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## Brazilian Aircraft Industry and the Use of Law as a Tool for Development, The

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# THE BRAZILIAN AIRCRAFT INDUSTRY AND THE USE OF LAW AS A TOOL FOR DEVELOPMENT

BEVERLY MAY CARL\*

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## INTRODUCTION

On December 6, 1984 a small commuter plane crashed on take off from Jacksonville, Florida, killing all thirteen on board.<sup>1</sup> To the surprise of many Americans, the craft involved, a Bandeirante, had been manufactured in Brazil and, moreover, other planes made in that country were being flown by some twenty-two United States airlines.<sup>2</sup> Accustomed to reading about the Boeing 747, the McDonald Douglas DC 10, or the European airbus, the reader might well wonder how Brazil had come to appear on the world stage of aircraft suppliers.

Thirteen years ago, this Journal published an article of mine about Brazil's fledgling airplane industry.<sup>3</sup> A tropical country best known for Carnival, inflation, and poverty,<sup>4</sup> Brazil seemed an unlikely candidate for such a "high tech" industry. Most foreign experts greeted news of the venture with amused skepticism. Chances of success were characterized as "rather dim."<sup>5</sup> Brazilians themselves have remarked on the parallel to Don Quixote.<sup>6</sup> On the other hand, having lived in Brazil for two years, I had acquired some feel for the character of the people and thought they just might "pull it off."

Today, EMBRAER,<sup>7</sup> the Brazilian aircraft company, has turned out more than 3,000 planes and ranks as the world's sixth largest manufacturer in the field of general aviation.<sup>8</sup> Hundreds of these Brazilian-made craft have

<sup>1</sup> North, *NTSB Scrutinizes Stabilizer Loss in Crash of Bandeirante*, AV. WK. & SPACE TECH., Dec. 17, 1984, at 26.

<sup>2</sup> Ingersoll & Lowenstein, *FAA Orders U.S. Carriers to Inspect Planes of Model Involved in PBA Crash*, WALL. ST. J., Dec. 10, 1984, at 5, col. 1; Witkin, *Planes Like One in Florida Crash Face Inspection*, N.Y. TIMES, Dec. 10, 1984, at A1 col. 7.

<sup>3</sup> Carl, *The Brazilian Experiment in the Creation of an Aircraft Industry*, 38 J. AIR. L. & COM. 35 (1972).

<sup>4</sup> The per capita gross national product for Brazil was U.S. \$357 in 1968. U.S. Agency for Int'l Dev., *Presidential Mission to Brazil* (1969) (unpublished document).

<sup>5</sup> It had been asserted that EMBRAER's craft would cost twice as much as a similar plane in the free market. BUS. WK., March 7, 1970, at 46.

<sup>6</sup> Dias, *EMBRAER Voando em Segurança*, BANA, Nov. 28, 1979, at 21.

<sup>7</sup> "EMBRAER" stands for Empresa Brasileira de Aeronáutica.

<sup>8</sup> I.e., small and medium sized aircraft. Banco do Brazil, *Monthly Newsletter*,

been sold in the international market and EMBRAER's transactions range from Egypt through Papua New Guinea to the United Kingdom. So successful has the Brazilian venture proved that not long ago two American competitors brought legal action in an effort to limit EMBRAER's access to the American market through imposition of a countervailing duty.<sup>9</sup> As *Business Week* has concluded: "Brazil's EMBRAER has earned its wings as the one genuinely successful aircraft manufacturer in the Third World."<sup>10</sup>

To launch the new industry, Brazil created a unique legal structure. In view of the impressive results achieved, it seems appropriate now to reexamine that Brazilian experience. Other countries, especially Third World nations, may find it profitable to study this model for possible adaptation to their development needs.

### I. A BRIEF HISTORY

Brazilians trace their primacy in aviation back some distance. They, in fact, claim that the first airplane was invented, not by the Wright brothers, but by their own compatriot, Santos Dumont. Moreover, an effort to commercialize air transport was started in Brazil as early as 1890 when Leopoldo Correia da Silva floated stock at 100 milreis per share in the Brazilian Air Transport Company for the construction of dirigibles in Rio de Janeiro.<sup>11</sup> Although the venture failed to get off the ground due to inadequate capitalization, Brazilians never relinquished their dream of a domestic aviation industry.

Somebody said that it couldn't be done, But he  
. . . replied

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Aug. 1984, at 4. Only twenty-one nations now design and build their own aircraft. *Id.* See Condom, *Brazilian Aerospace Comes of Age*, 1984 INTERAVIA 1339; *Brazil: Number Six and Still Going Strong*, SOUTH, June 1984, at 74.

<sup>9</sup> Int'l Trade Comm., Investigation No. 701-TA-199, Certain Commuter Airplanes from Brazil, Oct. 6, 1982, 47 Fed. Reg. 44,166 (1982) *see infra*, notes 300-313 and accompanying text.

<sup>10</sup> *A Third World Plane Maker Targets the RAF*, BUS. WK., June 19, 1984, at 37.

<sup>11</sup> *Uma Boa Ação Nas Asas, Guia de Incentivos Fiscais*, 79 VEJA 117 (1970).

That "maybe it couldn't," but he would be one  
 Who wouldn't say so 'til he'd tried.  
 So he buckled right in . . . as he tackled the thing  
 That couldn't be done, and he did it.<sup>12</sup>

Efforts to develop an airplane began in 1929 with production of the "Rio de Janeiro";<sup>13</sup> a few decades later the government created the Central Aeronautics Center, which had the only wind tunnel in Latin America.<sup>14</sup> By 1969, Neiva, a private firm, had turned out 120 Regente C-42s, a metal monomotor aircraft, which was the first Brazilian plane to be manufactured by assembly line methods.<sup>15</sup> Meanwhile, Aerotec, another private company, was also building small planes, primarily for military usage. Scores of other enterprises manufactured aircraft parts such as instruments, seat belts and accessories.<sup>16</sup>

Nevertheless, these endeavors by private industry could not be viewed as flowing purely from the operation of market forces since the government, besides direct and indirect subsidies, also purchased most of the products of these plants.<sup>17</sup> No private firm in Brazil possessed the capital resources required to independently design a plane, construct a prototype, conduct the test flights and develop a market. Likewise, Brazil lacked the sophisticated technological tradition needed to produce a modern commercial aircraft.<sup>18</sup> On the other hand, a substantial portion of the cost of building a conventional plane is labor, and manpower was one resource Brazil had

<sup>12</sup> Edgar Guest, *It Couldn't Be Done*, in FIVE THOUSAND QUOTATIONS FOR ALL OCCASIONS 272 (L. Henry ed. 1981).

<sup>13</sup> *O Vôo da EMBRAER, Guia de Incentivos Fiscais*, 117 VEJA 78 (1971).

<sup>14</sup> The Portuguese term for the Center is "Centro Técnico de Aeronáutica". The CTA trained a pool of technical workers, many of whom have supplied other Brazilian industries such as the automotive sector. Interview with James R. Cheek, Transportation Officer, American Embassy in Rio de Janeiro (June 3, 1971).

<sup>15</sup> *O Vôo da EMBRAER*, *supra* note 13. Sixty-five percent of the components of the Regente C-42 were made in Brazil. *Id.* See also Letter from James R. Cheek, Transportation Officer, American Embassy, Rio de Janeiro, to J.A. Bede of Bede Aircraft Co. (Dec. 29, 1970).

<sup>16</sup> *O Vôo da EMBRAER*, *supra* note 13.

<sup>17</sup> Letter from James R. Cheek, *supra* note 15.

<sup>18</sup> *Transporte Moderno*, Jan. 1968, at 75.

in excess (although skilled workmen were still in short supply).

Meanwhile Brazil, which was trying to integrate a nation of 100 million people spread throughout an area larger than the continental United States, still lacked an adequate railroad or highway system.<sup>19</sup> The main link to the country's interior was by plane; even cattle were being shipped to market by air. This expanding need for air transport was forcing Brazil to use her limited foreign exchange resources to purchase not only the large commercial jets from the industrialized world, but also to spend U.S. \$10 million yearly for general aviation aircraft from American suppliers, such as Piper, Cessna and Beechcraft.<sup>20</sup> That market for small craft was growing at six percent annually.<sup>21</sup>

The year 1969 found Brazil enjoying an economic boom. Industrial production had increased thirteen percent;<sup>22</sup> she had turned out 350,000 automobiles and her new shipbuilding facilities had just completed fifty-eight large vessels.<sup>23</sup> Exhilarated by this progress and pressed by transport needs, the nation's leaders decided the time was ripe for a major attempt to create a Brazilian aviation industry.

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<sup>19</sup> Brazil Herald (Rio de Janeiro), Mar. 3, 1971, at 11B, col. 1. By the mid-sixties, Brazil had approximately 1,200 registered airports, eighty of which were maritime or river facilities. Many of those airports were only graded landing strips, but thirty had paved airstrips and modern ground facilities. Even then, air traffic between Rio de Janeiro and São Paulo was second only to that between New York and Chicago. U.S. DEP'T OF THE ARMY, AREA HANDBOOK FOR BRAZIL 562 (1964) [hereinafter cited as AREA HANDBOOK].

<sup>20</sup> Letter from James R. Cheek, *supra* note 15.

<sup>21</sup> *O Vôo da EMBRAER*, *supra* note 13.

<sup>22</sup> Trubek, *Law, Planning and the Development of the Brazilian Capital Market: A Study of Law in Economic Change*, THE BULLETIN (NYU), Apr. 1971, at 78 (citing table prepared by the Getúlio Vargas Foundation).

<sup>23</sup> BRAZILIAN NATIONAL CONFEDERATION OF COMMERCE, REPORT ON BRAZIL 9 (1971).



## II. THE BRAZILIAN LEGAL STRUCTURE

### A. Capitalizing the Aircraft Industry

#### 1. The Mixed Economy Corporation

##### a. Historical Antecedents

In planning for development, some Brazilian leaders wished to rely mainly on the private sector, while others believed that basic industries should be owned by the state.<sup>24</sup> At the same time, many of the strongest defenders of capitalism admitted that domestic private resources were insufficient to finance the development of certain "essential" industries. Moreover, article 163 of the Brazilian Constitution authorizes the state to enact legislation intervening in the economy when necessary to establish an economic sector which otherwise could not be effectively developed through private initiative and free competition.<sup>25</sup>

Faced with these considerations, the country's decision-makers evolved a peculiarly Brazilian compromise. The bulk of industrial investments were left within the domain of private business; a few projects, however, such as the National Economic Development Bank,<sup>26</sup> were reserved for corporations wholly owned by the government.

Finally, mixed economy corporations were established to carry out other activities in which the government had a

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<sup>24</sup> AREA HANDBOOK, *supra* note 19, at 488. During the last twenty years, Brazil has frequently declared itself a free enterprise nation. When the current military regime came to power in 1964, the opening paragraph of its Program for Economic Action stated, "Government Action in democratic political systems should be oriented to establishing conditions which assure the most efficient functioning of the free enterprise or price economy." Trubek, *supra* note 22, at 33 n.38.

<sup>25</sup> EMENDA CONSTITUCIONAL No. 1, art. 163 (Braz. 1969). The Brazilian Constitution stipulates that such state intervention should be used only in a supplementary fashion, *i.e.*, when private enterprise alone cannot accomplish the goal. *Id.* art. 170, § 1.

<sup>26</sup> Law 5662 of May 21, 1971, 35 LEX (Braz.) 877. Examples of other enterprises wholly owned by the government include the National Housing Bank, Law 5762 of Dec. 14, 1971, 35 LEX (Braz.) 1625; the São Francisco Valley Development Company, Law 6088 of July 16, 1974, 38 LEX (Braz.) 860; and the Post & Telegraph Company, Decree Law 509 of Mar. 20, 1969, 33 LEX (Braz.) 313.

special interest.<sup>27</sup> Funds to start these mixed economy corporations originate with the government which takes an equivalent number of equity shares in the company. Shares not held by the government are offered at public sale to private investors.

Such mixed economy corporations are legal entities,<sup>28</sup> created by special legislation to carry out a specified economic objective.<sup>29</sup> The Brazilian Corporations Code governs these mixed economy companies;<sup>30</sup> if their shares are publicly traded, the Brazilian security laws and regulations also apply.<sup>31</sup>

Mixed economy companies were developed in the hope that they could move rapidly and efficiently by following the practices of individual entrepreneurs.<sup>32</sup> As Professor Serpa de Santa Maria writes, "We defend the mixed company as a moderate and well balanced intervention by the state, which avoids killing private initiative, prevents driving off the cooperation of the private sector, and which can achieve the technical efficiencies of businessmen."<sup>33</sup>

Despite such characteristics, the mixed economy corporations also have certain features of wholly state-owned companies. Professor Hamel has pointed out that these

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<sup>27</sup> One authority traces the roots of these organizations to the great colonizing firms, such as the Dutch East India trading company. J. SERPA DE SANTA MARIA, *SOCIEDADES DE ECONOMIA MISTA E EMPRESAS PÚBLICAS* 46 (1979).

<sup>28</sup> Decree Law 200 of Feb. 25, 1967, 31 LEX (Braz.) 864.

<sup>29</sup> *Id.*

<sup>30</sup> Braz. Corp. Code, arts. 235-264, Law 6404 of Dec. 15, 1976, 40 LEX (Braz.) 899, 965-72.

<sup>31</sup> *Id.* art. 235, § 1, 33 LEX (Braz.) 965. A system of securities registration and regulation was created by the Capital Markets Law on July 14, 1965. Law 4728, 29 LEX (Braz.) 954. This law, patterned after the United States federal model, uses a disclosure rather than a merit approach to reviewing new issues. Administration of the law was placed in the Securities Commission (Comissão de Valores Mobiliários) created by Law 6385 of Dec. 7, 1976, 40 LEX (Braz.) 851.

A mixed economy company may not be declared bankrupt, but its assets may be attached or executed against, and its controlling shareholder (the government) is vicariously liable for its obligations. Braz. Corp. Code, *supra* note 30, art. 242. See also, J. PINHEIRO NETO, *DOING BUSINESS IN BRAZIL* §§ 2.173-185 (1979) [hereafter cited as PINHEIRO].

<sup>32</sup> SERPA, *supra* note 27, at 160.

<sup>33</sup> *Id.* at 19 [translated by author - Eds.].

entities fall somewhere between private and public law. "They cannot be strictly a subject of private law because the state participates with considerable power. . . . On the other hand, we do not believe that only public law [is involved] because such companies operate as ordinary private companies vis-à-vis third parties, as well as their own employees. . . ." <sup>34</sup>

As of 1982, Brazil had twenty-three mixed economy corporations. Economic sectors covered included petroleum, telecommunications, reinsurance and film production. <sup>35</sup>

#### b. *Creation of EMBRAER*

Prior to formation of EMBRAER, its most important product, the Bandeirante plane, had already been developed in 1965 by the government's Center for Aviation Technology (CTA). <sup>36</sup> CTA, however, failed in its efforts during the late sixties to find a private company to manufacture the craft. As Ozires Silva, the President of EMBRAER recounts, "It was the era of the 'Brazilian [economic] miracle' during which everyone was investing little and earning a great deal of money—and EMBRAER was exactly the opposite. It demanded a large investment and the risk was extremely high." <sup>37</sup>

<sup>34</sup> J. NOGUEIRA DE QUEIROZ, DIREITO ECONOMICO 92 & n.12 (1982) (citing Instituto de Direito Público e Ciência Política de FGV, *Organização das Sociedades de Economia Mista na França*, 52 R.D.A. 550 (1957) [hereinafter cited as QUEIROZ]).

<sup>35</sup> QUEIROZ, *supra* note 34, at 93-94. In 1965, the government authorized the sale to the public of up to 49% of the stock in mixed economy companies. Law 4728 of July 14, 1965, art. 60, 29 LEX (Braz.) 972.

<sup>36</sup> GAZETA MERCANTIL, August 20, 1984.

<sup>37</sup> *Id.* Mr. Silva recounts that he participated in many meetings with private businessmen at the time; they told him "If you think we are going to invest one cent in this plane, you are very mistaken." *A Indústria Aeronáutica a um Passo da Maturidade, NEGÓCIOS EM EXAME*, May 25, 1977, at 23 [hereinafter EXAME]. Almir Medeiros of the Aerotec Company affirmed that a simple transfer of resources to a private firm would not have solved the problem: "These projects were expensive and the maturation period very long. Thus, only, an enterprise which had obtained government assistance would be capable of developing it." *Id.* at 24. Jose Neiva, President of the Neiva aircraft company, added, "Only EMBRAER would be able to give stability to this sector through the use of exclusive [fiscal] incentives, re-

Thus, the government turned to the mixed economy model and established EMBRAER (the Brazilian Aviation Company) by Decree Law 770 of August 19, 1969 [D.L. 770].<sup>38</sup> Shortly thereafter the President approved its charter.<sup>39</sup>

i. *Capital Structure*

D.L. 770 called for an initial capitalization of Cr \$50 million,<sup>40</sup> with fifty-one percent of the voting stock to be purchased by the government (through the Ministry of Aviation)<sup>41</sup> while the remainder would be offered to private firms or individuals.<sup>42</sup> As EMBRAER has thrived over the years, the amount of its authorized capital has been periodically increased.<sup>43</sup> The percentage of private shareholders in EMBRAER today far exceeds that of the government. Private ownership of EMBRAER shares has grown from a mere 18.1% in 1970 to 93% in 1984.<sup>44</sup> Nonetheless, the Ministry of Aviation retains control since it still holds a majority of the common stock.<sup>45</sup> The bulk

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sources, industrial capacity and technology, as well as superiority in marketing ability." *Id.*

<sup>38</sup> Decree Law 770 of Aug. 19, 1969, 33 LEX (Braz.) 1201, *by-laws approved*, Decree 65,402 of Oct. 21, 1969, 33 LEX (Braz.) 1759, *as amended by* Decree 71,316 of Nov. 6, 1972, 36 LEX (Braz.) 1423 [hereinafter D.L. 770].

<sup>39</sup> Decree 66,005 of Dec. 30, 1969, 33 LEX (Braz.) 2599.

<sup>40</sup> D. L. 770, *supra* note 38, art. 4. No effort will be made in this article to convert cruzeiros into dollars because high inflation rates over the years have caused the exchange rates to vary widely. However, it can be stated that in 1969 when EMBRAER was started this Cr\$ 50 million would have been equivalent to about U.S. \$12.5 million.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.* Article 5 requires the government to acquire sufficient additional stock to hold 51% of the voting shares whenever EMBRAER's capital is increased. *Id.* art. 5.

<sup>43</sup> For example, the capital was increased in 1972 to Cr \$250 million by Decree 71,616 of December 22, 1972, arts. 1 & 6, 36 LEX (Braz.) 1653. It was further increased to Cr \$500 million by Decree 78,994 of Dec. 22, 1976, art. 1, 40 LEX (Braz.) 995. Each share had a par value of Cr \$1. *Id.* By 1978, the authorized and issued shares amount exceeded Cr \$842 million. Dias, *supra* note 6, at 25.

Besides such capital infusions, the Ministry of Aviation is authorized to transfer property, land, machines, capital equipment and materials to EMBRAER. D.L. 770, *supra* note 38, art. 16.

<sup>44</sup> EXAME, *supra* note 37, at 23, and Condom, *supra* note 8, at 1339.

<sup>45</sup> EXAME, *supra* note 37, at 23. The various decrees increasing the authorized

of the shares held by private persons are preferred shares which carry no voting rights.<sup>46</sup>

## ii. *Governance*

Overseeing EMBRAER is a seven-person Board of Directors, whose chair is appointed by the President of Brazil. Three directors are nominated by the Ministers of Finance, Commerce, and Planning respectively, with subsequent confirmation by the nation's president. Also serving as directors are the general manager and two other persons elected at the shareholders' meeting.<sup>47</sup>

The company is managed by an Executive Board composed of a general manager and the managers of industrial relations, production, technical matters, finance, and marketing.<sup>48</sup> Managers are elected at the shareholders' meeting.<sup>49</sup> To compete with private industry in attracting management personnel, the law further authorizes the stockholders' meeting to set the salaries of these five managers in accord with the comparable free market levels in the region. Thus, compensation of these top managers is not limited to the amounts allowed for civil servants.<sup>50</sup>

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capital ensured that voting control remained in the government. For example, the 1976 decree authorized 75 million shares to be held by the state, 50 million other common shares, and 375 million preferred shares. Decree 78,994, *supra* note 43, art. 10.

<sup>46</sup> Decree 71,616, *supra* note 43, art. 10. Preferred shares are also denied preemptive rights to buy new shares; such rights are enjoyed by the common shareholders. *Id.* art. 11.

<sup>47</sup> *Id.* art. 14. Decree 89,309 of Jan. 18, 1984, authorized the Office of the General Counsel of the National Treasury Department to represent the National Government at all general meetings of shareholders in mixed-economy companies in order to defend the interests of the Treasury. Such companies must give this office a sixty day prior notice of shareholder meetings and thirty days prior notice for extraordinary meetings. Pinheiro Neto, Legal Letter, Jan. 1984, at 1.

