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THE BRAZILIAN EXPERIMENT IN THE CREATION OF AN AIRCRAFT INDUSTRY

BEVERLY MAY CARL*

Ms. Carl analyzes the methods employed in Brazil to finance the creation of a domestic aviation industry. In structuring its development laws, Brazil adopted a unique approach of "mixed-economy" corporations. By this blend of public and private ownership coupled with foreign and domestic technology and a system of tax incentives designed to assist in obtaining adequate capitalization, Brazil hopes to overcome the economic and technical obstacles to the achievement of an industry competitive in the world market. Should the venture prove successful, the Brazilian pattern may serve as a model for other countries in their economic development.

I. INTRODUCTION

WHEN a country with an annual per capita gross national product of US \$357¹ decides to create its own airplane industry, as has Brazil recently, outsiders are understandably surprised. To foreign skeptics, however, Brazilians might respond with the assertion that the first airplane was invented by their compatriot, Santos Dumont, rather than the Wright brothers. Moreover, an attempt 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.² Although the venture failed to get off the ground due to inadequate capital-

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¹ U.S. Agency for Int'l Development, Presidential Mission to Brazil (1969).

² *Um Boa Acao Nas Asas, Guia de Incentivos Fiscais*, 79 VEJA 117 (1970?).

ization, Brazilians have never relinquished their dream of a domestic aviation industry.

With a population of ninety-six million people and a territory larger than the continental United States, Brazil still lacks an adequate railroad or highway system.³ The main link to her interior regions is the airplane and even cattle have been shipped by air.⁴ An expanding need for air transport has resulted in Brazil's using her limited foreign exchange resources not only to purchase large commercial jets from the developed world, but also to spend US \$10 million yearly for small general aviation aircraft from American suppliers, such as Piper, Cessna and Beechcraft.⁵ According to a recent survey, the Brazilian market for small planes is growing five per cent per year.⁶

All this does not mean Brazil has yet to construct an airplane. Developmental efforts began in 1921 with the production of the "Rio de Janeiro";⁷ several decades ago the government created the Central Aeronautics Center (CTA) which still has the only wind tunnel in Latin America.⁸ By 1969, Neiva, a private firm had turned out 120 Regentes C-42, a metal monomotor aircraft, which was the first Brazilian plane produced by assembly line methods.⁹

³ Brazil Herald (Rio de Janeiro), March 3, 1971, at 11-B, col. 1.

⁴ In 1964 Brazil had approximately 1,200 registered airports, eighty of which were maritime or river facilities. Many of the airports were only graded landing strips, but thirty airports had paved airstrips and modern ground facilities. Air traffic between Sao Paulo and Rio de Janeiro was reported as second only to that between New York and Chicago. Air taxi service was available at almost every airport and was especially popular in the interior where in some places it constituted the sole means of transportation. See U.S. DEP'T OF THE ARMY: Pub. No. 550-20, UNITED STATES ARMY AREA HANDBOOK FOR BRAZIL 562 (1964) [hereinafter cited as AREA HANDBOOK].

⁵ Letter from James R. Cheek, Transportation Officer, American Embassy, Rio de Janeiro, to J.A. Bede of Bede Aircraft Co., Dec. 29, 1970. American small plane exports to Brazil amounted to US \$11 million in 1968 and US \$7.2 million in 1970. U.S. Dep't State Airgram No. A 284 Rio de Janeiro, June 8, 1970.

⁶ *O Voo da EMBRAER, Guia de Incentivos Fiscais*, 117 VEJA 78 (1971?). According to this study, 44% of the demand is for four seater executive planes and 15% for crafts with six to eight seats.

⁷ *Id.*

⁸ The Portuguese term for the center is "Centro Tecnico de Aeronautica." The CTA trained a pool of technical workers, many of whom have supplied other Brazilian industries such as the automotive industry. Interview with James R. Cheek, Transportation Officer, American Embassy in Rio de Janeiro, June 3, 1971.

⁹ The company now manufactures the following additional aircraft: (1) a two motor, eight-seater plane selling at NCr \$1.5 million or about US \$300,000 at the June 1971 exchange rate; (2) three kinds of a four-seater plane at prices

Meanwhile, Aerotec, another private company, was also building several small planes primarily for military usage.¹⁰ Scores of other enterprises manufactured aircraft parts, such as instruments, seat belts and accessories;¹¹ sixty-five per cent of the components of the Regente C-42 had been made in Brazil.¹²

Nonetheless, these endeavors by private industry cannot be viewed as flowing from the operation of free market forces since the government, besides providing direct and indirect subsidies, also purchased most of the production of these plants.¹³ 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.¹⁴ On the other hand, a substantial part of the cost of building a conventional plane is labor, and manpower is one resource Brazil has in excess (although admittedly skilled workmen are still in short supply).

