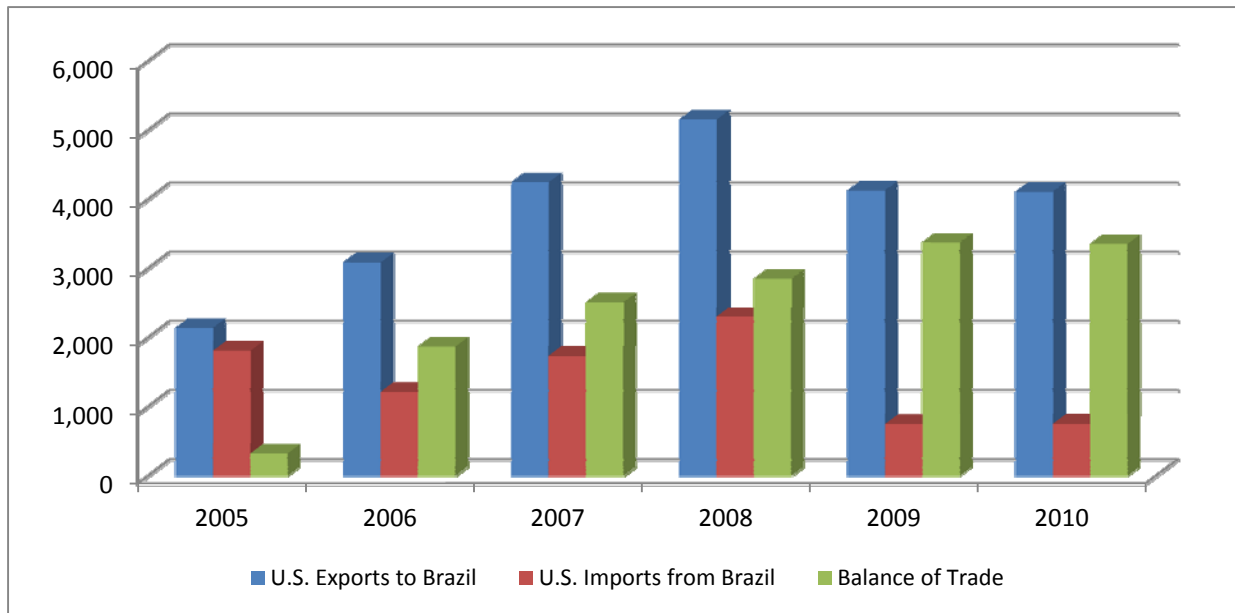


Country Studies: Brazil



U.S. aerospace trade with Brazil in millions of dollars

Brazil is a strong competitor in aerospace manufacturing and produces a wide range of aerospace products. Perhaps best known for producing regional jets, Brazilian manufacturers also make turboprops, military aircraft, agricultural aircraft, business aircraft, helicopters, and other general aviation aircraft. The most well-known Brazilian manufacturer is Embraer, which has delivered more regional jets than its only competitor (Canada's Bombardier) each year since 2006. Brazilian firms are highly integrated into the global aerospace supply chain and have embarked on risk-sharing projects and joint ventures with foreign firms both in Brazil and abroad.

Brazil is a major supplier to the United States' market, though it competes more in sales of final aircraft than in sales of parts and components. In 2009, the Aerospace Industries Association of Brazil estimated that its members earned \$7.11 billion in revenue¹; according to company information, Embraer's portion of that total was around \$5.5 billion². Indeed, Brazilian manufacturers claim to import a significant amount of parts and components from non-Brazilian suppliers, including suppliers in the United States. However, it was only in the 2000s that Brazil consistently became one of the top ten U.S. export markets for aerospace equipment, likely due to the increasing success of Embraer's regional jet and business aircraft programs. In 2008, U.S. firms exported \$5.76 billion worth of aerospace products to Brazil, \$2.07 billion of which was complete aircraft and \$3.69 billion of which were parts and components.³

¹ On the web at: http://www.aiab.org.br/english/index.php?option=com_content&task=view&id=17&Itemid=31

² Embraer in Numbers. On the web at: <http://www.embraer.com/en-US/ConhecaEmbraer/EmbraerNumeros/Pages/Home.aspx>

³ ITA analysis of Census Bureau data.

Embraer was established in 1969 as a state-owned enterprise and though it was privatized in 1994, there is some government investment by BNDES, the Brazilian Development Bank (5.5% of shares).⁴ It has been producing commercial aircraft since it was launched, starting with turboprops and moving to jets in the 1990s. Though its initial commercial aircraft were in the 20-30 seat range, today Embraer's largest aircraft can seat up to 122 passengers in a single-class configuration (additional discussion of regional jets can be found earlier in this report). Embraer has also become a serious competitor in the business jet market, particularly after the introduction of the Phenom 100 very light jet in 2008.

There are a significant number of foreign suppliers on Embraer's regional jet programs. Components and major segments of the airframe are subcontracted to non-Brazilian firms. For example, the wings for the ERJ-135/40/45 family were designed and manufactured by a Spanish firm (Gamesa, now called Aernnova) and the wings for the ERJ-170/75/90/95 families were initially made by Kawasaki Heavy Industries of Japan. Initially, many of the items supplied by foreign firms were manufactured abroad and imported; however, as Embraer became more successful, some companies set up facilities in Brazil in order to better serve their client. Embraer has also moved some production, such as the ERJ-170 wings, in house.

Although Embraer has a long history of making general aviation aircraft, it is just starting to become a major player in business jets. Its first business jet, the Legacy 600, is a modified ERJ-145; a second variant called the Legacy 650 entered the market in late 2010. Embraer has also introduced a business aircraft variant of the ERJ-190 and a very light jet, called the Phenom. The Phenom's entry into service was well-timed to take advantage of the void left when U.S.-based Eclipse ceased production of its VLJ in 2008. In addition to business jets, Embraer continues to be a player in the piston and turboprop market through its subsidiary, Neiva.

A vast majority of Embraer's 17,149 direct employees are located in Brazil⁵, but Embraer does have facilities and joint ventures in other countries. There is an ERJ assembly plant in Harbin, China, which manufactures ERJ-145s from kits. Embraer announced in 2010 that it was considering adding an ERJ-190 assembly line to that facility as ERJ-145 sales have waned in China; this has since changed to a Legacy 650 assembly line. Embraer has also invested in OGMA, a maintenance, repair, and overhaul provider in Portugal that had previously been owned by the Portuguese government. Embraer opened an assembly facility for the Phenom in Melbourne, Florida, in February 2011.

⁴Embraer Capital Ownership. On the web at: http://ri.embraer.com.br/Embraer/Show.aspx?id_canal=LxvuWZRvW6bFtiTxHCpt6w==

⁵ Embraer Company Profile. On the web at: <http://www.embraer.com.br/english/content/empresa/profile.asp>.

Helibras, a subsidiary of EADS/Eurocopter, manufactures helicopters in Brazil for the Latin American market. Helibras has delivered about 500 units since 1978.⁶ UASs are being developed by the military and by private companies such as Embraer and Santos Lab.

There is significant foreign investment in the Brazilian maintenance, repair, and overhaul industry, with GE, Rolls-Royce, Pratt & Whitney Canada, and Goodrich among the manufacturers operating MRO facilities in-country. In addition, in 2005, Portugal-based TAP Maintenance and Engineering bought a controlling share of VEM Maintenance & Engineering. VEM was renamed TAP Brazil in 2009. Over the past several years, TAP has expanded its Brazil services to include a wider range of aircraft types.

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⁶ Helibras. "A Empresa." On the web at: <http://www.helibras.com.br/historico.asp>.