<sup>48</sup> Decree 71,616, *supra* note 43, art. 17.

<sup>49</sup> *Id.* art. 17, § 1.

<sup>50</sup> *Id.* art. 17, § 2; D.L. 770, *supra* note 38, art. 12. Recently, however, some restrictions have been placed on salaries paid to employees of state companies. As of 1984, state companies may no longer pay their officers or employees more than thirteen salaries in any year, including the Christmas bonus. Decree Law 2100 of Dec. 28, 1983, 47 LEX (Braz.) 565 (amending Decree Law 1971 of Nov. 30, 1982, 46 LEX (Braz.) 510. Those persons hired prior to this decree retain their benefits, profit-sharing, and bonuses. *Id.* art. 1, § 2. Article 1 of Decree Law

*iii. Reinvestment of Profit*

The law also mandates that 45% of the net profits be reinvested or allocated to certain reserve funds. For example, 5% of the net profit must be channeled to the Fund for Research and Development and 10% to the Investment Fund.<sup>51</sup> The balance of the profit may be disposed of by the shareholders. Typically, Latin American businessmen have preferred to take their earnings out quickly, thus this compulsory reinvestment provision attempts to inculcate a new tradition of reserving funds for research and development, as well as for future expansion.

*2. Techniques for Marketing Private Shares*

With majority control in the government, private purchasers of EMBRAER would have no real voice in the company's operations. Moreover, as a new firm in an untested field, EMBRAER was not yet a profitable enterprise and might never become one. In a free marketplace, such shares would hold little attraction for private investors. The organizers of the company, however, were determined to make it a true mixed-economy corporation with substantial private participation. Hence, they resorted to special mechanisms the government had previously designed to enhance the marketability of equity shares and to promote investment in certain preferred economic sectors or regions.

*a. Background of Investment Incentives*

When the military government took power in Brazil in 1964, the securities market was a relatively undeveloped institution. Although there were twenty-one stock exchanges, with listings on the exchange being obligatory

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1971 of 1982 provides that no officer, employee or director of a State company may receive a monthly compensation that exceeds the remuneration and allowances granted to the President of the Republic. Decree Law 1971 of Nov. 30, 1982, art. 1, 46 LEX (Braz.) 510, at 1.

<sup>51</sup> Decree 71,616, *supra* note 43, art. 35.

for Brazilian corporations,<sup>52</sup> only about five percent of the securities were actually traded. The combined volume of transactions for all exchanges, a mere US \$146 million in 1961,<sup>53</sup> reflected the public's traditional preference for investments in real estate or high interest loans over equities. At the same time, galloping inflation, which at one point in the early sixties reached 140% on an annual basis, had devoured the cash reserves of businesses, leaving them starved for the no longer available medium and long term credit.

To attract private savings to equity investments, to improve the liquidity of private companies, and to create a vigorous securities market, the Capital Markets Law was enacted in 1965.<sup>54</sup> This statute contains provisions to prevent fraud and price rigging, to regulate brokerage and investment companies, and to ensure public access to essential information about stocks.<sup>55</sup>

Along with these reforms came the concept of "democratization of capital", i.e., the idea that closely-held corporations should be opened to public participation and that ownership of equity shares should be more widely disseminated among the Brazilian populace. Law 4506 of November 30, 1964<sup>56</sup> granted tax benefits to companies which opened their shares to public sale.<sup>57</sup> Further, the

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<sup>52</sup> Except for the Brazilian equivalent of closely-held companies. U.S. DEP'T OF COMMERCE, ESTABLISHING A BUSINESS IN BRAZIL 24 (O.B.R. 66-10, 1966).

<sup>53</sup> AREA HANDBOOK, *supra* note 19, at 604.

<sup>54</sup> Law 4728, *supra* note 31.

<sup>55</sup> *Id.* arts. 2-3. In addition, the statute authorized corporations for the first time to issue convertible debentures. *Id.*

<sup>56</sup> Law 4506 of Nov. 30, 1964, art. 39, 28 LEX (Braz.) 1241, 1252. To encourage both reinvestment of earnings and the opening up of closely-held firms to the public, an additional tax was imposed on the company for any profits distributed. Firms with open capital were then exempted from that supplemental tax. *Id.* arts. 38-39. In the late sixties that supplemental tax was running at 5%. Decree Law 94 of Dec. 30, 1966, art. 11, 31 LEX (Braz.) 42.

Open-capital companies were relieved from paying certain taxes and allowed to deduct dividends paid (up to a specified limit) as an expense for tax purposes. P. GARLAND, DOING BUSINESS IN AND WITH BRAZIL 52 (1971); Decree Law 1790 of June 9, 1980, arts. 1-3, 44 LEX (Braz.) 257.

<sup>57</sup> Open-capital companies are those whose securities are traded on the stock exchange or over the counter. Law 6404, *supra* note 30, art. 4. Such securities

law offered tax deductions to individuals and firms to encourage the purchase of stock in these open-capital companies.<sup>58</sup>

Of course, no tax incentive scheme will operate effectively unless two basic conditions first exist: (1) a broadly based tax at rates sufficiently high to induce a sizable number of persons to undertake the paperwork necessary to obtain the tax relief, and (2) an administrative structure capable of collecting those taxes and enforcing penalties for evasion of revenue laws. Although conspicuously absent throughout much of Brazil's history, these prerequisites could be considered satisfied by the late sixties due to a massive tax reform instituted in 1964.<sup>59</sup>

Another mechanism created in 1967 came to have a major impact on the Brazilian capital markets. Decree Law No. 157 (D.L. 157) permitted an individual taxpayer to credit against his income tax amounts invested in authorized financial institutions which then reinvested these D.L. 157 funds in shares or debentures of private firms approved by the Central Bank of Brazil.<sup>60</sup> In effect, the taxpayer received a 100% tax credit for amounts invested in D.L. 157 funds up to a prescribed ceiling. For some time that ceiling was set at 12% of the tax due.<sup>61</sup> Later

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must be registered with the Securities Commission (CVM). *Id.* Trading of securities over the counter means sales made outside the stock exchange, such as through the intermediaries like investment banks, brokerage companies, distributor companies, and self-employed agents authorized by the foregoing institutions. CVM Instruction No. 32 of 1984, *cited in* Pinheiro Neto, Legal Letter, Mar. 1984, at 4.

<sup>58</sup> Decree Law 1338 of July 23, 1974, art. 2(j), 38 LEX (Braz.) 862, 863, *as amended by* Decree Law 1641 of Dec. 7, 1978, art. 8, 42 LEX (Braz.) 1096, 1099.

<sup>59</sup> Law 4506 of Nov. 30, 1964, 28 LEX (Braz.) 1241. During the sixties, the number of trained government tax inspectors was vastly increased. For the first time, some individuals were actually imprisoned for tax evasion. Declaration forms were distributed free, as contrasted with the prior practice of selling them at stationery stores. As a result of these measures, the number of tax returns filed jumped from 840,000 in 1960 to more than 6 million in 1970. *Correio da Manhã* (Rio de Janeiro), Nov. 20, 1970. *See also*, Liker, *The Legal and Institutional Framework of Tax Administration in Developing Countries*, 14 UCLA L. REV. 240 (1966).

<sup>60</sup> Decree Law 157 of Feb. 10, 1967, 31 LEX (Braz.) 351.

<sup>61</sup> Trubek, *supra* note 22, at 57. To qualify for this tax credit, the taxpayers had to hold the D.L. 157 shares for four years, although partial redemptions were



that flat ceiling was replaced by a sliding scale with the lower ceilings applying to the higher incomes and vice versa; by 1981, those ceilings ranged from 10% to 24% of the tax due.<sup>62</sup>

At first the benefits of D.L. 157 were not widely understood and only 35,000 individual taxpayers had used the credit by 1968. By 1969, however, D.L. 157 investments were earning a return in excess of 40%,<sup>63</sup> and as of 1972, more than three million persons were taking advantage of this credit.<sup>64</sup> Since it cost the taxpayer nothing, the number of participants continued to grow throughout the seventies, especially since persons receiving Cr \$5,000 or more now had to file tax returns.<sup>65</sup>

These various incentive programs resulted in a boom in the secondary market and reversed a long period of depression in stock prices. One leading indicator, the SN index, showed that the real average price of shares rose 26.5% in 1968 and 151% in 1969. The index continued rising in 1970. Even more impressive was the growth in volume of trading on the Rio de Janeiro exchange which jumped from Cr \$165 million in 1965 to Cr \$2,800 million (US \$571 million) in 1970.<sup>66</sup>

In addition to the laws directed toward development of the securities markets, the government passed a series of acts providing generous tax incentives for investments in particular regions or designated economic sectors. For example, a private company<sup>67</sup> is allowed to take a credit against its income tax for investments in new projects in

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permitted in years two and three. *Id.* at 57 n.65 Decree Law 1109 of June 26, 1970, 34 LEX (Braz.) 581.

<sup>62</sup> A. TEBECHRANI, F. CAMPOS, J. MACHADO, REGULAMENTO DO IMPOSTO DE RENDA PARA 1982 117 [hereinafter cited as TEBECHRANI].

<sup>63</sup> *Guia de Incentivos Fiscais*, 79 VEJA 23 (1970).

<sup>64</sup> Wall St. J., Apr. 5, 1972, at 1, col. 4. (statement of Antônio Delfim Neto, the then Minister of Finance).

<sup>65</sup> *Correio Da Manhã* (Rio De Janeiro), Nov. 20, 1970.

<sup>66</sup> Trubek, *supra* note 22, at 71-72.

<sup>67</sup> I have translated "juridical person" as "company". The term encompasses a variety of Brazilian business organizations, including corporations and limited partnerships.

the Northeast, in the Amazon, or in the tourism, forestry or fishing industries. Credits for investments in such favored economic sectors may be combined so long as the total cumulative credits do not exceed fifty percent of the tax due.<sup>68</sup>

b. *EMBRAER Tax Incentives*

The techniques devised to make EMBRAER's shares marketable were meshed with the pre-existing incentive system. Any company operating in Brazil can take a 100% credit against its income tax for amounts to be used for the acquisition of EMBRAER shares. The total credit taken for this purpose, however, may not exceed 1% of the tax due.<sup>69</sup> Thus, to the extent the purchases of EMBRAER shares fall within this 1% ceiling, the investment costs the taxpayer nothing.

Moreover, amounts represented by the acquisition of EMBRAER stock are not included within the 50% limit on combined tax credits for other eligible investments (e.g., the Northeast); rather, they can be added to those investment credits to permit a maximum total credit of 51%.<sup>70</sup>

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<sup>68</sup> See, e.g., Law 5174 of Oct. 27, 1966, art. 17, 30 LEX (Braz.) 1521. For a detailed description of the basic incentives, see B. CARL, A GUIDE TO INCENTIVES FOR INVESTING IN BRAZIL (1972). These various incentives were extended through fiscal year 1986 by Decree Law No. 2134 of June 26, 1984. DOU-1, June 27, 1984, noted in Pinheiro Neto, Legal Letter, June 1984.

<sup>69</sup> D.L. 770, *supra* note 38, art. 7. The credit, which may only be claimed by companies, was originally available through 1975. *Id.* It has since been extended through 1986 by supplemental legislation. See Decree Law 1376 of Dec. 12, 1974, art. 11, 38 LEX (Braz.) 1153, 2255 (extending the credit for new issues of EMBRAER stock); Decree Law 1802 of Aug. 19, 1980, art. 1, 44 LEX (Braz.) 428 (extending the credit through 1982); Decree Law 1898 of Dec. 21, 1981, art. 2, 45 LEX (Braz.) 695 (extending the credit through 1985); and Decree Law 2134 of June 26, 1984 (extending the credit through fiscal year 1986).

<sup>70</sup> D.L. 770, *supra* note 38, art. 7, § 1. After 1971, applicable laws channeled 30% of the funds credited by firms for investments in other privileged sectors, such as the Northeast, into the Program for National Integration. See, e.g., Decree Law 1106 of June 16, 1970, art. 5, § 2, 34 LEX (Braz.) 497. In effect, this meant that the taxpayer taking a 50% credit for investment in the Northeast would lose 30% of the 50% credit to the public treasury. Since the company received no shares for that 30%, it really obtained an effective credit of only 35% (i.e., 30% x 50% subtracted from 50% equals 35%). EMBRAER, however, was exempted from these restrictions and private concerns could therefore receive the full bene-

In fact, EMBRAER adopted as its slogan: "Surpass the fifty percent barrier on income tax credits."<sup>71</sup>

Article 8 of D.L. 770 also attempted to offer individual taxpayers an incentive by permitting them to use the resources which otherwise would have been channeled to financial institutions under D.L. 157<sup>72</sup> to purchase newly issued shares of EMBRAER.<sup>73</sup>

## B. *Effect of These Capital Formation Techniques*

### 1. *Marshalling of Funds*

The above tax incentives succeeded in attracting a sizeable amount of capital to EMBRAER. By 1978, more than Cr \$530 million had been channelled into EMBRAER from these taxpayer/investors.<sup>74</sup> Examples of some of the major taxpayer/shareholders include Volkswagen do Brasil, Mercedes Benz do Brasil, and General Motors do Brasil.<sup>75</sup> By January 1984, the preferred shares of EMBRAER were spread among 226,506 private holders.<sup>76</sup>

Of course, in granting these tax credits the government gave up an equivalent amount in revenue. Alternatively, the government could have kept the tax monies and used them to acquire 100% of EMBRAER's stock. Once the company became profitable, all the dividends would have

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fit of the one percent credit for their purchases of EMBRAER stock. *Id.*, art. 5, § 3.

<sup>71</sup> Brazil Herald (Rio de Janeiro), Mar. 3, 1971, at 11B.

<sup>72</sup> See *supra* note 60 and accompanying text for a discussion of D.L. 157.

<sup>73</sup> D.L. 770, *supra* note 38, art. 8.

<sup>74</sup> Dias, *supra* note 6, at 26.

<sup>75</sup> GAZETA MERCANTIL, Apr. 29, 1977, at 6. Earnings on these investments derived from the tax credits may not be remitted overseas; such funds may nonetheless be used to acquire from abroad capital equipment needed for the project. This prohibition does not apply to fresh foreign currency investments by overseas companies in EMBRAER, provided such investments are duly registered with the appropriate governmental agencies. Decree Law 1563 of July 29, 1977, art. 1, 41 LEX (Braz.) 551 (amending Decree Law 1376 of Dec. 12, 1974, art. 11, 38 LEX (Braz.) 1153).

<sup>76</sup> *Indústria Aeronáutica: Ases [sic] da Técnica*, CACEX INFORMAÇÃO SEMANAL, Sept. 17, 1984, at 5 [hereinafter cited as *Asas*]. As Almir Medeiros, President of Aerotec (a private firm) has said, "We thought [initially] we would come to statism. But today, I believe that without EMBRAER a Brazilian aircraft industry would no longer exist." EXAME, *supra* note 37, at 27.

accrued to the public treasury, as opposed to the mixed-economy scheme, where the bulk of the profits will enure to private interests. The government planners, however, were endeavoring to promote several other developmental objectives in addition to capitalizing on aircraft industry. By structuring EMBRAER in this manner, the regime displayed an ideological commitment to private capitalism<sup>77</sup> — even for a high risk venture like this where substantial technical and financial aid from the government was indispensable for starting up the industry.

The use of the tax mechanism to elicit equity investments from the private sector can also be viewed as another effort to help strengthen the securities market by increasing the total number of issues available for public sale. This approach further contributes to the goal of “democratization of capital” by spreading the ownership of these government sponsored projects among several thousand shareholders. Finally, by compelling taxpayers either to save in the form of these investments or to lose the corresponding amounts in the form of taxes, tax devices such as D.L. 157<sup>78</sup> were intended to educate the public.<sup>79</sup> After a period of such “forced savings,”<sup>80</sup> it was hoped that the public would have learned the value of holding equities and would be disposed to invest their own resources in other Brazilian shares.<sup>81</sup> Once this les-

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<sup>77</sup> The loyalty of the Brazilian planners to the private sector is indicated not only by the capitalization techniques used, but also by D.L. 770, which directs EMBRAER “to the extent possible to carry out its projects indirectly through contracts with private industry.” D.L. 770, *supra* note 38, art. 2, § 1.

<sup>78</sup> See *supra* note 60 and accompanying text for a discussion of D.L. 157.

<sup>79</sup> Trubek, *supra* note 22, at 66-67.

<sup>80</sup> *Id.* at 67.

<sup>81</sup> With the Brazilian economy booming and share prices increasing, the idea seemed to work. Persons who had never purchased shares were using some of their own funds to buy equities. The recent world recession, combined with Brazil's US \$100 billion foreign debt, of course, has had a dampening effect on the nation's economy. So serious is this problem that international creditors have released Brazil from amortization of its foreign debts during 1984. That agreement has been extended pending conclusion of negotiations on the servicing of her debt in 1985. Dallas Times Herald, Dec. 29, 1984 at 16A, col. 1. Nevertheless, the Brazilian public still considers equities of speculative interest and the

son had been learned, the theory went, these special incentives could be eliminated. In fact, the D.L. 157 incentive device was recently terminated.<sup>82</sup>

Nonetheless, the use of tax incentives to promote investment does not produce unmixed blessings. Channeling the country's limited resources into investments like the Northeast region or EMBRAER diverts funds the government might otherwise have collected and used for sorely needed social welfare projects, such as education, public housing or medical care. Since Brazil has a graduated tax structure, the tax incentive route means the benefits to wealthy taxpayers are disproportionately higher than those for taxpayers in the middle and lower income brackets.

For many years, this regressive effect was compounded by the lack of an effective capital gains tax.<sup>83</sup> Although in 1976, gains from the sale of stock became taxable,<sup>84</sup> such tax did not apply to shares either sold on the stock exchange<sup>85</sup> nor to stocks which have been held more than five years.<sup>86</sup> EMBRAER shares are traded on the exchange; thus, it would not seem difficult for an EMBRAER shareholder to avoid this tax.

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stock markets continue to hum. Phone interview with Eugene Rostov, Baker & McKenzie, Miami, Fla., May 7, 1985.

<sup>82</sup> Decree Law 2065 of Oct. 26, 1983, art. 14, 47 LEX (Braz.) 441, 444. Such revocation was apparently motivated by a desire to control inflation. Pinheiro Neto, Legal Letter, Oct., 1983, at 3. Brazil's inflation rate was 223 percent in 1984. Dallas Times Herald, Dec. 29, 1983, at 16A, col. 1. See *infra* note 89 for a description of the techniques adopted by Brazil to cope with this inflation.

<sup>83</sup> Trubek, *supra* note 22, at 68. This means that taxpayer/investors in the Northeast, in EMBRAER, or other favored sectors received free of taxes both the money represented by the original tax credit investment and the appreciation on that investment.

<sup>84</sup> Decree Law 1510 of Dec. 27, 1976, art. 1, 40 LEX (Braz.) 1021; see also PINHEIRO, *supra* note 31, at §§ 14.117-.120 n.1.

<sup>85</sup> Decree Law 1510, *supra* note 84, art. 4(a); see also PINHEIRO, *supra* note 31, at § 14.117-.120 n.3.

<sup>86</sup> Decree Law 1510, *supra* note 84, art. 4(d); see also PINHEIRO, *supra* note 31, at § 14.117-.120 n.3.

## 2. Profitability

EMBRAER began distributing dividends as early as 1974,<sup>87</sup> a year in which its net earnings reached 20% of capital<sup>88</sup> (adjusted for inflation).<sup>89</sup> The value of EMBRAER shares appreciated from Cr \$0.85 in 1970 to Cr \$3.09 in 1976.<sup>90</sup> By 1983, EMBRAER had made an annual net profit of US \$1.8 million on sales of US \$219 million.<sup>91</sup>

## 3. Reinvestment

As described above, EMBRAER was legally obligated to reinvest a portion of its earnings. By 1974, the company had allocated Cr \$44 million to research and development; this sum had grown to Cr \$75 million in 1976.<sup>92</sup> During the summer of 1984, the President of EMBRAER indicated his firm was investing US \$250 million in new projects.<sup>93</sup>

# III. PRODUCTION OF EMBRAER

By 1970, EMBRAER had completed a sizeable factory

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<sup>87</sup> GAZETA MERCANTIL, Apr. 29, 1977, at 6.

<sup>88</sup> Naturally, the earnings ratio has fluctuated. In 1975, the rate dropped to 18% and in 1976, to 17%. EXAME, *supra* note 37, at 26.