The year 1969 found Brazil enjoying an economic boom. The gross national product had increased an estimated 8.4 per cent and industrial production had jumped thirteen per cent the previous year.¹⁵ During 1969 Brazil's automotive industry, which had started only in the late 1950's, turned out over 350,000 vehicles. By that same year, Brazil's new shipbuilding facilities had completed fifty-eight vessels of more than 200 tons gross weight.¹⁶ Exhilarated by this progress, the nation's leaders decided the time was ripe for a major effort to create a Brazilian aviation industry.

ranging from NCr \$130,000 to NCr \$150,000; (3) the Regente ELO and Regente 420-B2, which are single-engine, two-seater planes sold primarily to the air force; and (4) the Universal IPD-6201, a two seater trainer. *O Voo da EMBRAER*, *supra* note 6; Letter from James R. Cheek, *supra* note 5.

¹⁰ Letter from James R. Cheek, *supra* note 5.

¹¹ *Id.*

¹² *O Voo de EMBRAER*, *supra* note 6.

¹³ Letter from James R. Cheek, *supra* note 5.

¹⁴ TRANSPORTE MODERNO, Jan. 1968, at 75.

¹⁵ FUNDACAO GETULIO VARGAS, cited in Trubec, *Law, Planning and the Development of the Brazilian Capital Market: A Study of Law in Economic Change*, THE BULLETIN No. 72, 73 (N.Y.U.) 78 (1971).

¹⁶ BRAZILIAN NATIONAL CONFEDERATION OF COMMERCE, A REPORT ON BRAZIL 9 (1971).

II. CAPITALIZING THE AIRCRAFT INDUSTRY

A. *The Mixed-Economy Corporation*

1. *Historical antecedents.* In structuring Brazil's development, the dedication of some planners to the principle of free enterprise¹⁷ has been counterpoised against the conviction of others that basic industries should be owned by the state.¹⁸ At the same time, even the most ardent defenders of the capitalistic system had to admit domestic private resources were insufficient to finance the development of many "essential" industries. Faced with these competing philosophies, as well as the demands of reality, the country's decision-makers evolved a peculiarly Brazilian compromise. The bulk of industrial investments was left within the domain of private business; a few projects, such as the Volta Redonda steel mill,¹⁹ were reserved for corporations wholly owned by the government; and finally, mixed-economy corporations were established to carry out other activities in which the government had a special interest.

Funds to organize these mixed-economy corporations originate with the government which takes a corresponding number of equity shares in the company. Shares not held by the government are offered at public sale to private investors. Important examples of these mixed corporations include the Bank of Brazil, ELETROBRAS (electric power) and PETROBRAS (petroleum extraction).²⁰ In 1965 the government authorized the release of up to forty-nine per cent of the stock in mixed-economy companies for

¹⁷ Brazil has oft proclaimed itself a "free-enterprise nation"; see, e.g., BRAZILIAN EMBASSY (Washington, D.C.), A GUIDE TO INVESTING IN BRAZIL 7 (1967). The current Brazilian 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 establish conditions which assure the most efficient functioning of the free enterprise or price economy." Trubec, note 15, at 33, n.38.

¹⁸ AREA HANDBOOK, note 4, at 488.

¹⁹ This operation is owned by the Companhia Siderurgica Nacional. G. GARLAND, DOING BUSINESS IN AND WITH BRAZIL 90 (1971).

²⁰ *Id.* The production of crude oil by PETROBRAS is the only activity in which the federal government holds a monopoly. BRAZILIAN EMBASSY, *supra*, note 17, at 7. In the early 1960's, the Goulard administration had decided to nationalize several small oil refineries, but in 1965 the government reversed this decision and, except for crude oil production, opened up the petrochemical industry to private enterprise. Decree No. 56,570 of July 9, 1965, [1965] 6 Colecao (exec.) 32, D.O., July 12, 1965; Decree No. 56,571 of July 9, 1965, [1965] 6 Colecao (exec.) 33, D.O., July 12, 1965. See also, Carl, *Incentives for Private Investment in Brazil*, 6 COLUM. J. OF TRANSNAT'L L. 190, 202 (1967).

sale to the public.²¹ Nevertheless, through a combination of mixed-economy companies and 100 per cent government corporations, approximately thirty-six per cent of Brazilian industry has come to be owned by the government.²²

2. *Creation of EMBRAER.* With this historic trend toward mixed-economy companies, it is not remarkable that Brazil would turn to the same device when designing the legal foundation upon which to build a domestic aviation industry. A mixed corporation, EMBRAER ("Empresa Brasileira de Aeronautica" or the Brazilian Aeronautics Company), was created by Decree Law 770 of August 19, 1969 (D.L. 770),²³ and the President approved its charter the following December.²⁴ That law called for an initial capitalization of NCr \$50 million²⁵ with fifty-one per cent of the voting stock to be held by the government and the remainder to be offered private firms or individuals.²⁶

As of March 3, 1971, NCr \$25.5 million had been raised on the initial subscription; in addition to this equity contribution, the company obtained another NCr \$40 million from the National Fund for Development of Strategic Areas.²⁷ By 1976, EMBRAER's officers hope to increase the company's capitalization to NCr \$560 million.²⁸

²¹ Law No. 4,728 of July 14, 1965, art. 60 [1965] 5 Colecao (legis) 51, D.O., July 16, 1965.

