119.6 million tons of grains.

Brazil ranks second among poultry- and beef-producing countries worldwide. Its herd is the second largest in the world. The overwhelming majority of cattle – around 80 per cent – are raised for beef.



transport

From its earliest colonial history, transport has always been a challenge for Brazil because of its size and topography. In the last 30 years this challenge has finally been met: a systematic approach has been adopted to plan and implement a national system of integrated surface transport – road, rail and water.

Road

Although road transport is often more expensive than other modes, it is virtually unmatched as a fast means of moving comparatively small amounts of cargo and passengers over short distances. This is one of the main reasons why road transport is the most

widely used mode in Brazil. However, the domination of this mode of transport tends to be reduced due to several factors, such as enhanced port efficiency, privatisation of railroads and investment in waterways. Brazilian highways are of modern design. Paved roads link practically all state capitals. São Paulo, Rio de Janeiro and other major cities have modern metropolitan expressways. Of Brazil's 1 700 000 km of roads, about 10 per cent are paved. The federal government is responsible for over 35 per cent of the paved road system. Approximately 10 000 km of the federal highway network has already been privatised.

Rail

As the most appropriate method of moving non-perishable cargo over long distances, rail is the second most important mode of transport in Brazil. The total length of the nation's rail network, main and branch lines, is 29 706 km. As a result of the privatisation process of the entire federal rail network and the privatisation of the São Paulo state railroad company in 1996/97 this situation has been somewhat altered. After investments of more than US\$2 billion the share of total volume has increased over the years.

Water

Until now Brazil's long coastline and vast waterways in most of the hinterland have not been fully exploited for waterborne transport. Brazil has 46 organised ports, 24 of which are ocean ports. Among the busiest are Santos, Rio de Janeiro, Rio Grande and Paranaguá.

Air

Brazil's physical characteristics and the requirements of fast economic growth (starting in the 1930s), led to the establishment of a vast network of air services. Today the availability of air transportation far exceeds demand. In the first years of this century occupancy rates were around 53 per cent for cargo flights and 56 per cent for passenger flights (almost 40 million passengers – 20,5 m domestic and 19,5 m international); only 0,5 per cent of cargo and 10 per cent of passengers were transported by air.

Approximately 31 foreign owned airlines fly to Brazil and 20 locally owned airlines operate in the country. Of the latter, 8 operated domestic and international routes. There are some 500 air taxi companies and 300 specialised operators offering services such as crop spraying and training. Of the 67 civilian public airports, 25 are international. The busiest international airports are Guarulhos in São Paulo and Tom Jobim Galeão in Rio de Janeiro.