<sup>89</sup> The Brazilian economy is widely indexed to account for inflation. Under the concept known as "monetary correction," the law authorizes or requires indexing of principal as well as interest on loans, writing up the value of fixed assets and depreciation thereon, as well as making working capital and balance sheet adjustments. Rosenn, *Adjusting Taxation of Business Income for Inflation: Lessons from Brazil and Chile*, 13 TEX. INT'L L. J. 165 (1978); Rosenn, *Adaptations of the Brazilian Income Tax to Inflation*, 21 STAN. L. REV. 58 (1968); see also ROSENN, LAW AND INFLATION (1982).

<sup>90</sup> GAZETA MERCANTIL, Apr. 29, 1977, at 6.

<sup>91</sup> *A Third World Plane Maker Targets the RAF*, BUS. WK., June 18, 1983, at 37, 40. At an earlier point, EMBRAER had been even more profitable, earning US \$239 million in 1981. *The Commuter Plane that Flies on Financing*, BUS. WK., Apr. 12, 1982, at 46. The world recession caused a downturn the next two years and by the end of November 1983, it looked as if the company would suffer a small loss for the year. GAZETA MERCANTIL, Dec. 29, 1983. The last minute sale, however, of five planes to the United States for US \$12 million reversed the situation and produced a profit for 1983. GAZETA MERCANTIL, Jan. 6, 1984.

<sup>92</sup> EXAME, *supra* note 37, at 26.

<sup>93</sup> GAZETA MERCANTIL, July 13, 1984, at 23.

at São Jose dos Campos near the city of Sao Paulo,<sup>94</sup> and had acquired a staff of 550 people.<sup>95</sup> Today the company has 7,300 employees<sup>96</sup> and has vastly expanded its production facilities. Technologically, the craft manufactured by EMBRAER can be divided into two generations.

#### A. *The First Generation*

##### 1. *The Bandeirante*

With 130<sup>97</sup> Bandeirantes being flown by United States airlines, obviously this model is the one of greatest interest to American readers. The plane was designed to confront the difficulties inherent in Brazilian air transport at the time. Many of the nation's landing fields were still unpaved and short. There was also a need for a machine to carry a few passengers over long distances.<sup>98</sup>

A twin engine turboprop, the Bandeirante can land or take off in 2,000 feet over a fifty foot barrier.<sup>99</sup> It can operate on dirt runways and does not require a support structure on the ground.<sup>100</sup> Among the 14 versions are planes for military use, naval patrol, aerophotography, and cargo hauling.<sup>101</sup> The passenger version, initially with nine to twelve seats, has been remodeled to carry 19 persons, plus crew.<sup>102</sup> [see page 584]. Four hundred and

<sup>94</sup> Letter from J.R. Cheek, *supra* note 15.

<sup>95</sup> *O Vôo da EMBRAER*, *supra* note 13, at 78.

<sup>96</sup> Condom, *supra* note 8.

<sup>97</sup> Ingersoll & Lowenstein, *FAA Orders U.S. Carriers to Inspect Planes of Model Involved in PBA Crash*, WALL ST. J., Dec. 10, 1983, at 5.

<sup>98</sup> More than 200 Brazilian cities had lost air service within the preceding ten years because no such craft existed. Brazil Herald (Rio de Janeiro), Mar. 3, 1971, at 11B.

<sup>99</sup> AV. WK. & SPACE TECH., Jan. 11, 1971, at 62. Its maximum flying time is four hours and forty minutes. The top speed is 560 kilometers per hour. *O Vôo da EMBRAER*, *supra* note 13, at 78.

<sup>100</sup> *EMBRAER: 15 Years of Daring*, BANCO DO BRASIL, MONTHLY LETTER, Aug. 1984, at 4, 5.

<sup>101</sup> R. PEREIRA DE ANDRADE & A. PIOCHI, HISTÓRIA DA CONSTRUÇÃO AERONÁUTICA NO BRASIL 265-72 (1982) [hereafter cited as ANDRADE]; BANCO DO BRASIL, MONTHLY LETTER, Aug. 1984, at 4; *Asas*, *supra* note 76, at 6.

<sup>102</sup> Brazil Herald (Rio de Janeiro), Mar. 3, 1971, at 11B; *Asas*, *supra* note 76, at 6.

fifty Bandeirantes have now been produced.<sup>103</sup> The average price today for this plane is US \$1.8 million.<sup>104</sup>

## 2. *Ipanema*

Despite its vast territory devoted to farming, Brazil in 1970 had only 30 agricultural planes,<sup>105</sup> as compared to 5,000 in the United States or 500 in Mexico.<sup>106</sup> When disease struck the rice plantations in southern Brazil during the late sixties, one half the nation's crop was lost because only fifteen of the nation's crop dusters were in operating condition.<sup>107</sup>

The Ipanema is a single engine, one seater agricultural plane designed for crop dusting, seeding and fertilizing.<sup>108</sup> Built in conjunction with the private firm Aerotec under subcontract with EMBRAER,<sup>109</sup> more than 500 Ipanemas have been sold. The current price is around Cr \$177 million. Although this plane has been marketed mainly in Brazil, a few have gone to Uruguay and Bolivia.<sup>110</sup>

## 3. *The Xavante*

The Xavante, known outside Brazil as the Aeromacchi MB-326, was a small jet trainer fighter manufactured under a US \$53 million licensing and purchasing contract signed in 1970 with Macchi, an Italian firm.<sup>111</sup> The first jet constructed in Brazil, 170 Xavante were purchased by the Brazilian Air Force. The Xavante has now been phased out and the last one produced.<sup>112</sup>

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<sup>103</sup> SOUTH, June 1984, at 74.

<sup>104</sup> EMBRAER: *15 Years of Daring*, BANCO DO BRASIL, MONTHLY LETTER, Aug. 1984, at 4.

<sup>105</sup> *O Vôo da EMBRAER*, *supra* note 13, at 78.

<sup>106</sup> U.S. Dep't. State Airgram No. A 284 from Rio de Janeiro, June 8, 1970.

<sup>107</sup> *O Vôo da EMBRAER*, *supra* note 13, at 78.

<sup>108</sup> Cheek, *supra* note 15.

<sup>109</sup> ANDRADE, *supra* note 101, at 257.

<sup>110</sup> *Asas*, *supra* note 76, at 6.

<sup>111</sup> ANDRADE, *supra* note 101, at 258.

<sup>112</sup> North, *EMBRAER Expands its Facilities for Two New Aircraft*, AV. WK. & SPACE TECH., Aug. 22, 1983, at 144.



#### 4. *The Piper Agreement*

Between 1970 and 1974, Brazil had imported 1,900 small planes at a cost of US \$150 million in foreign exchange. It was estimated that if imports continued at this rate, the country would be suffering an annual dollar outflow of US \$500 million by 1977. Thus, the EMBRAER officials decided they needed to involve a foreign manufacturer of small planes in their Brazilian operations. At the same time, EMBRAER wished to avoid "technological dependency"; the company did not want to become merely an assembly plant.<sup>113</sup>

In 1974, EMBRAER and the Piper Aircraft Corporation concluded an agreement, under which EMBRAER would manufacture six Piper Models. Under the first stage of that accord, Piper sent kits which EMBRAER simply assembled and painted.<sup>114</sup> During subsequent stages, EMBRAER made some design changes and progressively substituted Brazilian-made parts for the U.S. components. By the end of 1978, all the parts were of Brazilian origin except those whose local production would have been "uneconomical because of the small number of units involved."<sup>115</sup> Piper also agreed to place its international marketing network at EMBRAER's disposal, even for the Brazilian planes EMBRAER had modified.<sup>116</sup>

Under the Piper agreement, EMBRAER produces the Navajo (Navajo Chieftain), the Seneca, the Minuano (Cherokee Six), the Corisco (Arrow II), the Sertanejo, and the Carioca (Pathfinder).<sup>117</sup> This arrangement has allowed Brazil to avoid importing a large number of planes while at the same time giving EMBRAER experience with quantity (and quality) production. By the end of 1984, EMBRAER had produced 1,800 planes under the Piper

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<sup>113</sup> EXAME, *supra* note 37, at 25.

<sup>114</sup> ANDRADE, *supra* note 101, at 262.

<sup>115</sup> *Id.*

<sup>116</sup> EXAME, *supra* note 37, at 25.

<sup>117</sup> ANDRADE, *supra* note 101, at 262; *Asas*, *supra* note 76, at 6.

program.<sup>118</sup>

## B. *The Second Generation*

### 1. *The Brasilia*

A twin engine pressurized turboprop for 30 passengers, the Brasilia has a low noise level and is credited with excellent passenger comfort. The executive version which will carry 12 passengers will be capable of crossing the Atlantic. Flying at 500 kmh,<sup>119</sup> it is the fastest plane in its class.<sup>120</sup> Joseph Clark, President of Horizon Airlines, said the Brasilia "is beautifully made, and it is one of the nicest-looking commuter aircraft under development."<sup>121</sup> [see page 585]

EMBRAER has devoted US \$160 million to the development of this plane,<sup>122</sup> which sells for US \$4.82 million at 1984 values. Certification of airworthiness by the Brazilian authorities should have been achieved by the end of 1984, to be followed shortly by the United States FAA certification.<sup>123</sup> EMBRAER expects to reach the breakeven point when the 120th plane is sold.<sup>124</sup> By the end of November 1984 there were 27 firm orders for the Brasilia and options with paid deposits for another 90.<sup>125</sup>

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<sup>118</sup> Condom, *supra* note 8, at 1339-40.

<sup>119</sup> BANCO DO BRASIL, MONTHLY LETTER, Aug. 1984, at 4. The Brasilia uses Pratt & Whitney of Canada PW 115 turboprop engines. *AV. WK. & SPACE TECH.*, May 8, 1983, at 28.

<sup>120</sup> The airframe is guaranteed for 24 months, the landing gear for 24 months or 6,000 landings, and the on-board system for 12 months. The overhaul life of its Pratt & Whitney engines has been set at 2,500 hours initially, but it is expected to rise to 6,000 hours within five years. The engine is warranted for 1,000 hours or six months and the manufacturer will reimburse between 50 and 100% of the cost of any necessary modifications of the craft and of all modification directives issued by airworthiness authorities. Condom, *supra* note 8, at 1343.

<sup>121</sup> North, *EMBRAER Flies EMB-120 Prior to Rollout*, *AV. WK. & SPACE TECH.*, Aug. 8, 1983, at 28.

<sup>122</sup> *Asas*, *supra* note 76, at 6.

<sup>123</sup> Condom, *supra* note 8, at 1343.

<sup>124</sup> de Faro, *Bandeirante Para Todos as Bandeiras*, *COMÉRCIO & MERCADOS*, Aug. 1980, at 36.

<sup>125</sup> Condom, *supra* note 8, at 1343. Certification will also be sought from the British CAA and the French DGAC. With these certifications, the plane will be marketable worldwide. ANDRADE, *supra* note 101, at 317.

2. *The Xingu*

Brazil's first pressurized plane, the Xingu is a twin engine turboprop for executive use capable of carrying eight persons. With a complete system of electronic commands, including automatic pilot, it has been chosen for the training of pilots for large commercial and military jets. The unit price is US \$2.2 million.<sup>126</sup> Between 1976 and 1982, EMBRAER manufactured 57 Xingus.<sup>127</sup>

3. *The Tucano*

A single engine turboprop for basic military training, the Tucano is the first plane of its category to be specifically designed for this purpose. In addition to an ejection seat, it is equipped with a number of innovations that rank it ahead of similar models available on the market.<sup>128</sup> With a basic cost of US \$1.2 million, it is being produced at a rate of six per month. By June 1984, fifty of these planes had been delivered.<sup>129</sup> [See page 586].

4. *The AM-X*

A subsonic military jet, the Am-X with a top speed of 1,100 kmh can handle tactical and attack missions. Modern electronic equipment makes radar detection difficult<sup>130</sup> and its wings are resistant to bullet penetration.<sup>131</sup> It will use Rolls Royce 807 engines, manufactured in Italy by Fiat under license from the British firm.<sup>132</sup> Selling at

<sup>126</sup> *Asas*, *supra* note 76, at 6. It has a speed of 480 kph and a flight autonomy of 2,260 Km. BANCO DO BRASIL, MONTHLY LETTER, Aug. 1984, at 5.

<sup>127</sup> ANDRADE, *supra* note 101, at 315.

<sup>128</sup> BANCO DO BRASIL, MONTHLY LETTER, Aug. 1984, at 4. This two seat trainer can perform light attack missions with four underwing hard points, for a total weapons load of 1,300 lb. It can carry two machine gun pods with 350 rounds each or four MK 81 250 lb. bombs or four rocket pods. The radius of the T-17 versions with two MK 81 bombs is about 440 nautical miles. *Id.*

<sup>129</sup> *Asas*, *supra* note 76, at 6.

<sup>130</sup> The Am-X can carry 3,600 kg. under its wings. BANCO DO BRASIL, MONTHLY LETTER, Aug. 1984, at 4.

<sup>131</sup> *Am-X: Asas do Brasil No Subsônico Binacional*, TENDÊNCIA, Dec. 1983, at 14 [hereinafter cited as *Am-X*].

<sup>132</sup> *Id.*

US \$10 million, the Am-X is half the price of its competitors.<sup>133</sup>

This plane is being developed jointly with two Italian companies. EMBRAER has a 30% share in the production, Aeritalia a 48% share and Aeromacchi the remainder.<sup>134</sup> By the end of 1983, it had not yet been decided whether these three companies would market Am-X jointly or separately.<sup>135</sup>

Plans call for 187 of these fighters for the Italian Air Force and 79 for the Brazilian Air Force.<sup>136</sup> Deliveries were to have begun in 1986,<sup>137</sup> but in May 1984 the first prototype crashed. Although the damage was covered by insurance, the partners must decide whether to delay their program by building a replacement or to push ahead with the later prototype.<sup>138</sup>

### 5. *A Helicopter?*

In 1984, EMBRAER held talks with the U.S. company Sikorsky concerning a possible license to manufacture helicopters in Brazil.<sup>139</sup> This proposal is being vigorously opposed by Helibras,<sup>140</sup> the nation's only helicopter man-

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<sup>133</sup> *Latin American Markets*, FINANCIAL TIMES (London), No. 90, at 5 (Aug. 27, 1984).

<sup>134</sup> North, *EMBRAER Expands its Facilities for Two New Aircraft*, AV. WK. & SPACE TECH., Aug. 22, 1983, at 144.

<sup>135</sup> *Am-X*, *supra* note 131, at 14.

<sup>136</sup> *Id.*

<sup>137</sup> AV. WK. & SPACE TECH., Sept. 6, 1982, at 143.

<sup>138</sup> *Latin American Markets*, FINANCIAL TIMES (London), No. 88, at 5 (July 30, 1984).

<sup>139</sup> Choer, *A Porta Já Está Aberta Para Produzir No Brasil, Diz Sikorsky*, GAZETA MERCANTIL, Apr. 7, 1984; Reis, *EMBRAER Confirma Negociações*, GAZETA MERCANTIL, Apr. 7, 1984.

<sup>140</sup> Soon after the founding of EMBRAER, Brazil tried to develop a helicopter industry to satisfy national needs. Since EMBRAER was otherwise preoccupied, it did not participate in this operation, which resulted in formation of a Brazilian company, Helibras, whose shares were 45% owned by the State of Minas Gerais (a state within Brazil), 45% by a French concern, Aérospatiale, and 10% by a company called Aerfoto. ANDRADE, *supra* note 101, at 279. Helibras now employs 200 people and has produced some fifty-eight helicopters since its creation in 1980. Nine machines have been purchased by the Brazilian Navy, and forty-seven by Brazilian civil operators. Condom, *supra* note 8.

ufacturer, on the ground that the internal market cannot support two producers.<sup>141</sup> Although some expect the venture to go forward,<sup>142</sup> others believe the Sikorsky negotiations are just a ploy to pressure the French partner in Helibras to use more Brazilian-made components in its machines.<sup>143</sup>

#### IV. EMBRAER'S TECHNOLOGY

##### A. *Importation of Technology*

The EMBRAER officials recognized that it would be technically and financially impractical to try to build an airplane from scratch. Hence in their 1970 contract with Aeromacchi, the Brazilians acquired not only a license to produce the Xavante, but also a commitment from the Italian company to furnish technical assistance over the next ten years for the production of the Bandeirante and the other types of equipment.<sup>144</sup> Likewise, Cessna, an American company, contributed to the technology of the Ipanema.<sup>145</sup>

In addition to the AM-X and the Piper agreements described above, EMBRAER signed a contract in 1983 with Sikorsky to transfer technology on the production of composite materials which are used on external surfaces of the plane in place of aluminum.<sup>146</sup>

All contracts transferring foreign technology to Brazil must be previously approved by the National Institute of Industrial Property within the Ministry of Industry and

<sup>141</sup> Magalhães, *Helibrás: Mercado Não Comporta Duas Empresas*, GAZETA MERCANTIL, Apr. 7, 1984.

<sup>142</sup> *Latin American Markets*, FINANCIAL TIMES (London), July 30, 1984, No. 88, at 5.

<sup>143</sup> The contract made with the French company called for the gradual substitution of foreign parts with Brazilian-made components. ANDRADE, *supra* note 101, at 280.

<sup>144</sup> U.S. Dep't. State Airgram No. A 284 From Rio De Janeiro, June 8, 1970.

<sup>145</sup> Interview with James R. Cheek, Transportation officer, American Embassy in Rio de Janeiro (June 3, 1971).

<sup>146</sup> *Asas*, *supra* note 76, at 14. These composite materials may be used to construct the doors, the engine nacelles, flaps and other control surfaces of the Brasília. AV. WK. & SPACE TECH., Aug. 22, 1983, at 144.

Commerce (INPI).<sup>147</sup> In an additional effort to conserve foreign exchange, the INPI in 1983 issued Normative Act No. 32 requiring the local companies requesting such a transfer to "justify the need for the foreign technology, [and] the choice of the supplier on the basis of a technical and economic study comparing the foreign technology and supplier with other available technologies and suppliers. . . ."<sup>148</sup> Moreover, Normative Act No. 68 of January 17, 1984 now requires government entities to consult with INPI prior to issuing invitations to bid whenever foreign technology may be involved.<sup>149</sup> Even though EMBRAER is an important earner of foreign exchange, it has encountered some difficulty in satisfying these new requirements.

Besides licensing agreements with foreign companies, EMBRAER has opted to import many component parts directly. Approximately 70 percent of EMBRAER's components parts are imported,<sup>150</sup> including 1200 Pratt & Whitney (Canadian) engines, which power most of the EMBRAER planes.<sup>151</sup> D.L. 770 facilitates such imports by exempting EMBRAER from customs duties on imports of raw materials, parts, components, equipment or other ma-

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<sup>147</sup> Normative Act No. 15 of Sept. 11, 1975, issued by INPI in the Ministry of Industry and Commerce (Brazil), (translated and reprinted in *AMERICAN BAR ASS'N, TECHNOLOGY TRANSFER: LAWS AND PRACTISE IN LATIN AMERICA* 283, (B. Carl ed. rev. ed. 1980) [hereinafter *TRANSFER LAWS*]). These regulations limit or prohibit a variety of contractual clauses typically found in licensing agreements, i.e., restrictions on exports, obligatory grant-back clauses, tied purchase arrangements, post-contract restrictions, no attack clauses, etc. See, Nattier, *Brazil, TRANSFER LAWS, Id.*, at 145.

Normative Act No. 67 of Dec. 29, 1983, provides for the forfeiture of trademarks and patents if they are not used. *Industrial Property Review* No. 692, Jan. 24, 1984, as cited in Pinheiro Neto, Legal Letter, Jan. 24, 1984, at 5.

<sup>148</sup> *Industrial Property Review* No. 680, Nov. 1, 1983, as cited in Pinheiro Neto, Legal Letter, Nov. 1983, at 2. In Normative Act No. 26 of Nov. 8, 1983, the Office of "Informatics" (Computers) has instituted a List of Informatics Supplier Companies. To sell to Brazilian government agencies or entities, foreign suppliers must now be registered on that list. The list covers, for example, storage disks, tapes and other data processing equipment and supplies. Pinheiro Neto, Legal Letter, Nov. 1983, at 1.

<sup>149</sup> DOU-1, Jan. 13, 1984, as cited in Pinheiro Neto, Legal Letter, Jan. 1984, at 4.

<sup>150</sup> *Asas, supra* note 76, at 9.

<sup>151</sup> *Id.* at 11. The engines cost EMBRAER US \$160 million. *Id.*

chinery,<sup>152</sup> so long as no "similar" product is made in Brazil.<sup>153</sup>

The decision to import such a large percentage of parts was justified on several grounds. First, by relying mainly on the Pratt & Whitney motors, EMBRAER reduced expenses through standardization.<sup>154</sup> Next, if EMBRAER had tried to use only Brazilian-made parts, the high per unit cost resulting from low volume production would have significantly pushed up the price of the finished products. For example, the Bandeirante which now sells for US \$1.8 million would have cost an estimated US \$3 million. Finally, to sell the planes at home and abroad, air-worthiness certificates have to be obtained from the domestic and foreign governmental agencies concerned with air safety; satisfying their various requirements mandates the use of highest quality components.<sup>155</sup>

Even with the large portion of imported components, the local cost component of EMBRAER's finished product runs around 75%.<sup>156</sup> This is because aircraft manufacturing is a labor intensive business calling for careful piece-by-piece hand assembly. Consequently, skilled labor accounts for between 40% and 80% of the final cost.<sup>157</sup>

EMBRAER is nevertheless trying to shift an ever increasing portion of its component purchasing to local suppliers to the extent this can be done without hurting its competitiveness on the world market.<sup>158</sup> Moreover, the

<sup>152</sup> D.L. 770, *supra* note 38, art. 15.