²² This was the estimate made by the "Parliamentary Commission"; See R. MEDINA, *DESNACIONALIZACAO: CRIME CONTRA BRASIL?* 91 (1970). He adds that a report by the Ministry of Commerce and Industry indicates that of one thousand large companies studied, the controlling shares were held by the government for 40% of them. An earlier breakdown made in 1962 showed the state and federal governments in Brazil as owning 47% of the iron and steel industry, 32% of the plastics industry, 30% of the electric utilities industry and 10% of the chemical industry. *AREA HANDBOOK*, *supra*, note 4, at 488.

²³ Arts. 1 and 4, 33 Lex. 1201 (1969); and Decree No. 65,482 of October 21, 1969, D.O., § 1, pt. 1, Oct. 23, 1969.

²⁴ Decree No. 66,005 of Dec. 30, 1969, 33 Lex 2,599 (1969).

²⁵ No effort will be made in this article to convert cruzeiros novos into dollars since the exchange rates are not constant. However, to give the reader some feel for the range of magnitudes involved, it can be stated that the exchange rate as of June 1971 was NCr \$5 to US \$1. Thus, NCr \$50 million would be equivalent to US \$10 million. In 1969, when EMBRAER started, this amount was closer to the equivalent of US \$12.5 million.

²⁶ Decree Law 770 of Aug. 19, 1969, art. 4, 33 Lex 1201 (1969). Article 5 requires the government when EMBRAER's capital is increased, to acquire sufficient additional stock to hold 51% of the voting shares.

²⁷ Brazil Herald (Rio de Janeiro), Mar. 3, 1971, at 11-B, col. 1.

²⁸ *Id.*

B. *Techniques to Market 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 truly 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.

1. *Background of Investment Incentives.* When the Castello Branco 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 obligatory for Brazilian corporations,²⁹ only about five per cent of the securities were actually traded. The combined volume of transactions for all exchanges, a mere US \$146 million in 1961,³⁰ reflected the public's traditional preference for investments in real estate or in high interest loans over equities. At the same time, galloping inflation, which at one point in the early sixties reached 140 per cent on an annual basis, had devoured the cash reserves of businesses, leaving them starved for medium and long term credit, which was no longer available.

To attract private savings to equity investments, to improve the liquidity of private companies and to create a vigorous securities market, the Capital Market Law was enacted in 1965.³¹ This statute contained provisions to prevent fraud and price rigging, to regulate brokerage and investment companies, and to ensure public access to essential information about stocks.³²

Along with these reforms came the concept of "democratization

²⁹ U.S. DEP'T OF COMMERCE, ESTABLISHING A BUSINESS IN BRAZIL 24 (O.B.R. 66-10, 1966).

³⁰ AREA HANDBOOK, *supra* note 4, at 604.

³¹ Law No. 4,728 of July 14, 1965, [1965] 5 Colecao (legis.) 33, D.O., July 16, 1965.

³² Also, corporations for the first time were permitted to issue convertible debentures. *Id.* at art. 2 and *see*, Carl, *supra* note 20, at 202-03.

of capital," *i.e.*, 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 No. 4,506 of November 30, 1964³³ granted tax benefits to companies which opened their shares to public sale³⁴ and offered tax incentives to individuals and firms to encourage the purchase of stock in these "open capital companies."³⁵

In 1967 another mechanism was created which had a major impact on the Brazilian capital markets. Decree Law 157 of February 10, 1967 (D.L. 157)³⁶ 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 firms³⁷ approved by the Central Bank of Brazil. Currently, the D.L. 157 credit is limited to twelve per cent of the tax due.³⁸

Of course, the effective operation of any tax incentive presupposes the existence of two basic conditions: (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 taxes and enforcing penalties for evasion of revenue laws. Although conspicuously absent throughout much of Brazil's history, these pre-

³³ 7 Colecao (legis.) 364, D.O. (Supp.), Nov. 30, 1964.

³⁴ Open capital companies are relieved from paying certain taxes and allowed to deduct dividends paid (up to a specified limit) as a cost for tax purposes. G. GARLAND, *DOING BUSINESS IN AND WITH BRAZIL* 52 (1971).

³⁵ Companies are allowed up to a 1% credit against income tax and individuals up to 3% for amounts invested in these open capital corporations. *Id.* at 59, 60. Open capital corporations are those that hold certificates issued by the Central Bank of Brazil attesting their status as such. *See*, Central Bank Res. 106, *as amended*, May 19, 1969.

³⁶ Art. 3 [1967] 1 Colecao (legis.) 177, D. O., Feb. 13, 1967.

³⁷ Originally these funds were to be reinvested only in newly issued shares or debentures of firms engaged in Central Bank-approved efforts to improve their liquidity. Art. 7. However, Central Bank Res. 60 (1967) waived Article 7 and now permits one-third of the D.L. 157 Funds to be used to buy existing shares of companies registered under Article 7. Although Brazilian attorneys were surprised that the government had used a "regulation" to amend the governing "law," this practice is not an unusual one in this area. Trubec, *supra* note 15, at 60.

³⁸ *Id.* at 57. To qualify for this tax credit the taxpayers must hold the Decree Law 157 shares in the "authorized financial institution" four years although partial redemption is allowed in year two and three. Decree Law No. 1,109 of June 26, 1970; and *see* Trubec, *supra* note 15, at 57.

requisites can today be considered satisfied as a result of massive tax reforms instituted in 1964.³⁹

At first, the benefits available under D.L. 157 were not widely understood and only 35,000 individual taxpayers took the credit in 1968. By 1969 however, the number of individuals taking the credit was up to 450,000⁴⁰ and this increase should continue since, from 1971 on, anyone receiving as much as NCr \$5,000 must file a tax return.⁴¹

These various incentive programs led to a boom in the secondary market and reversed a long period of depression in stock prices. One leading indicator, the SN index, showed the real average prices of shares rose 26.4 per cent in 1968 and 151 per cent in 1969. The index continued rising in 1970. Even more impressive was the growth in volume of trading on the Rio de Janeiro Stock Exchange which jumped from NCr \$165 million in 1965 to NCr \$2,800 million (US \$571 million) in 1970.⁴²

In addition to those laws directed toward the development of the securities market, the government passed a series of acts providing generous tax incentives for investments in particular regions or designated economic sectors. For example, a private firm is allowed to take a credit against its income tax for investment in new projects in the Northeast or the Amazon or in the tourism, fishing or forestry industries.⁴³ Credits for investments in such favored enterprises can be combined so long as the total cumulative credits do not exceed fifty per cent of the tax due.⁴⁴

³⁹ The basic rate on business income today is 30%; while the maximum rate for individuals is 50%, even moderate amounts of income are taxed at rather high rates. G. GARLAND, *DOING BUSINESS IN AND WITH BRAZIL* 129-130 (1971). See also, Decree No. 58,400 of May 10, 1966; Decree Law No. 62 of Nov. 21, 1966; Brazilian Embassy, *supra* note 17, at 34ff; and G. GARLAND, *A BUSINESSMAN'S INTRODUCTION TO BRAZILIAN LAW AND PRACTICE* 92 (1966).

As the result of reforms in the tax collection system, the government tax receipts as a percentage of gross national product rose from 18% in 1963 to 26% in 1969. Fundacao Getulio Vargas-IBRE as cited in Trubec, *supra* note 15, at 21. The number of tax returns filed increased from 840,000 in 1960 to almost four million in 1969 and the Director of Federal Revenue estimated a total of six million returns for 1970. *Correio da Manha* (Rio de Janeiro), Nov. 20, 1970.

⁴⁰ *Guia de Incentivos Fiscais*, 79 VEJA 23 (1970?).

⁴¹ *Correio da Manha* (Rio de Janeiro), Nov. 20, 1970.

⁴² Trubec, *supra* note 15, at 71-72.

⁴³ See, Carl, *supra* note 20.

⁴⁴ See, e.g., Law No. 5,174 of Oct. 27, 1966, art. 17, [1966] 7 Colecao (legis.) 335, D.O., Oct. 31, 1966.

2. *EMBRAER Incentives.* The techniques devised to make EMBRAER's shares marketable were meshed with the existing incentive system. Thus, for fiscal years 1970 to 1975, any firm⁴⁵ operating in Brazil⁴⁶ can take a credit against its income tax for amounts used to purchase EMBRAER stock so long as the total credit for EMBRAER shares does not exceed one per cent of the tax due.⁴⁷ Moreover, the amounts represented by EMBRAER stock are not included within the fifty per cent limit on combined investment tax credit; rather they can be added on top of the other investment credits to permit a maximum total credit of fifty-one per cent.⁴⁸ In fact, EMBRAER has adopted as its slogan, "Surpass the fifty per cent barrier on income tax credits."⁴⁹

From fiscal years 1971 to 1974, thirty per cent of the funds credited by firms for investments to be made in other privileged economic areas, such as the Northeast, are to be channeled, instead, to the Program for National Integration.⁵⁰ This means, for example, a taxpayer who takes the fifty per cent credit allowed for investments in the Northeast will lose thirty per cent of that fifty per cent credit to the public treasury⁵¹ for the years 1971-1974. He will