<sup>153</sup> Decree Law 37 of Nov. 18, 1966, 30 LEX (Braz.) 1636. Article 18 of that Decree Law established three basic criteria that must be considered in determining whether a Brazilian product should be treated as "similar": (a) price not above the cruzeiro cost of importing a similar foreign product, calculated on the basis of "normal price" plus all taxes and fees incident to the importation; (b) normal delivery time currently in effect for similar merchandise; and (c) equivalent quality and adequate specifications. *Id.*

<sup>154</sup> *Successes and Constraints*, FINANCIAL TIMES (London), May 19, 1983, at XII.

<sup>155</sup> *Asas*, *supra* note 76, at 10.

<sup>156</sup> *Id.*

<sup>157</sup> *Id.* Labor represents 75% of the final cost of the Bandeirante, 40% of the Xavante, 80% of the Ipanema, 70% of the Xingu, and 40-45% of the Piper aircraft. EXAME, *supra* note 37, at 25.

<sup>158</sup> *Asas*, *supra* note 76, at 9, 10.

existence of this major industry has already had a multiplier effect within the Brazilian economy. More than 300 Brazilian companies are producing parts for EMBRAER.<sup>159</sup> Under subcontracts, Aerotec is building the Ipanema fuselage.<sup>160</sup> EMBRAER and other Brazilian firms are producing alarm systems and view finders for the Tucano.<sup>161</sup> Electronic equipment is being furnished by a local company which is associated with Collins, the U.S. concern.<sup>162</sup> EMBRAER hopes that ultimately it can act as a spearhead to open up the international market for the products of some of its local suppliers. Finally, Brazilian firms are exploring the possibility of producing parts for the AM-X Rolls engine in a venture with Fiat of Brazil.<sup>163</sup>

### B. *Appropriate Technology*

With the publication in 1973 of E.F. Schumacher's pace setting book, *Small Is Beautiful*<sup>164</sup> it became fashionable to talk about "appropriate" technology. Failure to develop technology suitable for local needs or to make greater use of Third World technicians was criticized.<sup>165</sup> By 1980, more than 1,000 organizations had been established to work in the field of appropriate technology.<sup>166</sup>

As far back as 1971, President Silva of EMBRAER thought he had perceived a niche in the international aircraft industry which Brazil could occupy. As he then said:

More than 100 countries from the so-called Third World need airplanes appropriate to their commercial short and

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<sup>159</sup> EXAME, *supra* note 37, at 27.

<sup>160</sup> *Id.*

<sup>161</sup> *Asas*, *supra* note 76, at 11.

<sup>162</sup> *Id.*

<sup>163</sup> *Id.* at 11-12.

<sup>164</sup> In fact, he proposes for these intermediate technology companies a system of mixed public and private ownership not dissimilar to the EMBRAER pattern. E. SCHUMACHER, *SMALL IS BEAUTIFUL* 284-92 (Perennial Libr. ed. 1975).

<sup>165</sup> See, e.g., D. GOULET, *THE UNCERTAIN PROMISE: VALUE CONFLICTS IN TECHNOLOGY TRANSFER* 174-76 (1977).

<sup>166</sup> N. JEQUIER & G. BLANC, *THE WORLD OF APPROPRIATE TECHNOLOGY* 9 (OECD, 1982). This book contains a description of those various institutions.



medium traffic density. The large aeronautical companies, i.e. the airplane industry, do not produce machines of this type. In addition, there is a need for a tough aircraft suitable for bad fields in the Third World countries. This is a Bandeirante market. . . .<sup>167</sup>

Subsequent history proved these words prophetic — except for not foreseeing the opportunities soon to unfold in the industrialized world as well. When the first petroleum crisis hit in 1973, many enterprises were forced to substitute fuel efficient turboprops for their high consumption jets. This gave the Bandeirante a chance to prove itself a solid workhorse in climates ranging from Alaska to Africa.<sup>168</sup>

When the United States decided in the late seventies to deregulate the airline industry,<sup>169</sup> a new market for small commuter aircraft arose. D. Ekedahl, President of the Regional Airlines Association, claims that although millions of passengers are carried by such lines, the American manufacturers have chosen “not to enter the growing marketplace for small commercial transport. . . .”<sup>170</sup> Here then was another gap for the Bandeirante and Brasilia to fill.

When President Silva of EMBRAER was asked if his company could compete with the VFW-Fokker in the internal Brazilian market, he answered affirmatively, pointing out that the Brasilia (as well as the Bandeirante) can operate on air strips shorter than 700 meters, some of which still exist in Brazil.<sup>171</sup> In contrast, the Fokker with its high wings requires a much longer landing distance.<sup>172</sup>

Even the high tech Am-X may be considered “appropri-

<sup>167</sup> Brazil Herald, Mar. 3, 1971, at 11B, col. 3.

<sup>168</sup> *Asas*, *supra* note 76, at 5.

<sup>169</sup> The last vestiges of regulation ended on December 31, 1984, when the Civil Aeronautics Board finally wound up and closed down pursuant to the 1978 Airline Deregulation Act. Videotex, AP Wire, Dec. 31, 1984, EST 12:00 at p. APV 2252.

<sup>170</sup> *Gama Predicts Low Aircraft Export Levels*, AV. WK. & SPACE TECH., Oct. 4, 1982, at 24.

<sup>171</sup> Dias, *supra* note 6, at 27-28.

<sup>172</sup> *Id.* at 28.

ate" technology. Silva claims a substantial portion of military missions are carried out at the subsonic level and that, for aerodynamic reasons, supersonic planes operate inefficiently at these lower levels.<sup>173</sup> In contrast, a subsonic jet, like the Am-X, could perform the same tasks and would cost a third as much as the existing supersonics. While the Am-X is "not a panacea," Silva concludes it will be "the most efficient plane for 60 to 70% of the military missions any air force carries out."<sup>174</sup>

Thus, it seems that EMBRAER with its little, sturdy planes is filling practical needs both in the developing countries and the industrialized nations. This would seem to give real meaning to the term "appropriate" technology.

## V. DEVELOPMENT OF MARKETS

### A. *The Internal Brazilian Market*

Although EMBRAER started with a cushion of guaranteed sales to the Brazilian Air Force of 80 Bandeirantes,<sup>175</sup> the company avoided the mistake, often made by countries starting a new aircraft industry, of relying almost exclusively on home military orders. Rather, EMBRAER maintained from the start a balance between military and civilian business.<sup>176</sup> After a successful decade, the company did embark on the Brasilia project without any assured military sales;<sup>177</sup> now, however, it is reported that the Air Force has taken an option on 26 Brasília's.<sup>178</sup>

To develop the Brazilian market, the government has

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<sup>173</sup> *Am-X*, *supra* note 131, at 13.

<sup>174</sup> *Id.*

<sup>175</sup> ANDRADE, *supra* note 101, at 265; *Buying a Brand-New Aircraft Industry*, *Bus. Wk.*, Mar. 17, 1970, at 46. Ultimately, the Brazilian Air Force took 100 of these planes, which they use for troop transport, rescue missions and patrol. *BANCO DO BRASIL*, MONTHLY LETTER, May 1982, at 3.

<sup>176</sup> Condom, *supra* note 8, at 1340.

<sup>177</sup> *Latin American Markets*, *FINANCIAL TIMES* (London), July 30, 1984, No. 88, at 5. Silva characterized this as a "terrific gamble which could have been the ruin of the company." He added, "I spent many sleepless nights. . . . Fortunately, my fears were groundless. The Brasília is proving a huge success." *Id.*

<sup>178</sup> Condom, *supra* note 8, at 1343.

followed a calculated policy of opening and then closing the gates to small foreign planes. For example, to stimulate the use of agricultural aircraft, a 1970 law exempted such planes from customs duties.<sup>179</sup> Imports of single and twin engine planes rose from about 100 in 1970 to over 500 in 1974.<sup>180</sup> Then as EMBRAER's production began to kick in during 1974, the tariff on small craft was increased by 50%.<sup>181</sup> In addition, the President of Brazil decreed that any importation of civil aircraft or parts thereof must receive prior approval of the Aviation Ministry's Coordinating Committee for Civil Air Transport. That Committee, in making such a decision, was obligated "to take into account . . . the existence of domestic production [and the need to] substitute such manufactures for the airships sought to be imported, as well as the purpose for which such craft is to be used."<sup>182</sup> Statistics indicate that these measures were indeed effective. By 1977, small plane annual imports had dropped to less than fifty units while sales of domestically produced craft climbed to more than 550.<sup>183</sup>

The economic difficulties caused by the world recession, high oil prices and rising foreign debt, eventually came to affect EMBRAER's sales within the Brazilian market. For example, in 1976 the company produced over 100 Ipanemas; by 1979, that figure dropped to zero; and by 1983, it had climbed back up to only sixteen. Of the Piper line planes, one thousand were manufactured in the 1976-77 period; in contrast, the 1983 figure was 128

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<sup>179</sup> Law 5618 of Nov. 3, 1970, 34 LEX (Braz.) 1039.

<sup>180</sup> Dias, *supra* note 6, at 28.

<sup>181</sup> EXAME, *supra* note 37, at 24. See also Decree 86,010 of May 15, 1981, art. 7, 45 LEX (Braz.) 172.

<sup>182</sup> Decree 74,219 of June 25, 1974, arts. 1-2. That Decree was issued under the authorization conferred upon the President by art. 55 (II) of the Brazilian Constitution.

These restrictions were further tightened in 1981 by a decree requiring approval of both the Ministry of Agriculture and the Civil Air Transport Committee to import agricultural planes. Decree 86,765 of Dec. 22, 1981, art. 22, 45 LEX (Braz.) 716.

<sup>183</sup> Dias, *supra* note 6, at 28.

units.<sup>184</sup> More than half of EMBRAER's recent sales have come from outside the country.<sup>185</sup> By mid 1984, not a single Brasilia had been sold to a local company, largely because all of the country's airlines were in financial trouble.<sup>186</sup>

These same conditions created problems for Brazil's private producers of aircraft. By the mid-seventies, Neiva was hurt by rising costs combined with defects in one of its airship models. Compounding this situation was a reduction in subcontracts from EMBRAER, whose own domestic market was decreasing. After a 1979 reorganization of Neiva failed, in 1980 EMBRAER purchased 100% of Neiva's common stock.<sup>187</sup> Although still a separate legal entity, Neiva today is managed as a division of EMBRAER. The Piper line and the Ipanema are now being manufactured at the former Neiva factory.<sup>188</sup> This produced a shift in orders away from another private firm, Aerotec, forcing that company to lay off 200 persons.<sup>189</sup>

Despite these very real difficulties, Americans are complaining about Brazil's protectionism in this industry. On the other hand, it can be pointed out that Brazilian purchases of U.S. aircraft, parts and equipment far outweigh her sales to the U.S.<sup>190</sup> Finally, Boeing, Piper and

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<sup>184</sup> Nery, *Gigantismo, Dilema da EMBRAER*, O ESTADO DE SÃO PAULO, Aug. 5, 1984, at 20.

<sup>185</sup> *Successes and Contraints*, FINANCIAL TIMES (London), May 19, 1983, at XII.

<sup>186</sup> *Latin American Markets*, FINANCIAL TIMES (London), July 30, 1984, No. 88, at 5.

<sup>187</sup> ANDRADE, *supra* note 101, at 283-87.

<sup>188</sup> AV. WK. & SPACE TECH. 23 (1984); North, *EMBRAER Expands Its Facilities for Two New Aircraft*, AV. WK. & SPACE TECH., Aug. 22, 1983, at 144.

<sup>189</sup> ANDRADE, *supra* note 101, at 289. In mid summer 1984, however, Aerotec was negotiating with an Italian group, Siai Marchetti, on a possible joint venture to produce a military observation plane and an amphibious craft. The transaction depended upon a guaranty by the Brazilian Aviation Minister to buy a minimum number of planes. EMBRAER said it would not oppose the arrangement, that it did not wish to be a monopoly and that the proposed craft do not directly compete with EMBRAER's products. Stefani, *Aerotec e Siai Marchetti Chegam a Acordo sobre Produção no Brasil*, GAZETA MERCANTIL, July 12, 1984.

<sup>190</sup> In a recent three year period, the United States sales of these goods were six times as much as Brazil's sales to the U.S. *Brazil: Trade Troubles Strain Relations With*

other American component makers, whose products account for 40% of the Bandeirante's cost, defend the Brazilians.<sup>191</sup>

In the long run, Silva is optimistic about the prospects of Brazil's internal market. He says the country needs 20,000 small planes to cover its territory adequately, and today there are only 6,000.<sup>192</sup> At present, the Brazilian economy cannot generate credit internally for purchases of these planes. Thus, EMBRAER is exploring the possibility of obtaining external financing for this purpose. One suggestion would involve selling the craft to foreign companies which, in turn, would lease them back to other Brazilian firms.<sup>193</sup> By reducing the initial cash outlay, the leasing approach would benefit local concerns suffering working capital shortages. Brazilian law now permits leasing and provides favorable tax treatment for foreign lessors.<sup>194</sup> Lease-back arrangements have already become

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the U.S., Bus. Wk., Sept. 13, 1982, at 46. In 1979, the Minister of Aviation authorized the importation of one VFW-Fokker for every three Bandeirantes in operation. Dias, *supra* note 6, at 28. This may have been a response to the "protectionism" charge.

<sup>191</sup> Brazil: *The Commuter Plane that Flies on Financing*, Bus. Wk., Apr. 12, 1982, at 46.

<sup>192</sup> Camargo, *Como EMBRAER Ganhou o Mercado*, Gazeta Mercantil, Aug. 30, 1984, at 1.

<sup>193</sup> EMBRAER: *O Sucesso de um Plano de Voo*, REVISTA DAS CÂMARAS ARGENTINAS DE COMERCIO DO RIO DE JANEIRO E SÃO PAULO, Nov. - Dec. 1982, at 21.

<sup>194</sup> In 1974, Brazil passed a law regulating leases. Law 6099 of September 12, 1974, 38 Lex (Braz.) 926. Under article 7 thereof, leasing operations are now subject to control and inspection by the Central Bank of Brazil. To qualify under the 1974 law, several conditions have to be satisfied. The leasing contract may be entered into only between two legal entities and for the sole use of the lessee. *Id.* art. 1. The lessor company must be authorized by the Central Bank to effect such operations. *Id.* art. 2; Central Bank Resolution 351 of Nov. 17, 1975, as cited in J. ARAÚJO, INVESTMENTS IN BRAZIL: BASIC LEGAL ASPECTS 59 (5 ed. 1981) [hereinafter ARAÚJO]. The lessor must be given the right to terminate the lease either by acquiring the goods, returning the goods, or renewing the contract. The duration may not be less than three years. *Id.* at 60 (citing Resolution 351 of 1975, art. 8).

For tax purposes, the lessee may deduct the lease payments as an expense. Law 6099 of Sept. 12, 1974, art. 11, 38 Lex (Braz.) 926. Such payments are treated as operating income to the lessor. The normal withholding tax of 25% on profits remitted abroad may be reduced to between 2.5% and 5% of the payments to foreign lessors. ARAÚJO, *supra* this note, at 61. Law 7132 of Oct. 26, 1983, 47 Lex (Braz.) 435, requires the Central Bank to examine and approve the financial terms of such leases.

popular outside Brazil; it is estimated that for regional airlines the ratio of leases to sales exceeds 50 percent.<sup>195</sup>

## B. *The International Market*

### 1. *Sales*

EMBRAER first exported airplanes in 1975 when it sold five Bandeirantes and ten Ipanemas to Uruguay,<sup>196</sup> but the great breakthrough occurred in 1977 when the plane was purchased by Air Littoral in France.<sup>197</sup> Today 250 Bandeirantes<sup>198</sup> are flying in 26 countries on five continents.<sup>199</sup>

Growing overseas sales prompted the company to create two foreign subsidiaries.<sup>200</sup> EMBRAER Aviation International, located in Le Bourget (Paris, France), acts as a sales and service representative. In 1980, EMBRAER Aircraft Corporation was formed as a Florida subsidiary to sell aircraft, supply parts, and train pilots and mechanics.<sup>201</sup> EMBRAER's marketing techniques were so successful that by 1983 the Bandeirante accounted for 45% of the American market for planes in its class.<sup>202</sup>

EMBRAER's foreign sales, however, have not been limited to the Bandeirante or the Ipanema. Ten Xavantes have been sold to Argentina;<sup>203</sup> Paraguay and Togo have each purchased six of these planes.<sup>204</sup> Over 100 Xingus'

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<sup>195</sup> AV. WK. & SPACE TECH., Dec. 2, 1984, at 45.

<sup>196</sup> Stefani, *Empresário Privado, Quis Chega aos 15 Anos*, GAZETA MERCANTIL, Aug. 20, 1984.

<sup>197</sup> *Asas*, *supra* note 76, at 12.

<sup>198</sup> SOUTH, June 1984, at 74.

<sup>199</sup> GAZETA MERCANTIL, July 8, 1984.

<sup>200</sup> Article 2 of Decree 71,616, *supra* note 43, empowers EMBRAER to establish "branches, offices, or agencies . . . abroad . . . ."

<sup>201</sup> *Asas*, *supra* note 76, at 12; *Indústria Aeronáutica em Céu de Brigadeiro*, BOLETIM BANCO DO BRASIL, June-Apr. 1981, at 6.

<sup>202</sup> EMBRAER: *O Sucesso de um Plano de Voo*, REVISTA DAS CÂMARAS ARGENTINAS DE COMÉRCIO DO RIO DE JANEIRO E SÃO PAULO, Nov. - Dec. 1983, at 21.

<sup>203</sup> FINANCIAL TIMES (London), May 19, 1983, at XII.

<sup>204</sup> North, *EMBRAER Expands Its Facilities for Two New Aircraft*, AV. WK. & SPACE TECH., Aug. 22, 1983, at 144.

have been sold to nations as diverse as Nigeria,<sup>205</sup> Saudi Arabia, Belgium, and the United Kingdom.<sup>206</sup> The French Air Force and Navy are using the Xingu for pilot training.<sup>207</sup> Other Latin American nations have purchased fifty Tucanos<sup>208</sup> and EMBRAER has signed a joint venture accord with Egypt to produce 120 of that model.<sup>209</sup> The United Kingdom is considering a comparable partnership.<sup>210</sup>

In 1984, EMBRAER sold ten Brasília's each to Provincetown Boston Airlines<sup>211</sup> and Atlantic Southwest Airlines, two regional U.S. carriers. In late May, it sold four to Herson Airlines and two to PLM, Inc., an aircraft leasing company.<sup>212</sup> EMBRAER is currently negotiating potential sales of Brasília's with the People's Republic of China,<sup>213</sup> Australia, Belgium and Finland.<sup>214</sup> If all the existing options are exercised, EMBRAER's productive capacity will be fully utilized until the end of 1988.<sup>215</sup>

EMBRAER's exports totaled US \$83 million in 1983<sup>216</sup> and are expected to reach US \$100 million in 1984.<sup>217</sup> Brazil's foreign debt problems, however, are prompting EMBRAER to explore the possibilities of countertrade, for example, exchanging components for aircraft.<sup>218</sup>

<sup>205</sup> North, *GAMA Forecasts Slight Delivery Gain*, AV. WK. & SPACE TECH., Jan. 31, 1983, at 67.

<sup>206</sup> ANDRADE, *supra* note 101, at 315.

<sup>207</sup> North, *Manufacturers Set to Offer New Design*, AV. WK. & SPACE TECH., Mar. 12, 1984, at 261.

<sup>208</sup> Asas, *supra* note 76, at 6.

<sup>209</sup> SOUTH, June 1984, at 74.

<sup>210</sup> *A Third World Plane Maker Targets the RAF*, BUS. WK., June 18, 1984 at 37, 40.

<sup>211</sup> This airline recently filed for bankruptcy. Phone interview with Eugene Rostov, Baker & MacKenzie, Miami, Fla., May 8, 1985. Thus, the status of this order is not clear at the time of this writing.

<sup>212</sup> *Latin American Markets*, FINANCIAL TIMES (London), July 30, 1984, No. 88, at 5; *A Third World Plane Maker Targets the RAF*, BUS. WK., June 18, 1984, at 40.

<sup>213</sup> ESTADO DE SÃO PAULO, July 13, 1984, at 23.