⁴⁵ This credit is available to "pessoas juridicas" i.e., juridical persons. Throughout this article this Portuguese term will be translated as "firms," since the phrase includes a wide variety of legal associations. The most common form is the "sociedade anonima," similar to the American corporation. Decree Law No. 2,627 of Sept. 26, 1940, [1940] 5 Colecao (exec.) 353, D.O., Sept. 27, 1940; Law No. 4,728 of July 14, 1965, [1965] 5 Colecao (legis.) 33, D.O., July 16, 1965. Another popular form is the "limitada" whose characteristics are set forth in Decree Law No. 3,708 of Jan. 10, 1919, [1919] 1 Colecao (legis.) 155. See Brazilian Embassy, *supra* note 17, at 27-30 for a description of other type of business entities. These include, for example, a "sociedade em nome colectivo" (C. Com. arts. 315-316), a "sociedade em comandita" (C. Com. arts. 311-14), a "sociedade de capital e industria" (C. Com. arts. 371-24), and a "sociedade em conta de participacao" or joint venture (C. Com. arts. 325-28).

⁴⁶ Originally only firms whose capital was 100% Brazilian-owned were eligible to take the tax credit for investments in the Northeast Region, the first major tax incentive program. In 1963, however, the law was amended to allow any firm operating in Brazil, including foreign companies, to take the credit and this pattern has continued to be followed in subsequent investment incentive legislation. See, e.g., Law No. 3,995 of Dec. 14, 1961, art. 34, [1961] 7 Colecao (legis.) 25, 32, D.O. Dec. 21, 1961, as amended by Law No. 4,239 of June 27, 1963, art. 18, [1963] 5 Colecao (legis.) 49, 55, D.O., July 12, 1963.

⁴⁷ Decree Law 770 of Aug. 19, 1969, art. 7, 33 Lex 1201 (1969).

⁴⁸ *Id.* at art. 7, sec. 1.

⁴⁹ Brazil Herald (Rio de Janeiro), Mar. 3, 1971, at 11-B, col. 1.

⁵⁰ Decree Law 1, 106 of June 16, 1970, art. 5, sec. 2, 34 Lex 497 (1970).

⁵¹ A word of explanation seems due here on how the tax mechanism operates

receive no shares in return for this thirty per cent leaving an effective credit of only thirty-five per cent (30% x 50% subtracted from 50% equals 35%). However, EMBRAER has been exempted from the provisions of this new restriction and private firms can still obtain the full benefit of the one per cent credit for EMBRAER stock purchases.⁵²

Since it cost companies nothing to buy these shares (at least to the extent of the one per cent credit), over 500 firms purchased EMBRAER stock in 1970.⁵³ Local businesses hoping to supply parts and accessories to EMBRAER have shown a special interest in taking advantage of the credit.⁵⁴

Article 8 of Decree Law 770 attempts to offer an incentive also to the individual taxpayer by permitting him to use the resources, which would otherwise be channeled to financial institutions under D.L. 157, to purchase initial EMBRAER shares and take the corresponding tax credit.⁵⁵ However, to date the D.L. 157 "mutual fund-type" investments have proved extremely profitable; in 1968 and 1969, the profits in no case ran less than forty per cent annually.⁵⁶ Thus, there would seem to be little immediate inducement for the individual taxpayer to divert all or part of his D.L. 157 resources to EMBRAER stock which cannot be expected to show a profit for some years. Still the mechanism does exist and may have some appeal to the individual optimistic about the industry's long range prospects.

C. *Effects of These Techniques for Capital Formation*

The individual and corporate incentives have succeeded in attracting a substantial amount of capital to EMBRAER. By August

for incentives to invest in projects in fishing, forestry, or tourism or in the North-east or Amazon region. In these cases (but not under the D.L. 157 device), the taxpayer does not actually retain the funds for which he is taking the investment credit. Rather such funds are paid in and placed on deposit with the appropriate government agency in the taxpayer's name for subsequent release to the company operating the new approved project. The original taxpayer has already paid in the actual funds represented by the credit and the government, to make this new law function, simply has to transfer 30% of the deposited monies over the Program for National Integration.

⁵² Decree Law 1,106 of June 16, 1970, art. 5, sec. 3, 34 Lex 497 (1970).

⁵³ Brazil Herald (Rio de Janeiro), Mar. 3, 1971, at 11-B, col. 1.

⁵⁴ Interview with James R. Cheek, *supra* note 8.

⁵⁵ August 19, 1969, 33 Lex 1201.

⁵⁶ *Guia de Incentivos Fiscais*, 79 VEJA 23 (1970?).

of 1970 over NCr \$6 million had been credited against taxes for EMBRAER shares⁵⁷ and the Minister of the Treasury, Delfin Neto, forecast NCr \$20 million in credits for 1971.⁵⁸ EMBRAER claimed a total of 2,432 shareholders in January, 1971.⁵⁹

It can be noted that in granting these tax credits the government gave up an equivalent amount in revenue. Alternatively it could have kept the tax monies and used them to acquire 100 per cent of the company's stock. Should the enterprise become profitable someday, then all the dividends would have accrued to the public treasury, while under this scheme up to forty-nine per cent of any future profits will end up in private hands.

However, in addition to capitalizing an aircraft industry, government planners were endeavoring to promote several other developmental objectives. By structuring the corporation in this manner the regime displayed an ideological commitment to private capitalism⁶⁰—even in the case of high risk venture like this where a substantial financial and administrative input from the government would be indispensable to 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 EMBRAER 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, devices such as D.L. 157 and the EMBRAER incentives are intended to educate the public. After a period of such "forced savings,"⁶¹ it is hoped that the public will have learned the value of

⁵⁷ *Jornal do Brasil* (Rio de Janeiro), Dec. 13, 1970.

⁵⁸ *Jornal do Brasil* (Rio de Janeiro), June 29, 1970, at 24, col. 1.

⁵⁹ EMBRAER, 2 NOTICIAS no. 6 (Jan.-Feb. 1971).

⁶⁰ The loyalty of the Brazilian planners to the private sector is indicated not only by the capitalization techniques used, but also by article 2, section 1 of the EMBRAER statute which directs that Corporation "to the extent possible, to carry out its projects indirectly through contracts with private industry." Decree Law 770, 33 Lex. 1201 (1969). Private business also benefits from EMBRAER through the multiplier effect; for example, over forty private Brazilian companies furnished raw materials and parts for the Bandeirante. (O Voo da EMBRAER, *supra* note 6.)

⁶¹ Trubec, *supra* note 15, at 66.

holding equities and will be disposed to invest their own resources in other Brazilian stocks.

On the other hand, not all authorities are enthusiastic about the use of tax incentives as a development tool. Obviously, channeling the nation's limited resources into investments like EMBRAER or tourist hotels means diversion of funds the government might otherwise have collected and used for sorely needed social welfare projects, such as education, low cost 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. This effect is compounded by the lack of a capital gains tax. Should EMBRAER become a profitable operation, the original taxpayer will receive the benefit of the money represented by his original tax credit plus capital appreciation free of any tax liability.⁶²

III. PRODUCTION OF EMBRAER

By 1970 EMBRAER had completed a sizeable factory at Sao Jose do Campos near the city of Sao Paulo⁶³ and had acquired a basic staff of 550 people. An additional 5,000 jobs are estimated to have been created indirectly by EMBRAER's activities.⁶⁴ The Company currently has four kinds of planes in the production process.

The Ipanema is a single engine, one-seater agricultural plane designed for crop dusting, seeding and fertilizing.⁶⁵ EMBRAER has contracted for this plane to be built by the private firm, Aerotec.⁶⁶ The first prototype was flown in June, 1970,⁶⁷ and large scale production is planned.⁶⁸

⁶² *Id.* at 68; and see TILBERY, BASE ECONOMICA E EFEITO DAS ISENCOES, INCENTIVOS FISCAIS PARA O DESENVOLVIMENTO 41-48 (1971?). Some of the above mentioned effects will be limited by the new Program for National Integration which will rechannel part of these funds back into the public sector, though not, of course, in the case of EMBRAER.

⁶³ Letter from James R. Cheek, *supra* note 5.

⁶⁴ *O Voo da EMBRAER*, *supra* note 6.

⁶⁵ This plane offers a cockpit with 360 degrees visibility, has a maximum speed of 340 kilometers and a maximum load of 550 kilos. See *O Voo da EMBRAER*, *supra* note 6, and 94 Aviation Week 62 (1971) (Jan. 11).

⁶⁶ Letter from James R. Cheek, *supra* note 5.

⁶⁷ *O Voo da EMBRAER*, *supra* note 6.

⁶⁸ Letter from James R. Cheek, *supra* note 5.

The Urupema, a sports glider, is now in production: ten are destined for the military and ten for commercial use.⁶⁹ The Xavante, known outside Brazil as the Aeromacchi EMB-326-GB, is a small jet trainer-fighter manufactured under a US \$53 million licensing and purchasing agreement signed in 1970 with Macchi, an Italian firm.⁷⁰ The schedule calls for 112 Xavantes to be completed by November, 1976.⁷¹

The Bandeirante, a nine to twelve seat turbo-prop of Brazilian design,⁷² is a short take off and landing craft with maximum flying time of four hours and forty-five minutes.⁷³ The Bandierante's first test flight was successfully made in October, 1968.⁷⁴ Four prototypes have been finished and plans call for the production of eighty Bandierantes within the next few years.⁷⁵

IV. IMPORTATION OF FOREIGN TECHNOLOGY

The Brazilian authorities recognized it would be technically and economically unfeasible to attempt to build an aircraft from scratch. Hence, in addition to acquiring the licensing rights for the Xavante, the Brazilians in their contract with Macchi also secured a commitment to furnish technical assistance over a ten year period for the production of the Bandeirante and other types of equipment.⁷⁶ Likewise, Cessna, an American company, helped in the

⁶⁹ 94 AVIATION WEEK 62 (Jan. 11, 1971).