<sup>214</sup> Stefani, *Austrália, Bélgica, Finlândia e França Podem Comprar o Brasília*, GAZETA MERCANTIL, June 20, 1984, at 9.

<sup>215</sup> *Latin American Markets*, FINANCIAL TIMES (London), July 30, 1984, No. 88, at 5.

<sup>216</sup> *Exportações da EMBRAER*, ESTADO DO SÃO PAULO, Jan. 18, 1984.

<sup>217</sup> Asas, *supra* note 76, at 8.

<sup>218</sup> *Id.* at 11.

## 2. *FAA Certification*

If EMBRAER were to sell its products to the United States, the company would have to obtain a Certificate of Air Worthiness from the Federal Aviation Administration.<sup>219</sup> Although satisfying the technical requirements of the governmental air safety agencies in key industrialized nations imposes a substantial cost on EMBRAER, this step is considered essential by her officers.<sup>220</sup>

Brazilians contend that they were subjected to a "Catch 22" situation by the FAA for three years after their first certification request. The FAA allegedly refused to expend resources examining the Bandeirante because no Americans had ordered one, indicating that there was no U.S. interest in the craft. But without FAA certification, what American would order it? Finally, a U.S. company did buy one. The impasse was resolved, and certification was granted in 1978.<sup>221</sup>

## 3. *Brazilian Export Incentives*

### a. *Credit, Guaranties, and Insurance*

For many years, almost all of the industrialized nations have provided financing, loan guaranties and insurance to

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<sup>219</sup> Federal Aviation Act of 1958, 49 U.S.C. § 1423(c) (1982).

<sup>220</sup> *Asas*, *supra* note 76, at 9. For instance, Colonel Silva has commented on the stringent requirements the Brasília must meet under the new U.S. Federal Aviation Regulations, Part 25, aimed at planes in the commuter markets. Clearly, EMBRAER can not risk developing a machine that might be denied FAA Certification. Dias, *supra* note 6, at 24-25.

<sup>221</sup> *Asas*, *supra* note 76, at 5, 12-13. At one point EMBRAER modified the Bandeirante (into the EMB-110P.2) to conform to the new requirements of Special Federal Aviation Regulations (SFAR) No. 41, Av. L. REP. § 8125, p. 4048 (1982), as issued 44 Fed. Reg. 53,723 (1979), amended 45 Fed. Reg. 25,046 (1980), 45 Fed. Reg. 80,973 (1980) and 47 Fed. Reg. 35,153 (1982). See also, ANDRADE, *supra* note 101, at 312.

In the late seventies, EMBRAER began work on a pressurized version of the Bandeirante. Ultimately, this project was abandoned because the demands of SFAR 41 would not permit the sale of a pressurized Bandeirante for more than a few years. Hence the company has decided to put its efforts into improving the existing Bandeirante models and pushing forward on the pressurized Brasília. North, *EMBRAER Expands Its Facilities for Two New Aircraft*, Av. WK. & SPACE TECH., Aug. 22, 1983, at 146; Condom, *supra* note 8, at 1342.



promote exports.<sup>222</sup> Typically, such insurance covers the political risks of expropriation, inconvertibility of currency and war, revolution or insurrection. In the United States, these incentives are administered by the Export-Import Bank (Eximbank).<sup>223</sup>

Several developing countries have followed suit. For more than a decade, the Brazilian Government through CACEX (the Foreign Trade Department of the Bank of Brazil) has offered exporters insurance against political risks,<sup>224</sup> as well as a wide range of financing alternatives.<sup>225</sup> Export credits, administered by FINEX (the Export Financing Fund), may take the form of direct financing, loans to foreign importers of Brazilian goods, below-market financing to manufacturers for production of export goods, and funds for market research and development.<sup>226</sup>

The subsidized interest rates on FINEX loans seldom exceed 8%.<sup>227</sup> Although a cash deposit of 15% is normally required for FINEX credit, EMBRAER hopes to persuade the government to reduce the down payment to

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<sup>222</sup> These programs are described in ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, *THE EXPORT CREDIT FINANCING SYSTEMS OF OECD MEMBER COUNTRIES* (1982).

<sup>223</sup> See Export-Import Bank Act of 1945, as amended, 12 U.S.C. § 635(b)(1)(a) (1982); see also W. STRENG, *INTERNATIONAL BUSINESS TRANSACTIONS: TAX AND LEGAL HANDBOOK* 67 (1978).

<sup>224</sup> B. CARL, *A GUIDE TO INCENTIVES FOR INVESTING IN BRAZIL* 41 (1972); see also Law 6704 of Oct. 26, 1979, 43 LEX (Braz.) 835.

<sup>225</sup> Decree Law 5025 of June 10, 1966, art. 60, 30 LEX (Braz.) 846 (1966); Central Bank Resolution 398 of Dec. 22, 1976, No. 330 of July 16, 1975, and No. 329 of June 16, 1975, as cited in BANCO DE BRASIL, *SUMMARY OF THE INVESTMENT LEGISLATION IN BRAZIL* 61, 64-65 nn. 22-26 (1980).

<sup>226</sup> PINHEIRO, *supra* note 31, at § 6.127. Brazilian law also authorizes export "trading companies." Decree Law 1248 of Nov. 29, 1972, 36 LEX (Braz.) 1512. Inspired by the Japanese model of "sogo shosha," these companies act as intermediaries between buyers and sellers to facilitate the movement of goods and to develop foreign markets. Such companies enjoy a number of tax exemptions and reductions. Decree Law 1721 of Dec. 3, 1979, art. 3, 43 LEX (Braz.) 929; TEBECHRANI, *supra* note 62, 327-39. For a comparison with the U.S. version of trading companies, see the Export Trading Company Act of 1982, Pub. L. 97-290, 96 Stat. 1233 (Oct. 6, 1982) and Norton, *The Efficacy of Export Trading Companies and Related Legislation and Regulations*, 50 J. AIR L. & COM. 865 (1985).

<sup>227</sup> PINHEIRO, *supra* note 31, at § 6.129 n.1.

10% and to stretch the finance period to ten years,<sup>228</sup> at least for the Brasilia.

b. *Tax Incentives for Exports*

Nations have also manipulated their tax structures in an attempt to increase exports. The DISC (Domestic International Sales Corporation)<sup>229</sup>, recently replaced by the FSC (Foreign Sales Corporation),<sup>230</sup> furnishes an example of such effort by the United States. Brazil has created a plethora of similar tax incentives for exports.

i. *Corporate Income Tax*

Exporters of manufactured products may reduce their taxable income by the same proportion that export sales bear to total sales.<sup>231</sup>

ii. *Tax on Foreign Remittances*

Remittances of earnings abroad are subject to a 25 per cent withholding tax;<sup>232</sup> but this amount may be reduced or refunded in amounts equal to an exporter's expenses

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<sup>228</sup> North, *EMBRAER Flies EMB-120 Prior to Rollout*, AV. WK & SPACE TECH., Aug. 8, 1983, at 28.

<sup>229</sup> I.R.C. §§ 991-997 (1971); STRENG, *supra* note 223, at 105-23.

<sup>230</sup> Tax Reform Act of 1983, I.R.C. §§ 921-927 (1983). Generally, a DISC was a domestic U.S. company which was not itself taxable. In contrast, a FSC must be created or organized under the laws of jurisdictions outside the United States. The FSC is not taxable on exempt foreign trade income. See 1 INT'L TRADE REP. (BNA) at 702 (Dec. 12, 1984). This change was made to comply with the GATT requirements concerning subsidies.

<sup>231</sup> Decree Law 1158 of Mar. 16, 1971, art. 1, 35 LEX (Braz.) 179; and Decree Law 1721 of Dec. 3, 1979, art. 1, 43 LEX (Braz.) 929. In calculating the deduction, the equation  $EE \times 100/TE$  should be used; EE is the export earnings and TE is the total earnings of the company. PINHEIRO, *supra* note 31, at § 6.118.

Companies engaged in foreign trade may also deduct as expenses payments made abroad for promotion, trademark registration, advertising, market research, leasing of exhibition space, costs of representational offices, warehouses and entrepôts. Decree Law 491 of Mar. 5, 1969, art. 7, 33 LEX (Braz.) 252; Decree 64,833 of July 17, 1969, art. 11, 33 LEX (Braz.) 968; and Directives No. 183 of May 26, 1976 and No. 210 of May 4, 1977 of the Ministry of Finance, *cited in* BANCO DO BRASIL, *supra* note 225, at 63 n.3.

<sup>232</sup> Decree 76,186 of Sept. 2, 1975, art. 344. So long as profits do not exceed 12% of the registered investment (as calculated over a three year average), no further withholding tax is imposed. Amounts in excess of this ceiling are subject

for commissions, discount fees, advertising, international fairs, etc.<sup>233</sup>

### iii. Drawbacks

The drawback system authorizes exemptions, suspensions or refunds for exported goods of the duties initially paid for imported raw materials, parts and components. This arrangement also permits exemptions or refunds of the ICM tax (Tax on the Circulation of Merchandise)<sup>234</sup> paid on such goods.<sup>235</sup> Special legislation would even allow the duty-free importation of an entire factory into the nation, as long as its output is designated for export.<sup>236</sup>

### iv. Miscellaneous Taxes

Operations connected with exports are exempt from the Tax on Financial Operations, which is a tax imposed on the purchase of foreign exchange.<sup>237</sup> In addition, in-

to taxes at progressively higher rates. Law 4131 of 1962, arts. 3 & 4; Law 4390 of 1964, art. 1, 28 LEX (Braz.) 850.

<sup>233</sup> Decree Law 1118 of 1970, art. 3, and Decree Law 1189 of 1971, art 6, *cited in* TEBECHRANI, *supra* note 62.

<sup>234</sup> Decree Law 406 of Dec. 31, 1968, 32 LEX (Braz.) 1550, Complementary Act 35 of Feb. 28, 1967, *cited in* BANCO DO BRASIL, *supra* note 225, at 64, n.10. The ICM is essentially a sales tax imposed by each state within Brazil. Typically the ICM tax ran around 14% in the southern part of the nation and 15 percent in the northern states. ARAÚJO, *supra* note 194, at 30. *See also*, Silva Martins, *Hipótese de Incidência de ICM in CURSO DE DIREITO TRIBUTÁRIO* 291 (I. Curso ed. 1982) [hereinafter cited as *Curso*]; Carvalho, *A Natureza Jurídica do ICM*, *Curso* at 309; Pinto da Silva, *O ICM e as Isenções*, *Curso* at 319; Bonilha, *Lançamento do ICM*, *Curso* at 349; D'Eça, *Sistemática do ICM*, *Curso* at 357.

<sup>235</sup> Decree Law 37 of Nov. 18, 1966, art. 78, 30 LEX (Braz.) 1636; Complementary Law No. 4 of Dec. 2, 1969 and Decree 68,904 of July 12, 1971, *cited in* BANCO DO BRASIL, *supra* note 225, at 64 n. 18.

<sup>236</sup> Decree Law 1244 of Oct. 31, 1972, 36 LEX (Braz.) 1402; Rosenn, *Regulation of Foreign Investment in Brazil: A Critical Analysis*, 25 LAW. AM. 307, 339 & n. 135 (1983).

<sup>237</sup> Decree Law 5143 of Oct. 20, 1966, 30 LEX (Braz.) 1460; ; Decree Law 914 of Oct. 7, 1969, 33 LEX (Braz.) 1413; Decree Law 1269 of Apr. 18, 1973, 37 LEX (Braz.) 448; Decree Law 1,844 of Dec. 30, 1980, 44 LEX (Braz.) 1067; Resolutions Nos. 253 (Mar. 15, 1972), 329 (July 16, 1975), 330 (July 16, 1975) & 352 (Dec. 2, 1979), *cited in* BANCO DO BRASIL, *supra* note 224, at 64, n.19; *see also* Rosenn, *supra* note 236, at 331. At the end of 1980, this tax was increased from 15% to 25%. Rosenn, *supra* note 236, at 331; Akselrad, *Imposto sobre Operações Financeiras — IOF*, in Silva Martins, *supra* note 234, at 431, 433. EMBRAER was exempted from this

ternational transport services are exempt from the Tax on Transportation Services<sup>238</sup> and from social security contributions, as well as the tax on fuels (when destined for export or for supplying foreign or national ships on international trips).<sup>239</sup>

c. *The Special BEFIEX Program*

Companies which accept a long term commitment to export a stipulated portion of their production may qualify for the special incentives granted by BEFIEX (the Commission for the Concession of Fiscal Benefits and Special Export Program). Generally, such export obligations have a duration of ten years, although recently some five year agreements have been accepted.<sup>240</sup> Additionally, the net value of a qualifying company's average annual export of manufactured products must be at least three times the value of its imports.<sup>241</sup>

Incentives available under this program include: a 70 to 90 percent reduction in import duties and IPI<sup>242</sup> taxes on

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tax by Central Bank Resolution No. 674 according to the GAZETA MERCANTIL. Godoy, *Em Detalhe, a Acusação de Fairchild*, GAZETA MERCANTIL, Aug. 19, 1982, at 11.

<sup>238</sup> Decree Law 1428 of Dec. 2, 1975, 39 LEX (Braz.) 740; Decree Law 1582 of Nov. 17, 1977, 41 LEX (Braz.) 866.

<sup>239</sup> Decree Law 1505 of Dec. 23, 1976, 40 LEX (Braz.) 1001; Decree Law 1556 of June 7, 1977, 41 LEX (Braz.) 46; Decree 79,789 of June 7, 1977, 41 LEX (Braz.) 347.

<sup>240</sup> PINHEIRO, *supra* note 31, at § 6.124; Rosenn, *supra* note 236, at 340.

<sup>241</sup> Rosenn, *supra* note 236, at 340.

<sup>242</sup> PINHEIRO, *supra* note 31, at § 6.123. The IPI tax (tax on manufactured products) is essentially a value added tax which is applied to transfers of parts and raw materials at each stage of the production process. Law 5172 of Oct. 25, 1964, art. 46-48, 28 LEX (Braz.) 1031. On non-luxury items, the rates range from 3 percent to 20 percent. Decree 70,162 of Feb. 18, 1972, 36 LEX (Braz.) 137. *See also*, Wagner, *Imposto sobre Produtos Industrializados—IPI—Sistemática*, in Silva Martins, *supra* note 234, at 249; Paciello, *Imposto Sobre Produtos Industrializados—IPI—Classificação*, in Silva Martins, *supra* note 234, at 275.

Export sales are exempt from IPI taxes. Law 5172 of Oct. 25, 1966, art. 7-I, 28 LEX (Braz.) 1031. The manufacturing exporter, however, was allowed to credit the IPI taxes he previously paid on raw materials and components of the exported goods against other IPI taxes he may have owed. *Id.* art. 7-XXIV, § 1.

In addition to the credits for IPI taxes actually paid, the exporter was allowed an additional credit against IPI taxes for the amount of IPI tax which would have been paid had the product been sold in Brazil. The rate applicable in this case,

imported machinery and equipment; and a 50 percent reduction on duties and IPI taxes on imported raw materials, components and intermediate parts. The President of Brazil may authorize a total exemption from these charges. Profits attributable to exports may be totally exempted from income tax. Finally, any losses of such firms may be carried forward for an extra two years.<sup>243</sup>

d. *EMBRAER'S Use of Export Incentives*

EMBRAER certainly took advantage of a substantial number of these export incentives. This, in turn, prompted the Fairchild Swearingen Corporation to bring a countervailing duty proceeding against EMBRAER in the United States, alleging that such benefits constituted an export subsidy.

Export subsidies can be subject to retaliatory sanctions under the General Agreement on Tariffs and Trade (GATT),<sup>244</sup> of which both Brazil and the United States are members.<sup>245</sup> Thus, before discussing the Fairchild/EMBRAER case, some background on the pertinent GATT norms and the U.S. law is required.

4. *Subsidies and Countervailing Duties: The Interface of Brazilian Law With International and Foreign Law*

a. *GATT Rules*

Section b of article XVI of the GATT, adopted in 1955, provides that the "contracting parties shall cease to grant either directly or indirectly any form of subsidies on the

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however, could not exceed 15%. Even if the product exported would have been exempt from the IPI tax if sold in the internal market, the tax was deemed to have been paid and could be credited against other IPI taxes. Decree Law 491 of Mar. 5, 1969, arts. 1 & 2, 33 LEX 252.

The United States complained that this IPI credit amounted to an export subsidy in violation of the General Agreement on Tariffs and Trade (GATT), *see infra* GATT, note 244. In response, Brazil recently eliminated the IPI "credit" for the BEFIEX program. Rosenn, *supra* note 236, at 340.

<sup>243</sup> Decree Law 1428 of Dec. 2, 1975 art. 1, 39 LEX (Braz.) 740; Decree 77,065 of Jan. 20, 1976, art. 6, 40 LEX (Braz.) 82.

<sup>244</sup> U.S. Dep't. of State, *Treaties in Force* (S9.14:982 1982).

<sup>245</sup> GATT, *supra* note 244, at para. 9.

export of any product other than a primary product.”<sup>246</sup> This provision, subscribed to only by the industrialized nations, has been honored more in the breach than in compliance.<sup>247</sup>

A countervailing duty is a charge imposed by an importing nation upon goods subsidized by the country of origin; such duty is intended to offset the “unfair advantage” the foreign items, as a result of the subsidy, would have over similar domestic products.<sup>248</sup> Article VI of the GATT authorizes the imposition of a countervailing duty whenever subsidies “cause or threaten material injury to an established domestic industry, or . . . retard materially the establishment of a domestic industry.”<sup>249</sup>

### i. *The Subsidies Code*

Concerned about widespread use of subsidies and their effect on international trade, the GATT nations at the 1979 Tokyo Round of Multilateral Trade Negotiations adopted the Code on Subsidies and Countervailing Duties.<sup>250</sup>

#### a. *General Prohibitions*

Article 9 of the Code reaffirms the prohibition on export subsidies for manufactured goods. That ban does not apply to non-export subsidies, i.e., domestic subsidies granted without regard to exports. While acknowledging that domestic subsidies are “widely used as important instruments for the promotion of social and economic pol-

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<sup>246</sup> B. BALASSA, *THE TOKYO ROUND AND THE DEVELOPING COUNTRIES* 15 (World Bank Staff Working Paper No. 370, 1980).

<sup>247</sup> Note, *ITC Injury Determination in Countervailing Duty Investigations*, 15 L. & POL. INT'L BUS. 987 (1983).

<sup>248</sup> GATT, *supra* note 244, paras. 3 & 6(a), at 214.

<sup>249</sup> Agreement on Interpretation and Application of Articles VI, XVI, and XXIII of the General Agreement on Tariffs and Trade, Apr. 12, 1979, 31 U.S.T. 513, T.I.A.S. No. 9619 [hereinafter cited as Subsidies Code]. The U.S. President was authorized to accept this Agreement by 19 U.S.C. § 2503 (c)(5) (1979), and did so in Memorandum of President, Determination Regarding Multilateral Trade Negotiations, Dec. 14, 1979. *Id.*

<sup>250</sup> Subsidies Code, *supra* note 249, art. 11, para. 2 and art. 8, para. 3.

icy objectives,"<sup>251</sup> the Code exhorts its signatories to avoid causing adverse effects on industries of other member countries through overuse of domestic subsidies.<sup>252</sup> Article 13 deals with the right of an adversely affected signatory to take countermeasures against domestic subsidies that cause serious prejudice.<sup>253</sup>

Article 14, however, recognizes that subsidies are an integral part of many development programs<sup>254</sup> and exempts developing countries from the obligation to forego using export subsidies for manufactured goods.<sup>255</sup> Developing nations are not subject to any countervailing action simply by reason of granting export subsidies per se. In addition, no retaliatory action may be taken against these nations where their use of export subsidies leads to displacement of exports of another signatory in third country markets. Finally, domestic subsidies such as government grants, loans, and guaranties are not to be considered subsidies per se in the case of the developing nations.<sup>256</sup>

### b. *The Injury Requirement*

Developing nations may, however, be subjected to countervailing duties, if their subsidized exports cause "material injury to a domestic industry, threat of material injury to a domestic industry, or material retardation of the establishment a domestic industry."<sup>257</sup> This injury test is restricted to a "like product."<sup>258</sup> From the point of

<sup>251</sup> *Id.* at art. 11, para. 2 & art. 8, para. 3.

<sup>252</sup> *Id.* at art. 13, para. 4; see also Rivers & Greenwald, *The Negotiation of A Code on Subsidies and Countervailing Measures: Bridging Fundamental Policy Differences*, 11 L. & POL. INT'L BUS. 1447, 1474, n.116 [hereinafter cited as Rivers].

<sup>253</sup> Subsidies Code, *supra* note 249, at art. 14, para. 1.

<sup>254</sup> *Id.* at art. 14, para. 2. The rules on export subsidies for primary products apply equally to both developing and developed nations. *Id.* at art. 14, para. 10 & art. 10.