⁷⁰ U.S. Dep't State Airgram No. A 284 from Rio de Janeiro, June 8, 1970. Macchi is 20% owned by Lockheed. BUS. WEEK, March 14, 1970, at 46.

⁷¹ U.S. Dep't State Airgram No. A 284 from Rio de Janeiro, June 8, 1970.

⁷² Brazil Herald (Rio de Janeiro), March 3, 1971, at 11-B, col. 1.

⁷³ Its maximum speed is 560 kilometers per hour. *O Voo da EMBRAER*, *supra* note 6. The take off and landing distance is 2,000 feet over a fifty foot barrier. 94 AVIATION WEEK 62 (Jan. 11, 1971).

⁷⁴ Since then the plane has clocked over 1,000 trouble free flight hours. *O Voo de EMBRAER*, *supra* note 6.

⁷⁵ Letter from James R. Creek, *supra* note 5. Affectionately denominated by Brazilians as the "grasshopper" because of its unlovely appearance, the Bandeirante will come in eight models; (1) an executive transport for seven to eight passengers plus baggage; (2) a parachuter's transport for seven to twelve men; (3) a cargo transport for up to one metric ton; (4) a medical transport for four stretcher patients, two seated patients and one doctor; (5) an instruction craft; (6) an aerophotographic model; (7) a surveillance or anti-guerrilla plane; and (8) a search and rescue craft. *See*, EMBRAER, 1 NOTICIAS, No. 4 (July, 1970) and *O Voo da EMBRAER*, *supra* note 6. The Air Force will be the initial client for this plane. BUS. WEEK, March 14, 1970, at 46.

⁷⁶ U.S. Dept. State Airgrams A 284 from Rio de Janeiro, June 8, 1970.

technology for the Ipanema.⁷⁷

Since practical considerations demanded that, besides know-how, certain parts and materials be imported during the initial phase of development, D.L. 770 granted EMBRAER a total exemption from all taxes and customs duties on its imports of raw materials, parts, components, equipment and other machinery,⁷⁸ so long as no "similar" product is made in Brazil.⁷⁹ Motors, parts and equipment destined for the "maintenance, repair, or conversion of aircraft" had already been exempted from import duties under a previous decree.⁸⁰

The first few Xavante jets will be assembled in Brazil with components imported from Italy.⁸¹ Although the Bandeirante primarily uses Brazilian-made parts, it will carry a Pratt & Whitney engine,⁸² American electronic equipment and French landing gear.⁸³ The Ipanema is powered with a Lycoming engine driving a McCauley propeller.⁸⁴ EMBRAER plans progressively to manufacture more parts locally, except where domestic production would "result in costs uncompetitive in the world market."⁸⁵

V. DEVELOPMENT OF MARKETS

Despite the vast amount of land devoted to farming, Brazil had only thirty agricultural planes in 1970,⁸⁶ compared to 5,000 in the

⁷⁷ Interview with James R. Cheek, *supra* note 8.

⁷⁸ August 19, 1969, art. 15, 33 Lex 1201.

⁷⁹ Decree Law No. 37 of Nov. 18, 1966 [1966] 7 Colecao (legis.) 56, D.O., Nov. 21, 1966. Article 18 of that Decree Law established three basic criteria that the Customs Policy Council must consider in determining whether a Brazilian product shall be treated as a "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 importation; (b) normal delivery time currently in effect for similar merchandise; and (c) equivalent quality and adequate specifications. On the other hand, the following items are considered "similar" without a specific declaration of "similarity": natural products or goods with primary processing, raw materials and consumer goods commonly known to be produced in Brazil. *Id.*, art. 20, at 60. See also Decree Law 61,574 of Oct. 20, 1967 and U.S. DEP'T OF COMMERCE, FOREIGN TRADE REGULATIONS OF BRAZIL 1 (O.B.R. 69-53, 1966).

⁸⁰ Decree No. 64,004 of Jan. 31, 1969, 33 Lex 90 (1969).

⁸¹ U.S. Dep't State Airgram No. A 284 from Rio de Janeiro, June 8, 1970.

⁸² *Id.*

⁸³ BUS. WEEK, March 14, 1970, at 46.

⁸⁴ 94 AVIATION WEEK 62 (1971) (Jan. 11).

⁸⁵ *O Voo da EMBRAER*, *supra* note 6.