<sup>255</sup> *Id.* at art. 14, para. 7.

<sup>256</sup> *Id.*; Subsidies Code, *supra* note 249, at art. 2, n.6.

<sup>257</sup> *Id.* at art. 6, para. 6(c). The Code defines a like product as one "which is identical, i.e., alike in all respects to the product under consideration or in [its] absence. . . another product which . . . has characteristics closely resembling those of the product under consideration." *Id.* at n.18.

<sup>258</sup> Because the U.S. countervailing duty law antedated the GATT, the United

view of the developing nations, the principle advantage of the Code is the agreement by the United States to require a finding of "material injury" to domestic industry as a precondition to imposing a countervailing duty.<sup>259</sup>

c. *Causation*

Article IV of the GATT is silent as to the exact nature of the "causal link" required between a subsidy paid on exports and the "material injury" to domestic industry. Thus, the question arose whether the subsidy must be the "principal cause" of such injury. Prior experience had indicated that the "principal cause" formulation had proved an impossible standard.<sup>260</sup> Finally, a less demanding standard was adopted: "[i]t must be demonstrated that the subsidized imports are, through the effects of the subsidy, causing injury within the meaning of this Agreement."<sup>261</sup>

d. *Countervailable Subsidies*

An Annex to the Subsidies Code sets forth an illustrative list of export subsidies. Exemption, remission, defer-

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States had not been subject to the GATT rules in the countervailing duty area. Thus, previously, the U.S. law in most cases permitted the imposition of countervailing duties on subsidized products even though no injury to American industry had been shown. Rivers, *supra* note 252, at 1453.

The Code also directs the developing nations to refrain from using subsidies in a manner that will cause serious prejudice to the trade or production interests of other signatories and calls upon them to enter into a "commitment to reduce or eliminate export subsidies when the use of such export subsidies is inconsistent with its competitive and developmental needs." Subsidies Code, *supra* note 249, art. 14, para. 5. Although the language sounds like "mumbo jumbo," it represents the position of the United States that advanced developing countries, like Brazil, South Korea, Mexico and Taiwan, should agree to phase out their export subsidies on manufactured products over a reasonable period of time, such as five years. The U.S. position was that if an advanced developing nation is unwilling to agree on an export subsidy phase-out schedule, the United States will not consent to the application of the Code between it and the nation concerned. For this reason the United States was careful to include a provision in the Code for nonapplication between signatories. *Id.* art. 19, para. 9; see also Rivers, *supra* note 252, at 1382; Note, *Mexico's Computer Decree: The Problem of Performance Requirements and a U.S. Response*, 14 L. & POL. INT'L BUS. 1159, 1187 (1983).

<sup>259</sup> Rivers, *supra* note 252, at 1483-84.

<sup>260</sup> Subsidies Code, *supra* note 249, at art. 6, para. 4.

<sup>261</sup> *Id.* at Annex, para. e.



ral of direct taxes (income tax), or social welfare taxes (e.g., social security) on exported goods are examples.<sup>262</sup> Also included are the exemption or refund of indirect taxes (sales, excise, turnover, value added, stamp, etc.) on exported items.<sup>263</sup> Clearly, a number of the Brazilian export incentives described above would qualify as "subsidies" under these broad definitions.

Even export credits granted by governmental institutions, like Exim Bank or CACEX, are treated as subsidies, if the financing is extended at "rates below those which [the governments] actually have to pay for the funds so employed . . . ."<sup>264</sup> Nevertheless, such export credits are not treated as prohibited subsidies if the government involved is a party to an international undertaking on official export credits.<sup>265</sup> The industrialized nations are all members of just such an undertaking — the Arrangement on Guidelines for Officially Supported Export Credits, which establishes minimum interest rates.<sup>266</sup> Under the Subsidies Code, nonmember nations, like Brazil, may escape having their export credits considered subsidies if in practice their interest rates are in conformity with the rates set by that international group.<sup>267</sup>

## ii. *The GATT Civil Aircraft Agreement*

At the 1979 Tokyo Round, the GATT members also

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<sup>262</sup> *Id.* at Annex, para. g.

<sup>263</sup> *Id.* at Annex, para. k.

<sup>264</sup> *Id.*

<sup>265</sup> ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, *THE EXPORT CREDIT FINANCING SYSTEMS IN OECD MEMBER COUNTRIES* 7 (1982). In 1981, these minimum rates ranged from 11.15 percent to 9.25 percent depending upon length of the maturities and the economic status of the recipient nation. *Id.* at 13.

<sup>266</sup> Subsidies Code, *supra* note 249, at Annex, para. k.

<sup>267</sup> Agreement on Trade in Civil Aircraft, Apr. 12, 1979, 31 U.S.T. 619, T.I.A.S. No. 9620, *approved as amended* by 19 U.S.C. § 2503(c)(10) (1983) [hereinafter cited as Aircraft Agreement]; Memorandum of President, Determination Regarding Multilateral Trade Negotiations, Dec. 14, 1979, *Id.*, annotations. *See also* Asian Wall St. J., Apr. 17, 1979, at 12, col. 1 & Apr. 13, 1979, at 1, col. 3.

concluded an Agreement on Trade in Civil Aircraft.<sup>268</sup> Article 6 of that Agreement did three things: (1) it reaffirmed the basic principles of the Subsidy Code, (2) obligated its signatories to "seek to avoid adverse effects on trade in civil aircraft . . .", and (3) stated that the pricing of civil aircraft should be based on a "reasonable expectation of recoupment of all costs."<sup>269</sup> The U.S. negotiators, however, did not succeed in their efforts to include provisions which would have established parameters on export credit financing for civil aircraft.<sup>270</sup>

As of mid-1981, Brazil had not signed this aircraft accord.<sup>271</sup> Since it was negotiated to meet the needs of the American, Canadian, Western European and Japanese

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<sup>268</sup> Note, *Technical Analysis of the Civil Aircraft Agreement*, 12 L. & POL. INT'L BUS. 243, 248 (1980).

<sup>269</sup> Piper, *Unique Sectoral Agreement Establishes Free Trade Framework*, 12 L. & POL. INT'L BUS. 221, 229 (1980). A 1975 OECD "standstill agreement" provided basic guidelines for acceptable export credit financing of aircraft. These guidelines were not always followed, and moreover, the OECD, composed of the industrial nations, does not include Brazil.

<sup>270</sup> *EMBRAER Achieving Gains with Commuters, Trainers*, AV. WK. & SPACE TECH., June 8, 1981, at 402. A key aspect of the Agreement was the establishment of a free trade regime within this industry. Signatories are required to eliminate for member nations all duties on imports of civil aircraft, parts, engines, and components. Aircraft Agreement, *supra* note 267, 31 U.S.T. at 619, art. 2.

The United States subsequently reduced its prior 5% duty on civil aircraft to zero, not only for the members of the Aircraft Agreement, but for all nations entitled to most favored nations treatment, including Brazil. U.S. INT'L TRADE COMM'N PUB. NO. 1448, TARIFF SCHEDULES OF THE UNITED STATES, pt. 6 at 184, item 694.41 (1984); interview with B. Chambers, Office of the Director, U.S. Customs Dep't., in Dallas, Texas (Nov. 28, 1984).

On January 3, 1985, the President announced elimination of duties on a variety of aircraft equipment and parts, including automatic door closers, pumps, various gears, etc. 2 INT'L L. TRADE REP. (BNA) 75 (1985).

For safety and environmental reasons, all nations have regulations affecting the construction and operation of airplanes. The Agreement on Technical Barriers to Trade, also concluded during the GATT Tokyo Rounds, prohibits discriminatory application of product standards, testing and certifications systems. Agreement on Technical Barriers to Trade, *done* Mar. 29, 1979, art. 2, MMTN/NTM/W/192/Rev. 5, *reprinted in* Agreements Reached in the Tokyo Round of the Multilateral Trade Negotiations, H.R. Doc. No. 153, 96th Cong., 1st Sess., pt. 1., at 209-56. This prohibition is incorporated expressly into the Aircraft Agreement by art. 3.

<sup>271</sup> Until 1980 the Treasury Department was responsible for countervailing duty investigations. That responsibility was transferred to the Commerce Department under Reorganization Plan No. 3 of 1979, 44 Fed. Reg. 69,273 (1979).

manufacturers, there is probably little incentive for Brazil to join.

b. *The United States Law*

In 1979, the U.S. Congress passed the Trade Agreements Act, in part to bring the American countervailing duty and subsidy law into conformity with the above described GATT norms. The U.S. statute, however, does not distinguish between developed and developing countries. A countervailing duty may be imposed after a series of affirmative administrative determinations.

i. *The Administrative Process*

The system is bifurcated with the Department of Commerce (acting through the International Trade "Administration") and the "International Trade Commission" making separate determinations on different facets of countervailing duty inquiry. First, the U.S. Department of Commerce<sup>272</sup> has twenty days from the time a petition is filed in which to make a sufficiency determination, which is comparable to deciding if a cause of action has been stated in a civil case.<sup>273</sup> For instance, the presence of a

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<sup>272</sup> 19 U.S.C. § 1671a(c)(3)(1982).

<sup>273</sup> To qualify as a "country under the Agreement", a nation must be a signatory of the GATT Subsidies Code or must have assumed obligations vis-à-vis the United States which are substantially similar to those of the Code, or must be a country accorded most favored nations status. 19 U.S.C. § 1671(b)(1982).

Mexico, for example, could meet none of these alternative requirements. She is not a member of GATT or of the Subsidies Code; nor had she assumed comparable obligations. Finally, no most favored nations agreement had been concluded between the United States and Mexico. Consequently, countervailing duties could be imposed against Mexican goods, even though no proof of injury to American industry is involved. No determination by the International Trade Commission was required to impose a countervailing duty against these non-Agreement countries. 19 U.S.C. § 1303(b). For a detailed description of the numerous countervailing duties proceedings brought against Mexican products, see Glick, *Legal Aspects of Trade with Mexico* in SOUTHERN METHODIST UNIVERSITY, *DOING BUSINESS WITH MEXICO* ch. 34, § 34.04[4] (T. Reiner & A. Reiner ed. 1980; B. Carl ed., 1980-83; S. Lefler ed. 1984-5). On April 12, 1985, Mexico and the United States signed a bilateral agreement which would afford Mexico the benefit of an injury test in countervailing duty investigations. 2 INT'L TRADE REP. (BNA)(1985). Text of Agreement *reprinted Id.* at 590.

subsidy would have to be alleged. At this point, the Commerce Department must also ascertain whether the exporting nation is a "country under the Agreement."<sup>274</sup> If so, no countervailing duty may be imposed unless there is also a finding of *injury* to the American industry.<sup>275</sup> Brazil has been held to be a "country under the Agreement."<sup>276</sup>

To institute an action against such an "agreement country," the petitioner simultaneously should have filed a petition before the International Trade Commission (ITC), which then has 45 days to make a preliminary injury determination<sup>277</sup> based on the best available information. A

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<sup>274</sup> Duty-free goods, even if exported from a country not "under the Agreement," are free from the imposition of countervailing duties unless the injury test can be satisfied. 19 U.S.C. § 1303(a)(2) (1982). Non-Agreement countries may be able to take advantage of this provision for some of their products under the Generalized System of Preferences, which provides for duty-free treatment of certain goods from developing nations. *Id.* §§ 2461, 2462. See Glick, *supra* note 273, at § 34.04[3].

<sup>275</sup> See, e.g., Certain Turboprop Transport Aircraft From Brazil, Dep't of Com. (preliminary), Sept. 10, 1982, reprinted in 47 Fed. Reg. 39,873.

<sup>276</sup> 19 U.S.C. § 1671b(a) (1982).

<sup>277</sup> If both decisions are affirmative, the Commerce Department then has 85 days in which to make a preliminary determination as to the amount of the subsidy. 19 U.S.C. § 1671b(b) (1982). Within 75 days after that decision, Commerce must make its final determination as to whether the merchandise in question is subsidized. *Id.* § 1671d(a). If Commerce's final determination is negative, the case is terminated. *Id.* § 2671d(c)(2), (3). If Commerce makes an affirmative final determination, ITC then has 45 days from that date to make its final injury determination. *Id.* § 1671d(b)(2). If the ITC makes an affirmative final decision, a countervailing duty order must be placed within seven days. *Id.* § 1671e(a). A negative decision by the ITC at this stage will end the case. 19 U.S.C. § 1671d(c) (1982). See also, Note, *ITC Injury Determination in Countervailing Duty Investigations*, 15 L. & POL'Y INT'L BUS. 987 (1983). An example of this procedure in operation can be seen in Special Commodity Group on Non-Rubber Footwear from Brazil v. Baldrige, 575 F. Supp. 1288 (Ct. Int'l Trade 1983).

The investigation also may be terminated if the exporter or the foreign government accepts an agreement which has the effect of eliminating or offsetting the subsidy, halting exports of the subsidized goods to the United States, or totally eliminating the injurious effect of the subsidized goods. 19 U.S.C. § 1671c(b)(1), (2) (1982).

Countervailing duty determinations are subject to judicial review by the United States Customs Court of International Trade. The standard for review depends on the nature of the challenged determination. Preliminary determinations must be reviewed on the basis of the information before the agency at the time of the decision. "De novo" review is precluded and the question before the court is simply whether the agency's action was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 19 U.S.C. § 1516a(b)(1)(A)

negative determination by Commerce on the sufficiency issue or by the ITC on the injury question at this point will terminate the investigation.<sup>278</sup>

## ii. *The Initiating Party*

The Department of Commerce may initiate a countervailing duty investigation *sua sponte* if warranted by the available information.<sup>279</sup> Alternatively, an investigation may be started by a petition from an interested domestic party. Such parties include a U.S. manufacturer, producer or wholesaler of a like product; a union or group of workers representing the industry; or a trade association the majority of whose members are engaged in producing or wholesaling such products.<sup>280</sup> In practice, most investigations are begun by private "interested" parties.

## iii. *Meaning of "Subsidy"*

The Trade Agreements Act defines "subsidy" as any "bounty or grant" bestowed on imported merchandise; this can also include "domestic subsidies."<sup>281</sup> Examples of domestic subsidies are listed in the statute:

- (i) The provision of capital, loans, or loan guarantees on terms inconsistent with commercial considerations.

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(1982); S. REP. NO. 249, 96th Cong., 1st Sess. 38, 51-52, *reprinted in* 1979 U.S. CODE CONG. & AD. NEWS 381, 414 [hereinafter cited as S. Rep. No. 249] and H.R. REP. NO. 317, 96th Cong., 1st Sess. 181 (1979). For an example of a review involving merchandise from Brazil, *see* Republic Steel Corp. v. United States, 591 F. Supp. 640 (Ct. Int'l Trade 1984).

"De novo" review of final determinations is likewise precluded. S. REP. NO. 249, *supra* this note, at 248, 252. The applicable standard of review for final determinations is whether the administrative action is "unsupported by substantial evidence on the record, or otherwise not in accordance with the law." 19 U.S.C. § 1516a(b)(1)(B) (1982).

The government is charged with monitoring the effect of any countervailing duties imposed and, when appropriate, obligated to revoke them. *See, e.g.,* Cotton Yarn From Brazil: Partial Revocation of Countervailing Duty Order, Dep't of Com., Aug. 31, 1984, 49 Fed. Reg. 34,546 (1984).

<sup>278</sup> 19 U.S.C. § 1761a(a) (1982).

<sup>279</sup> 19 U.S.C. §§ 1671a(b)(1), 1677(9)(C)(D) & (E) (1982).

<sup>280</sup> 19 U.S.C. § 1677 (5) (1982).

<sup>281</sup> 19 U.S.C. § 1677 (5)(b) (1982).

- (ii) The provision of goods or services at preferential rates.
- (iii) The assumption of any costs or expenses of manufacture, production, or distribution.<sup>282</sup>

Unlike the GATT Subsidies Code, which recognizes that certain domestic subsidies have legitimate and beneficial purposes, the United States law makes no such distinction.

Under this provision, the Commerce Department has decided that government equity participation—whether through stock ownership or an outright grant—constitutes a countervailable subsidy, if the funds are provided on terms “inconsistent with commercial considerations.”<sup>283</sup> For instance, Commerce treated equity funding by the foreign governments as a key component of the countervailing duty margins recently levied against certain steel products from Belgium and various other European nations.<sup>284</sup> As indicated in the first part of this article, Brazil was unable to find a private company to produce the Bandeirante; thus, the initial capitalization of EMBRAER by the government (as well as its subsequent increases) might well be considered as “inconsistent with commercial considerations.”

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<sup>282</sup> See, e.g., Appendix 2, Certain Steel Products from Belgium, 47 Fed. Reg. 39,304, 39,319-23 (1982).

<sup>283</sup> Barshefsky, Mattice & Martin, *Government Equity Participation in State Owned Enterprises: An Analysis of the Carbon Steel Countervailing Duty Cases*, 14 L. & POL. INT'L BUS. 1101, 1112 (1983) [hereinafter cited as Barshefsky]. See also Preliminary Affirmative Countervailing Duty Determinations: Certain Steel Products from Belgium, 47 Fed. Reg. 26,300-48 (1982).

Brazil also had been involved in this proceeding, but was excluded by the Commerce Department after Brazil agreed to impose a steel export tax which would completely offset its steel subsidies. Barshefsky, *supra* at 1112 n.58.

In another proceeding filed on September 18, 1984, by the Cast Iron Pipe Fittings Committee, a group representing the industry, the Commerce Department found that imports of cast iron pipe fittings from Brazil were receiving government subsidies estimated at 21.18% of their invoiced value. On November 2, the ITC found reasonable indication of injury. The Commerce Department is due to render its final determination by Feb. 15, 1985. 1 INT'L TRADE REP. (BNA) 766 (1984).

<sup>284</sup> United States Steel Corp. v. United States, 569 F. Supp. 864, 865 n.2 (Ct. Int'l Trade 1983) (citing 47 Fed. Reg. 26,310 (1982)).

A number of Brazil's export incentives have already been found to be countervailable, such as the income tax exemption for export earnings, preferential working capital financing for exports, accelerated depreciation on Brazilian made capital goods,<sup>285</sup> and the IPI tax credits.<sup>286</sup> Recently, responding to pressure from the United States, Brazil abolished the IPI tax credit portion of the BEFIEEX program.<sup>287</sup> Reportedly, EMBRAER was persuaded by the U.S. Government in 1981 to forego a 15 percent export incentive in order to avoid imposition of a countervailing duty.<sup>288</sup>

#### iv. Definition of a "Like" Product

The domestic industry against which the impacts of allegedly subsidized imports are to be assessed is described as "the domestic producers as a whole of a 'like' product, or those producers whose collective output of the 'like' product constitutes a major proportion of the total domestic production of that product."<sup>289</sup> "Like product" is defined as a product which is "like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation . . . ."<sup>290</sup>

<sup>285</sup> Carbon Steel Rods from Brazil, Suspension of Investigation, Dep't of Commerce (Int'l Trade Admin.), 47 Fed. Reg. 42,400 (1982), *reprinted in* 21 INT'L L. LEG. MAT'L. 1411; Frozen Concentrated Orange Juice, Inv. No. 701-TA-184 (Final), USITC Pub. No. 06 (July 1983), *summarized in* 5 INT'L TRADE REP. (BNA) 1391 (1983). See *supra* note 242 for a description of the IPI tax credit.

<sup>286</sup> See *supra* note 242.

<sup>287</sup> AV. WK. & SPACE TECH., June 8, 1981, at 403.

<sup>288</sup> 19 U.S.C. § 1677(4)(A) (1982).

<sup>289</sup> 19 U.S.C. § 1677(10) (1982).

<sup>290</sup> Silva contends the only similar plane is a Fairchild-SAAB-340 which is not a United States plane. *Latin American Markets*, 90 FINANCIAL TIMES (London), Aug. 17, 1984, at 6.

D. Ekedahl, president of the Regional Airline Association has said that United States manufacturers chose to a large degree "not to enter the growing marketplace for small commercial transport aircraft used by regional and commuter airlines. . . ." Consequently, he indicated that his organization would "fight any efforts to impose trade sanctions which would be borne primarily by United States airline customers of imported aircraft and the millions of passengers they carry." *GAMA Predicts Low Aircraft Export Levels*, AV. WK. & SPACE TECH., Oct. 4, 1982, at 24.

An advantage of the new "Brasilia" model lies in its dissimilarity to any airplane now being produced in the United States. According to President Silva, "There's no plane of the same class being projected or built in the US—we're not taking the market away from anyone."<sup>291</sup> Thus, the theory goes, the craft should be free from a countervailing duty challenge.<sup>292</sup>

v. "Material Injury" Test

To impose a countervailing duty against an "agreement country," the ITC must find that the United States industry is "materially injured, . . . threatened with material injury, or [that] the establishment of an industry in the United States is materially retarded."<sup>293</sup> Of these three possible findings, the first (material injury) and the third (material retardation), expressly require current, palpable, measurable injury to an actual or anticipated domestic industry.<sup>294</sup> The standard for finding a "threat" of material injury is more difficult to define and is subject to

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<sup>291</sup> On the other hand, a countervailing duty may be imposed against a subsidized import if it materially retards the establishment of United States industry. 19 U.S.C. § 1671(a)(2)(B) (1982).

It might be noted that "material retardation" of an American industry was not in issue in the "Bandeirante" countervailing duty investigation. Certain Commuter Airplanes From Brazil, 47 Fed. Reg. 44,166-67 & n.15 (1982). E. Stimpson, president of the General Aviation Manufacturers Association, acknowledging that American manufacturers had not developed commuter aircraft in the 25-40 passenger range, has said that foreigners can enter this market more easily "because foreign governments, unlike the U.S., fully support the research, development, production and marketing of specific aviation products." *GAMA Predicts Low Aircraft Export Levels*, AV. WK. & SPACE TECH., Oct. 4, 1982, at 24.

<sup>292</sup> 19 U.S.C. § 1671(a) (1982). For an example of an ITC injury investigation involving Brazilian goods, see Certain Agricultural Tillage Tools From Brazil, 49 Fed. Reg. 42,971 (1984) (initiating investigation of Brazilian agricultural tillage tools). See also 2 INT'L TRADE REP. (BNA) ¶ 337 (Jan. 1, 1985) (announcing a preliminary countervailing duty investigation regarding iron ore from Brazil).

<sup>293</sup> S. REP. NO. 249, *supra* note 277, at 86-87, 1979 U.S. CODE CONG. & AD. NEWS at 472-73.

<sup>294</sup> S. Madden, *The Threat of Material Injury Standard in Countervailing Duty Enforcement*, 16 L. & POL. INT'L BUS. 373, 416 (1984). For a negative finding on the issue of injury or threat of injury, see Prestressed Concrete Steel Wire Strand from Brazil, Inv. No. 701-TA-152 (Final), USITC Pub. No. 1358 (Mar. 1982), *reprinted in* 5 INT'L TRADE REP. DEC. (BNA) 1115 (1982). This finding was upheld in *Ameri-*



varying interpretations. Nonetheless, one study has concluded that the ITC generally applies the "threat" standard in a "coherent, predictable and supportable" manner.<sup>295</sup>

#### vi. *Causation*

The Trade Agreements Act requires that the injury result "by reason of" the alleged subsidy.<sup>296</sup> The Senate Report states that the ITC must employ the standards prevailing under current ITC practice and procedure in deciding this question.<sup>297</sup> Under those procedures,

[t]he ITC investigates the conditions of trade and competition and the general condition and structure of the relevant industry. It also considers, among other factors, the quantity, nature, and rate of importation of the imports subject to the investigation, and how the effects of the net bounty or grant relate to the injury, if any, to the domestic industry.<sup>298</sup>

The Senate Report would permit the ITC to render an affirmative determination, even if the particular import in question is not the "principal," or even a substantial cause of the injury. Rather than using such a strict test,

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can Spring Wire Corp. v. United States, 590 F. Supp. 1273 (Ct. Int'l Trade 1984) (substantial evidence supported finding of no material injury or threat thereof).

In the Frozen Concentrated Orange Juice from Brazil proceeding, the ITC found that subsidized imports posed a "threat" of material injury without a concomitant finding of "present" material injury. Inv. No. 701-TA-184 (Final), USITC Pub. No. 1406 (July 1983), summarized in 5 INT'L TRADE REP. DEC. (BNA) 1391 (1982). Moreover, the particular subsidies involved— income tax exemption for exports and subsidized working capital financing—were considered "inherently more likely to threaten injury than are other subsidies." *Id.* at 13 (views of Chmn. Eckes). On August 19, 1984, the ITC initiated an investigation under 19 U.S.C. § 1675(b) to review its determination in this case. 49 Fed. Reg. 34,546 (1984).

For other affirmative "threat" of injury holdings involving Brazil, see Hot-Rolled Stainless Steel Bar from Brazil, Inv. No. 701-TA-179-181 (Preliminary), USITC Pub. No. 1276 (Aug. 1982); Iron Bars From Brazil, Inv. No. 701-TA-208 (Preliminary), USITC Pub. No. 1472 (Dec. 1983).

<sup>295</sup> 19 U.S.C. § 1671(a)(2) (1982).

<sup>296</sup> S. REP. No. 249, *supra* note 277, at 57.

<sup>297</sup> *Id.*

<sup>298</sup> *Id.* at 58.

the ITC must only satisfy itself "that, in light of all the information presented, there is a sufficient causal link between the subsidization and the requisite injury."<sup>299</sup>

c. *The "Bandeirante" Case*

In 1982, the Fairchild Swearingen Company filed a countervailing duty petition with the International Trade Administration of the Department of Commerce against the 19-passenger Bandeirante.<sup>300</sup> Fairchild alleged that the plane was receiving twelve different subsidies, including the IPI export premium, income tax exemptions for export earnings, special tax benefits under BEFIEX, preferential working capital loans, exemption from IOF taxes, income tax deductions for applicable investments, special drawback privileges, and subsidized export credits.<sup>301</sup> Subsequently, Beech Aircraft joined in this petition.<sup>302</sup> Finding that the petition provided a sufficient basis for an investigation, and that Brazil was a country "under the Agreement," Commerce notified ITC, requesting com-

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<sup>299</sup> North, *Import Duties on Bandeirante Weighed*, AV. WK. & SPACE TECH., Sept. 20, 1982, at 115.

<sup>300</sup> Certain Turboprop Transport Aircraft from Brazil, 47 Fed. Reg. 39,873 (1982); see also Godoy, *Os Detalhes da Acusação da Fairchild*, GAZETA MERCANTIL, Aug. 30, 1982, at 11.

Fairchild claimed subsidies accounted for between 39 percent and 44 percent of the FOB price of the Bandeirante. Godoy, *supra*, at 11. The company also argued that through the FINEX export credits EMBRAER was able to sell its planes at around 8% financing, while United States companies had to charge the market rate of about 16%. *Id.* EMBRAER representatives responded, however, that if one took into account the corporate after-tax flow costs of the two aircraft, the financing costs evened out. North, *supra* note 299. Moreover, EMBRAER asserted that its export interest rates were not as low as those of the Japanese and Canadians. EMBRAER: *O Sucesso de um Plano de Vão*, REVISTA DAS CÂMARAS ARGENTINAS DE COMÉRCIO DO RIO DE JANEIRO E SÃO PAULO, Nov. - Dec. 1982, at 19.

Finally, EMBRAER's attorney, Donald E. Santarelli, also pointed out that, in accord with standard international business practice, EMBRAER's customers frequently have to put up additional collateral (such as a letter of credit), to secure their loans. This can add two or more percentage points to the face amount of the interest rate and can increase the overall borrowing cost. GAMA *Predicts Low Aircraft Export Levels*, AV. WK. & SPACE TECH., Oct. 4, 1982, at 24.

<sup>301</sup> North, *supra* note 299.

<sup>302</sup> Certain Turboprop Transport Aircraft From Brazil, 47 Fed. Reg. 39,873 (1982).

pletion of the preliminary injury determination by September 30th.<sup>303</sup>

Fairchild Swearingen argued that the EMBRAER share of the U.S. market had increased from 7 percent in 1978 to 35 percent in 1981. Meanwhile, Fairchild asserted, its share of the market had dropped from 60 percent in 1978 to 30 percent in 1982. The San Antonio plant, running at 20 percent of capacity, had laid off 75 percent of its production force.<sup>304</sup>

On September 21, 1982, the ITC, by a three to one vote, made a preliminary determination that the "material injury" test had not been satisfied. A few days later, Fairchild's request for reconsideration was denied.<sup>305</sup>

#### i. Identification of "Like" Product(s)

The first issue in that hearing was which American-made planes would be considered "like" the Bandeirante for this purpose. The Commission noted that it would be impossible to find all the characteristics of the Bandeirante incorporated into any one domestic product. In absence of such a product, the Commission had to consider those planes which were "most similar" in characteristics and uses as the imported craft. The Fairchild Swearingen Metro III (Metro) and the Beech Corporation C99 (C99) were found to have characteristics that "most closely" corresponded to the Bandeirante. Although the Metro is pressurized whereas the Bandeirante is not, this dissimilarity did not preclude its treatment as a "like"

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<sup>303</sup> North, *supra* note 299; North, *Fairchild Eyes Market Share Increase*, Av. Wk. & SPACE TECH., Sept. 16, 1982, at 271.

<sup>304</sup> Certain Commuter Airplanes From Brazil, 47 Fed. Reg. 44,166 (1982) [hereinafter cited as ITC Inv.]; Av. Wk. & SPACE TECH., Oct. 4, 1982, at 24.

<sup>305</sup> Commissioner Stern rendered a negative finding on this question. If the determination had been in the affirmative, significant additional information would have been desirable on this issue in a final determination. ITC Inv., *supra* note 304, at 44,167 n.8.

The ITC also excluded eight to fourteen seat domestic planes from this "like" product category because they did not carry turboprop engines as does the Bandeirante. Within the twenty to thirty seat range, there were no domestically produced planes.

product, at least for purposes of the preliminary investigation.

It was also noted that all three planes were "used" to carry passengers on short-haul, low-passenger density commuter routes. Thus, Fairchild and Beech were treated as the "domestic industry" for purposes of the investigation.<sup>306</sup>

ii. *Application of the "Material Injury" Test*

In making its determination on material injury, the Commission pointed out its obligation to take into account (1) the volume of imports of the item in question, (2) their impact on price, and (3) the consequent impact of the imports on the domestic industry. To assess the impact on domestic industry, the statute further called for an evaluation of all relevant economic factors, such as production, sales, market share, profits, productivity, return on investment, etc.<sup>307</sup>

Looking at the industry as a whole, the Commission noted that deregulation had caused commuter airlines to grow by 27% in 1979 and that this increase had continued up to 1982. At the same time, production capacity of the domestic commuter plane manufacturers had almost doubled between 1979 and 1981, as had their total sales. The number of workers producing commuter craft had risen substantially from 1979 to 1981 and their wages had increased steadily. As an individual company, Fairchild Swearingen's net sales had almost doubled from 1979 to 1981, and profitability levels remained favorable during this period.

On the question of import volume, the record showed that 15 Bandeirantes had been imported from January to June 1981 and 14 from January to June 1982. The ITC did not consider this a significant volume and stated there was no indication that the amount would rise

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<sup>306</sup> 19 U.S.C. § 1677(7) (1982); S. REP. NO. 249, *supra* note 277, at 86-87.

<sup>307</sup> *Id.* at 88.

significantly.<sup>308</sup>

Concerning the impact of imports on the prices of the domestic craft, the Commission noted the difficulty of price comparisons for planes which are really different. For example, any comparison of the Bandeirante with the more expensive Metro had to take into account the increased costs associated with different features, such as pressurization.<sup>309</sup> Since both the C99 and the Bandeirante lack pressurization, this comparison was considered more informative. Although conceding that advantageous financing is a factor in any purchase decision, the Commission held that the record did "not contain information which allows us to conclude that there is any pattern of underselling by the allegedly subsidized imports."<sup>310</sup> Moreover, despite a decrease in the C99's price during the last few years, the ITC pointed out the Bandeirante price had increased and found "there has been no price suppression or depression by reason of imported planes."<sup>311</sup> Thus, the Commission decided there was no indication that imports had affected prices or adversely impacted on profitability.

### iii. *Determination on Causation*

Moreover, the causal link between subsidized imports and material injury could not be satisfied. Fairchild and Beech both claimed to have lost sales to the Bandeirante. However, upon questioning by the ITC, all six purchasers named in the lost sales allegation said they did not buy the Metro either because of problems with its engine or because of the extra cost of the unneeded pressurization feature. Some of the purchasers added that they had re-

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<sup>308</sup> Would the 130 Bandeirantes now in the United States be considered significant? Perhaps, for countervailing duty purposes, the answer should still be "no".

<sup>309</sup> Petitioners contended the current additional cost of pressurization amounted to less than 1% of Metro's purchase price. Respondent, EMBRAER, asserted pressurization accounted for 20% of purchase price. ITC Inv., *supra* note 304, at 44,168 n.26.

<sup>310</sup> *Id.* at 44,169.

<sup>311</sup> *Id.*

jected the Beech C99 because it was too small for their requirements.<sup>312</sup>

The Commission concluded that "no causal nexus has been established between the allegedly subsidized imports and any recent problems which have been experienced by the domestic producers."<sup>313</sup> As indicated above, a negative finding by the ITC at this stage terminates the proceeding. Thus, no countervailing duty could be imposed.

### C. Overseas Operations

The typical first world multinational enterprise started by producing for its home market. Then, as it grew, it expanded into exporting goods overseas. Finally, it would begin manufacturing abroad. These foreign ventures could take various forms such as an equity investment, a licensing contract, a turn-key arrangement, etc. Likewise, installation of overseas production was usually phased in, often beginning with a simple assembly plant and then progressively increasing the use of local components and technology.

EMBRAER seems about to embark on a similar course. Having gone through the first two stages—home production and foreign exports—the company is now moving into overseas production.

#### 1. The Egyptian Agreement

In 1983, EMBRAER signed an accord with Egypt to build 120 Tucanos in that country for delivery to the

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<sup>312</sup> *Id.* at 44,169 n.7. In addition, BUSINESS WEEK reported that "[b]uyers contend that neither the Beech C99 nor . . . [the] Metro . . . matches the Bandeirante's quality." *The Commuter Plane That Flies on Financing*, BUS. WK., Apr. 12, 1982, at 46.

<sup>313</sup> ITC Inv., *supra* note 304, at 44,169. In January 1985, the International Trade Commission announced it would use the authority conferred under § 332(b) of the Tariff Act to examine the impact of growing competition from imports on the U.S. commuter and business aircraft industries. Although no public hearing is planned, written statements may be submitted to the Commission. 2 INT'L TRADE REP. (BNA) 215 (Feb. 6, 1985).

Egyptian Air Force. The contract, which includes a technical assistance component, is divided into three phases. First, ten trainers will be made in Brazil and sent to Egypt in fly-away condition. EMBRAER will then send structural components and aircraft systems for the next group of planes to be completed by the Arab Organization for Industrialization at an industrial park outside Cairo. The first flight of an Egyptian-built Tucano is scheduled for 1985. The final group is to be built in Egypt with EMBRAER to supply the tail section and a limited number of component parts.<sup>314</sup>

The contract, financed by Saudi Arabia,<sup>315</sup> will bring EMBRAER US \$180 million.<sup>316</sup> Upon expiration of the four-year production schedule, the Egyptian government may exercise an option for another 60 planes.<sup>317</sup>

## 2. *The United Kingdom/Short Brothers Arrangement*

In May 1984, Short Brothers, a Belfast based aerospace manufacturer,<sup>318</sup> and EMBRAER signed a broad cooperation agreement. The first program involves development under license with EMBRAER of a Tucano version<sup>319</sup> able to meet the requirements of the Royal Air Force. The

<sup>314</sup> AV. WK. & SPACE TECH., Dec. 12, 1983, at 22; *Asas*, *supra* note 76; SOUTH, June 1984, at 74.

<sup>315</sup> *British Deal May Put the Icing on 15 Year Birthday Cake*, FINANCIAL TIMES (London) Aug. 27, 1984, at 5 [hereinafter cited as *British Deal*].

<sup>316</sup> *Asas*, *supra* note 76, at 8; AV. WK. & SPACE TECH., Dec. 12, 1983, at 22.

<sup>317</sup> *Asas*, *supra* note 76, at 14. This agreement is not free from criticism. It foresees 80 of the planes being sent to Iraq. Such sales to areas in conflict have produced political problems within Brazil. One Brazilian congressman, Flavio Birrenback, a member of the Committee on Security, proposed a bill to ban such sales. "I think Honduras will use the planes against the Sandanistas, and there is a chance for the Tucano to be used against troops once Iran's air cover gets weaker." EMBRAER's Silva replies that this is merely concern being whipped up by the commercial competitors. He also explains that adverse conditions in the civil aviation industry forced EMBRAER to look toward the military sector. *British Deal*, *supra* note 315, at 6.

<sup>318</sup> Short is the oldest established aircraft company in the world; obviously, EMBRAER is one of the youngest. *Collaboration Between Short and EMBRAER*, BRAZIL J., July 1984, at 9, 10 [hereinafter *Collaboration*].

<sup>319</sup> This design calls for an uprated Pratt & Whitney PT6 turboprop engine, a revised Hawk Trainer' style cockpit environment, and British Martin Baker ejection seats. *Id.* at 9.

Royal Air Force is seeking 155 new trainers to replace its aging Jet Provost, currently in service. The Tucano is competing with three other contenders for this £200 million RAF contract. If the Short/EMBRAER proposal prevails, Tucano kits<sup>320</sup> will be shipped from Brazil for manufacture in North Ireland. The proposal is expected to create 600 sorely needed jobs for Belfast.<sup>321</sup>

Both Short and EMBRAER have indicated their partnership will continue even if they lose the RAF award. They are examining concepts for commuter aircraft for the 1990's and a possible joint development of a business aircraft.<sup>322</sup> Ultimately they hope to export the products of their venture to other nations.

## VI. SAFETY AND THE FLORIDA CRASH

Obviously, EMBRAER's continued success in exploiting the international market depends on the reliability and safety of its products. Thus, the Florida crash mentioned at the beginning of this article takes on particular significance. Can the Bandeirante be considered a "safe" airplane?

Between initial FAA certification of the Bandeirante in 1978 and December 1984, eleven FAA airworthiness bulletins were issued to airlines flying this craft.<sup>323</sup> Directed toward minor issues of maintenance, inspection and re-

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<sup>320</sup> *Id.* The original 18 competitors had been narrowed down by mid-1984 to four: the Brazilian Tucano; the Swiss PCP-9 Pilatus; the British Firecracker; and the Australian A-20 Wamira. ESTADO DE SÃO PAULO, May 17, 1984. The Tucano beat out the Pilatus on the Egyptian contract. *British Deal*, *supra* note 315, at 6.

<sup>321</sup> *Collaboration*, *supra* note 318, at 9-10.

<sup>322</sup> Condom, *supra* note 8, at 1341.

<sup>323</sup> Wall St. J., Dec. 10, 1984, at 5, col. 1. For examples of such bulletins, see FAA Airworthiness Directives, EMBRAER Model EMB-110 Airplanes, Jan. 13, 1983, 48 Fed. Reg. 1483 (1983) (replacement of flight control cables); FAA Airworthiness Directives, EMBRAER Models EMB-110P1 and EMB-110P2 Airplanes, Jan. 31, 1983, 48 Fed. Reg. 4265 (1983) (reduction in frequency of required inspections); FAA Airworthiness Directives, EMBRAER Models EMB-110P1 and EMB-110P2 Airplanes, Feb. 3, 1983, 48 Fed. Reg. 4771 (1983) (correction of prior directive); FAA Airworthiness Directives, EMBRAER Models EMB-110P1 and EMB-110P2 Airplanes, act. 21, 1983, 48 Fed. Reg. 48,803 (1983) (further reduction in frequency of required inspections).



pair,<sup>324</sup> such bulletins typically originate with EMBRAER itself or with the Brazilian CTA. EMBRAER publishes various "Service Bulletins", and the CTA, which is responsible for airworthiness of planes in Brazil, issues orders requiring compliance with those Bulletins for planes operating under Brazilian registration. In turn, the United States FAA relies upon the decisions of CTA combined with FAA review of pertinent documentation. After such an examination, the FAA may issue a similar directive to the operators of the plane within the United States.<sup>325</sup>

In the Florida crash, the horizontal stabilizer and the movable elevators had separated from the tail during the flight.<sup>326</sup> The initial inspection of the stabilizer and the fuselage structure by the National Transportation Safety Board showed a vertical fracture in the attachment fitting. No evidence of metal fatigue or corrosion was obvious, but laboratory tests are being conducted to determine if there could have been nonvisible metal fatigue.<sup>327</sup>

This structural area of the Bandeirante's tail had come under question before by both EMBRAER and the FAA. As early as March 29, 1983, EMBRAER had issued a Service Bulletin<sup>328</sup> calling for repeated visual inspections of the fuselage structure near the horizontal stabilizer front attachment fitting for loose rivets and cracks. If necessary, the modifications prescribed in that Bulletin were to have been made. On July 21, 1983, the FAA had issued a similar bulletin listing 18 steps owners should take to pre-

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<sup>324</sup> For instance, in FAA Airworthiness Directives, EMBRAER Models EMB-110P2 and EMB-110P2 Airplanes, Aug. 4, 1983, 48 Fed. Reg. 35,356 (1983) [hereinafter cited as Aug. 4 Dir.], the agency required a check of the static balance of the ailerons, rudders and elevators, and mandating, if necessary, a rebalancing of the appropriate control surfaces. Although the directive was treated as one of "emergency," it was characterized as "not major." *Id.* at 35,357.