⁸⁶ *Id.*

United States, 500 in Mexico and 175 in tiny El Salvador.⁸⁷ Several years ago when disease struck the rice plantations in the Brazilian state of Rio Grande do Sul, one-half of the crop was lost because only fifteen of the nation's crop dusters were in operating condition.⁸⁸ Such examples have led economists to predict a market for 1,000 Ipanema's over the next five years.⁸⁹

In order to stimulate a demand by accustoming Brazilians to using these machines, a recent law has exempted "imported" agricultural aircraft from all customs duties.⁹⁰ At the same time, the Ministry of Agriculture has fostered the organization of eleven companies which buy agricultural aircraft and sell their services to individual farmers unable to afford a plane.⁹¹ Finally, the Bank of Brazil is exploring a possible loan program to ease purchases of the Ipanema by land owners and co-ops.⁹²

Once the demand has been created and the national industry is well underway, it seems likely new import restrictions will be imposed to protect EMBRAER's products. With this potential threat to the small plane export business of the United States, the American Embassy has advised American firms to keep a close eye on these developments. Representatives of Piper and Cessna have already visited Brazil for this purpose.⁹³

EMBRAER expects to produce between 100 and 150 Bandeirantes annually.⁹⁴ The Rio newspaper, the *Brazil Herald*, claims that more than 200 Brazilian cities have lost air service within the last ten years because the world has no suitable machine to economically transport small numbers of travelers into the nation's interior. The less sophisticated Bandeirante is expected to fill this gap by offering a craft attractive to airlines for hundreds of currently marginalized cities.⁹⁵

Ultimately however, EMBRAER hopes an international market

⁸⁷ U.S. Dep't State Airgram No. A 284 from Rio de Janeiro, June 8, 1970.

⁸⁸ *O Voo da EMBRAER*, *supra* note 6.

⁸⁹ *BUS. WEEK*, March 14, 1970, at 46.

⁹⁰ Law No. 5,618 of Nov. 3, 1970, 34 *Lex* 1039 (1970).

⁹¹ *Jornal do Brasil* (Rio de Janeiro), June 29, 1970, at 24, col. 1.

⁹² *O Voo da EMBRAER*, *supra* note 6.

⁹³ U.S. Dep't State Airgram No. A. 284 from Rio de Janeiro, June 8, 1970.

⁹⁴ *Brazil Herald*, March 3, 1971, at 11-B, col. 1.

⁹⁵ *Id.*

can be developed for this plane. Portugal, New Zealand, Mozambique, Angola, Canada and France reportedly have inquired about the craft.⁹⁶ Colonel Osires Silva, Director of EMBRAER, has expressed his faith in the existence of such market:

More than 100 countries from the so-called Third World need airplanes appropriate to their commercial short and 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 market⁹⁷

Although other experts have disagreed on whether a similar plane is already available elsewhere and opinions conflict whether the Bandeirante can be produced at a price competitive on the world market,⁹⁸ Piper is reported to be exploring the possibility of an overseas marketing agreement with EMBRAER.⁹⁹ Colonel Silva has expressed willingness to conclude an international marketing and servicing contract with a foreign firm, because "we shall need the assistance of a large company with a world wide network."¹⁰⁰

VI. CONCLUSION

It remains to be seen if Brazil can overcome the technical obstacles inherent in developing an aircraft industry. While prospects for the venture's success have been labeled "rather dim,"¹⁰¹ the Brazilians remain firm in their determination to make the effort. An American transportation expert living in Rio has noted:

The Brazilians have done it before when everybody said they couldn't They built up the largest auto production in South

⁹⁶ *Id.* and *Jornal do Brasil* (Rio de Janeiro), April 6, 1970.

⁹⁷ *Brazil Herald*, March 3, 1971, at 11-B, col. 3.

⁹⁸ *The Brazil Herald, Id.*, claims that this plane will cost US \$450,000 but *Business Week* asserts it will sell for US \$1 million or twice the price of a similar plane on the free market. *BUS. WEEK*, March 14, 1970, at 46.

⁹⁹ *Jornal do Brasil* (Rio de Janeiro), April 6, 1970. If EMBRAER's aircraft are to be saleable outside Brazil, practical considerations necessitate that they secure a United States Federal Aviation Administration Certificate of Air Worthiness, Federal Aviation Act of 1958, 49 U.S.C. § 1423(c) (1970), and EMBRAER, intends to seek such certification. 94 *AVIATION WEEK* 62 (1971) (Jan. 11).

¹⁰⁰ *Jornal do Brasil*, June 29, 1970, at 24, col. 4.

¹⁰¹ U.S. Dep't State Airgram No. A 284 from Rio de Janeiro, June 8, 1970.

America from nothing a decade ago and the same with ship-building. Any economist can come down here and say building a turboprop is silly, but that's Brazil's way of generating technology. Instead of starting on square five with American-made equipment, they are going back to square one to learn to make their own.¹⁰²

In time, Brazil may either have to erect a tariff wall to protect this infant industry or subsidize the operation and sell below cost to achieve a price competitive on the world market. Still with the comparatively low cost of labor, perhaps the nation can confound the skeptics by producing airplanes at a reasonable price.

The Brazilian model will no doubt be watched carefully by other nations nearing the economic "take-off" point. Should this experiment succeed, other countries may, in structuring their own development laws, look to the Brazilian pattern with its unique interweaving of public and private interests, foreign and home-grown technology, as well as imported and domestic component parts.

¹⁰² BUS. WEEK, March 14, 1970 at 47.