<sup>325</sup> See, e.g., Aug. 4 Dir., *supra* note 324.

<sup>326</sup> N.Y. Times, Dec. 8, 1983, at A8, col. 1.

<sup>327</sup> AV. WK. & SPACE TECH., Dec. 17, 1984, at 26.

<sup>328</sup> See, FAA Airworthiness Directives, EMBRAER Models EMB-110P1 and EMB-110P2 Airplanes, July 21, 1983, 48 Fed. Reg. 33,245 (1983) [hereinafter cited as July 83 Dir.].

vent possible separation of the horizontal stabilizer.<sup>329</sup> That bulletin stressed that such cracks and loose rivets, "if undetected, could result in loss of . . . airplane control."<sup>330</sup>

At the same time, EMBRAER, in response to complaints by Bandeirante pilots of a vibration in the tail area, had designed a new tail for the turboprop. Delivery of these modified Bandeirantes began in late 1982, but the plane that crashed did not have the new tail.<sup>331</sup>

Provincetown-Boston Airlines (PBA), the carrier involved in the Florida crash, had been grounded by the FAA from November 11 until December 5, 1984, for alleged "fraudulent" actions in qualifying pilots, as well as numerous other violations. On December 6, the company was allowed to resume partial service and on December 8, the crash occurred.<sup>332</sup> At that point PBA voluntarily grounded its entire fleet of Bandeirantes, pending arrival of new structural elements, such as attachment point fittings for the horizontal stabilizer.<sup>333</sup>

PBA president P. van Arsdale later insisted, ". . . we did everything we had to to get recertified by the book, rule by rule. We met all the federal standards and went beyond them."<sup>334</sup> Many safety experts doubt that the fatal break-up in flight was connected with PBA's earlier rules violations.<sup>335</sup>

On December 9, 1984, immediately after the crash, the FAA sent an emergency cable, subsequently codified on January 4, 1985,<sup>336</sup> to Bandeirante owners<sup>337</sup> ordering them to visually inspect the plane's empennage and make corrections where required. This new order required in-

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<sup>329</sup> *Id.*; AP Videotex, Dec. 10, 1984, EST 09:46, at 562.

<sup>330</sup> July 83 Dir., *supra* note 328, at 33,245.

<sup>331</sup> Av. Wk. & SPACE TECH., Dec. 17, 1984, at 26-27.

<sup>332</sup> N.Y. Times, Dec. 20, 1983, at A20, col. 4.

<sup>333</sup> Av. Wk. & SPACE TECH., Dec. 17, 1983, at 26-27.

<sup>334</sup> AP Videotex, Dec. 10, 1983, EST 09:46, at 562.

<sup>335</sup> N.Y. Times, Dec. 20, 1983, at A20, col. 4.

<sup>336</sup> FAA Airworthiness Directives, EMBRAER Models EMB-110P1 and EMB-110P2 Airplanes, Jan. 4, 1985, 50 Fed. Reg. 446 (1985) [hereinafter cited as Jan. 85 Dir.].

specions in nine or ten areas additional to those set forth in the July 21, 1983, directive.<sup>338</sup> The inspections were to be completed within the next ten hours of time-in-service, and reports were to be made to the FAA within 24 hours of any unsatisfactory conditions, such as cracks, etc.<sup>339</sup>

By December 15, the FAA had received reports from more than half the Bandeirante operators. Some reported loose rivets and minor cracks, but none of the cracks were of a magnitude requiring replacement of structural elements.<sup>340</sup>

Responsibility for the Florida crash has yet to be determined. On EMBRAER's behalf, the Bandeirante's safety record worldwide is considered excellent.<sup>341</sup> As an FAA official said, "The aircraft has been flying since the mid-1970's, and this is the first accident of this kind we have had."<sup>342</sup> Although the January 4, 1985, directive did treat the matter as one of "emergency," it also characterized it as "not major."<sup>343</sup> Finally, the FAA engineers in late December reported they found nothing to "raise their eye-

<sup>337</sup> A partial list of other carriers using the Bandeirante and the number of planes in each fleet includes:

- Imperial of Carlsbad, Calif. (10)
- Atlantic Southeast of Atlanta (10)
- Comair of Cincinnati (10)
- Southern Express of Miami (5)
- Tennessee Airways of Knoxville (4)
- Air Spirit of Dallas (3)
- Royale of Shreveport, La. (12)
- Simmons Airlines of Chicago (12)

N.Y. Times, Dec. 10, 1984, at B14, col. 2.

<sup>338</sup> *Id.* This inspection directive should be distinguished from the DC-10 case several years ago. After an engine had fallen off a DC-10, the FAA ordered "suspension" of all DC-10 operations on June 6, 1979. 44 Fed. Reg. 33,389 (1979). The DC-10 was not permitted to fly again until July 13, 1979. 44 Fed. Reg. 42,170 (1979). In contrast, the Bandeirantes were free to fly as soon as the inspection was completed.

<sup>339</sup> Unless previously accomplished within the last fifty hours time-in-service. Jan. 85 Dir., *supra* note 336, at 447.

<sup>340</sup> NTSB *Scrutinizes Stabilizer Loss in Crash of Bandeirante*, AV. WK. & SPACE TECH., Dec. 17, 1984, at 26, 27.

<sup>341</sup> N.Y. Times, Dec. 10, 1984, at B14, col.2.

<sup>342</sup> NTSB *Scrutinizes Stabilizer Loss in Crash of Bandeirante*, AV. WK. & SPACE TECH., Dec. 17, 1984, at 26, 27.

<sup>343</sup> Jan. 85 Dir., *supra* note 336, at 447.

brows about" after they had reviewed the tail design and manufacture of the Bandeirante.<sup>344</sup> Thus far the available evidence does not suggest questionable safety for the craft.

## VII. CONCLUSIONS AND RECOMMENDATIONS

Brazil has indeed constructed an innovative legal structure to develop a new industry. She has intelligently combined foreign and home grown technology with local and imported components. Public capitalization has been interwoven with a unique tax mechanism for eliciting private commitment. The availability of EMBRAER shares, along with shares of other industries enjoying special incentives, has helped to develop Brazil's nascent stock market. While distributing some earnings to EMBRAER's private shareholders, the law has mandated the essential reinvestment and attention to research and development.

Brazil has manipulated her internal tariffs to encourage local use of aircraft and then later to restrict purchases of foreign aircraft. Now it appears the country's new law on leasing may be used to attract foreign lessors for its financially strapped domestic carriers. Although some of her export incentives (credits, guaranties and insurance) have been patterned after those of the industrialized nations, she has created her own plethora of tax incentives for exports.

Scholars have criticized the use of tax incentives to induce investment. J. Heller and K. Kauffman write: "[I]t is unlikely that . . . [tax incentives] can induce substantially increased levels of new investments in most underdeveloped economies."<sup>345</sup> The principal obstacles to investment in developing nations are market size, lack of confidence in the stock markets, and political instability.

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<sup>344</sup> Dallas Times Herald, Dec. 23, 1984, at 8A, col. 1.

<sup>345</sup> J. HELLER & K. KAUFMAN, TAX INCENTIVES FOR INDUSTRY IN LESS DEVELOPED COUNTRIES 65 (1963); see also Lent, *Tax Incentives in Developing Countries*, in READINGS ON TAXATION IN DEVELOPING COUNTRIES 363 (R. Bird & O. Oldman eds. 3d ed. 1975).

The traditional tax incentives do little to reduce these risks. Incentives, such as tax holidays, tax exemptions, loss carry-overs, and accelerated depreciation, are of no value if the company never makes a profit. Once a firm is already profitable, conventional tax incentives make the enterprise even more profitable, but do not help reduce risk at the initial stage.

In contrast, the EMBRAER incentives virtually eliminated any risk for the taxpayer/shareholder. He could participate in the growth of this infant industry without jeopardizing his own funds. Thus, this mechanism might be described as a "risk elimination" incentive. It also contributed to the the stock market trading volume without imposing any risk on the shareholder. As the growth in the number of EMBRAER shareholders indicates (see part II-B above), this risk elimination device did indeed affect the investment decision.

In view of EMBRAER's success, it may be time to change from a "risk elimination" mechanism to one of "risk reduction". This could be done, for instance, by gradually reducing the percentage of credit for EMBRAER investments. For instance, for EMBRAER share purchases, a company might be allowed a tax credit of 75% (instead of 100%) up to a ceiling of 1 percent of tax due. Several years later, that might be reduced to 50%; eventually it could be phased out altogether. An advantage of these risk-affecting incentives is they can be terminated without jeopardizing the industries which grew up under their support.

Alternatively, as EMBRAER consolidates its recent successes, the time may have come for spinning off certain projects to increase private sector involvement. Despite EMBRAER's good record, there has been an opportunity cost. Public monies and taxpayer funds channeled into building these planes were not available for Brazil's other needs.

Currently EMBRAER is managed by its controlling shareholder, the government. The company should con-

sider transferring some of its profitable planes to subsidiaries. EMBRAER could then sell enough voting shares in these subsidiaries to shift control to the private shareholders. With successful airplanes as its chief asset, the subsidiary's stock should be marketable, especially if combined with a partial credit as suggested above. Moreover, now that the infant stage justifying government aid for a specific aircraft has passed, production could be entrusted to private management and financing.

Such sales of its shares would in turn roll back money to EMBRAER for more experimental uses. Perhaps, new technical priorities would be appropriate and EMBRAER's legal mandate might be broadened to include additional forms of transport. For example, six Chinese technicians have just built a three-wheeled solar powered car out of fiberglass and aluminum.<sup>346</sup> Brazil, with its ample sun, insufficient petroleum, and crowded highways, might find working with the Peoples' Republic of China on developing such a vehicle a useful new pursuit. Given encouragement and additional funds, EMBRAER's engineers may bring forth a variety of imaginative machines—, e.g., a solar powered hovercraft to zip over muddy roads in the Amazon.

The proposed privatized subsidiaries may wish to engage in overseas licensing or equity investments. Although such foreign investment would initially mean an outflow of capital from Brazil, experience had shown that such investments are usually returned to the home nation (Brazil) many times over in the form of dividends, royalties and/or technical assistance fees. India has already learned this and is encouraging her entrepreneurs to invest in other developing nations.

Nonetheless, private shareholders, risking their own funds, might object to overseas investments by the priva-

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<sup>346</sup> AP Videotex, Dec. 23, 1984, 09:35 EST, at p. 274. The *Guangming Daily* is reported to have said that a car built by technicians at the Hubei Provincial Metals Society can travel at 12 miles per hour on solar batteries with enough storage capacity to propel the vehicle 62 miles. *Id.*

tized EMBRAER subsidiaries. Their concerns could include fear of expropriation of the project, inconvertibility of currency, as well as losses due to war, revolution or insurrection. For some time, the industrialized nations have offered governmental insurance to protect their own companies that invest in the developing nations against just such risks.<sup>347</sup> Recently, the Indian government has also started offering Indian companies insurance against these political risks for investments in other developing nations.<sup>348</sup> Brazil, through CACEX, might make similar insurance available for investments in third world nations by Brazilian companies, such as the proposed EMBRAER subsidies.

Other developing nations wishing to promote a specific new industry should study the EMBRAER model. The tax incentive devices, the capital market development laws, and the export promotion programs all merit careful consideration.

Of key importance here is the "appropriateness" of the technology EMBRAER employed. That company did not endeavor to produce a Concorde or jumbo. Rather, it identified a gap within the home economy and designed a relatively simple machine to fill that need. This "intermediate" technology then proved appropriate for other developing nations.

With such an approach, EMBRAER in essence made its own market since no comparable product existed. Current research in appropriate technology may produce a number of items which could be similarly handled. For instance, the Mexican Government has developed an inexpensive, portable desalinator to remove salt from sea water through the process of reverse osmosis.<sup>349</sup> This product should prove invaluable to rural communities in

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<sup>347</sup> These various programs are described in detail in ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, *INVESTING IN DEVELOPING COUNTRIES* (5th ed. 1982).

<sup>348</sup> See EXPORT RISK INSURANCE CORP. (INDIA), ECGC (1980).

<sup>349</sup> Gibbs, *Potable Water from Briny Seas and Brackish Lakes*, R & D MEXICO 32 (Mexican Nat'l Council of Science and Technology ed. Dec. 1981-Jan. 1982).

desert regions; perhaps its development and marketing could now be entrusted to an EMBRAER-type company.

Finally, the markets in the industrialized world offered an opening which the less sophisticated, more economical planes of EMBRAER could fill. Today, protectionist forces appear to be gaining in Europe and the United States. Consequently, imports from developing nations could encounter countervailing duty problems with increasing frequency. The creation of "appropriate" technology may offer the best way to circumvent this problem.

The first world in its mad dash toward space age technology often overlooks some fairly basic human needs. This oversight could provide an area of missing technology which might be filled by innovative enterprises in developing nations. The absence of a "like" product being made in the importing nation could greatly reduce the danger of countervailing duties or other protectionist measures being applied. EMBRAER seems to have pointed the way with its small commuter planes, its intermediate AM-X, and its basic Tucano trainer.



EMB-110C "Bandeirante"

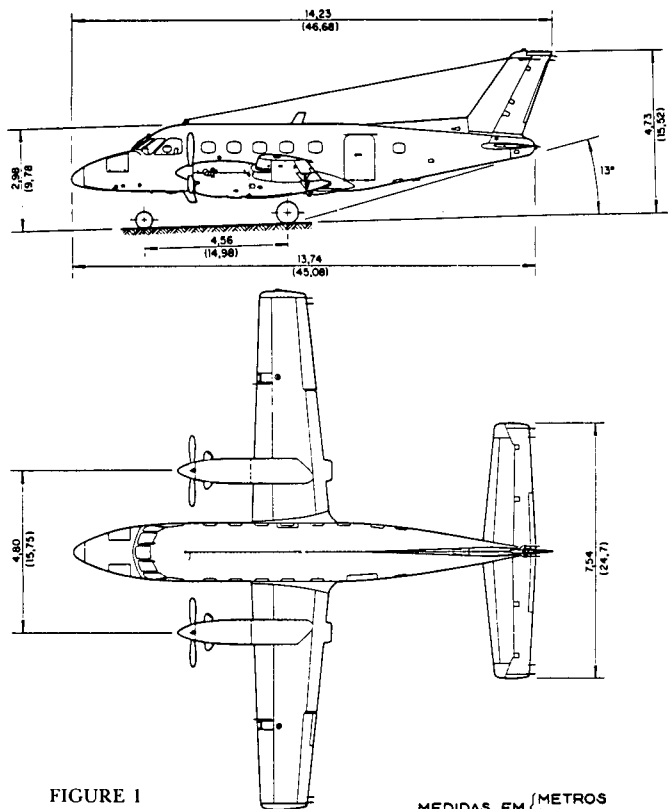
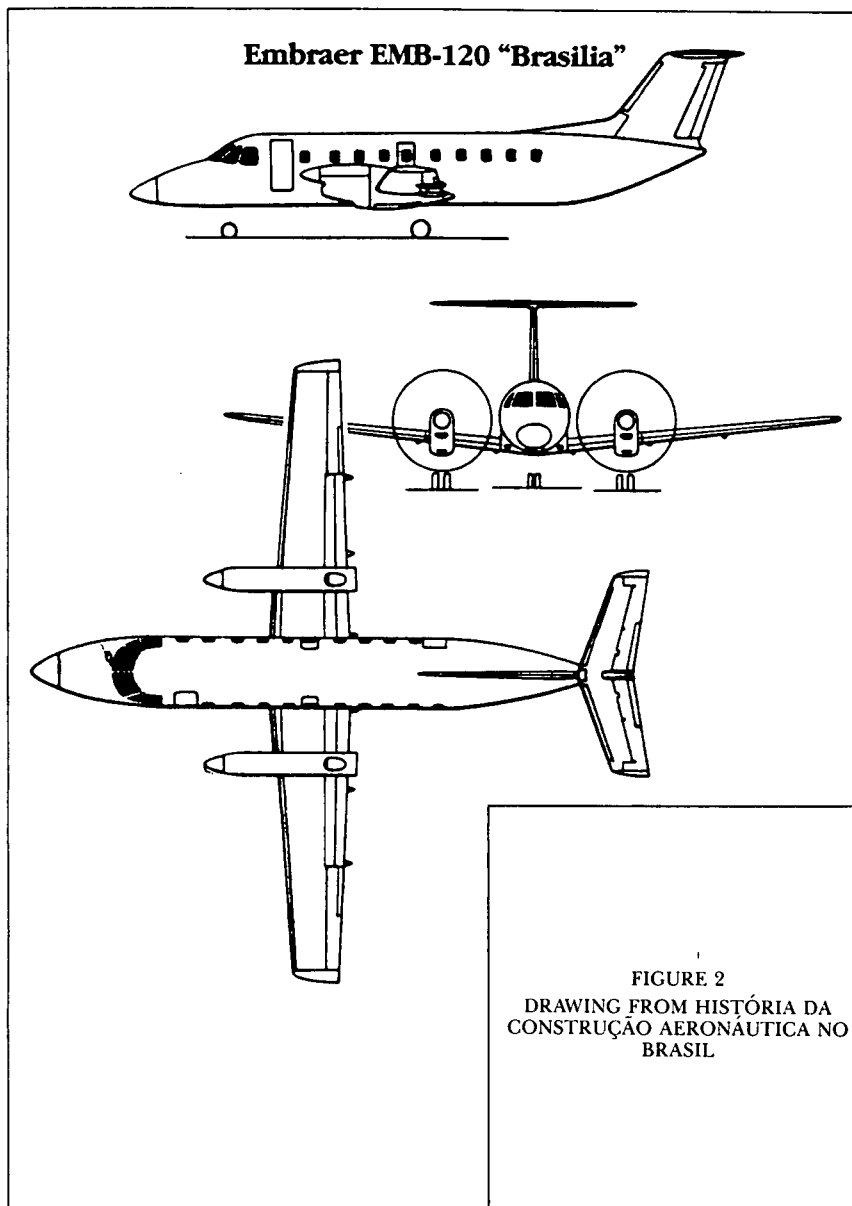
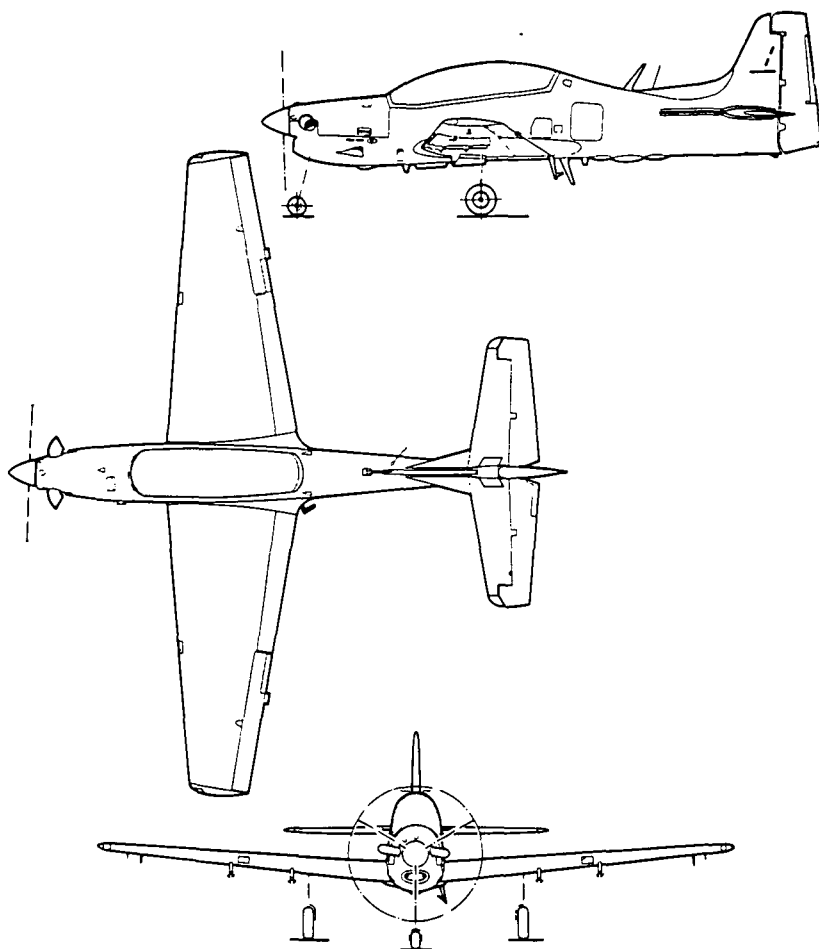


FIGURE 1  
DRAWING FROM HISTÓRIA DA  
CONSTRUÇÃO AERONÁUTICA NO  
BRASIL

MEDIDAS EM { METROS  
(PÉS)





**Embraer "Tucano"**

FIGURE 3  
DRAWING FROM HISTÓRIA DA  
CONSTRUÇÃO AERONÁUTICA NO  
BRASIL