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**Brazilian Private Industrial
Enterprise
1950-1980**

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Introduction

Brazil has now reached a fairly advanced stage of the industrialisation process. This is partly shown by comparisons with other LDCs having mixed-market economies and with developed countries such as Britain. For example, according to United Nations data, by the mid-1970s Brazilian production of basic industrial inputs such as steel ingots, and consumer durables such as passenger cars and refrigerators, was well ahead of comparable countries Mexico, India and Egypt. Production of these items also averaged about one-third of the UK level.¹ Industry now accounts for about 30% of GDF and manufactures have also risen in importance as earners of foreign exchange: figures for 1979 suggest that industrial exports earned US\$8.5 billion out of US\$15.2 billion export income.²

An important factor in explaining Brazil's advanced position is its relatively long industrialisation experience, dating roughly from the last quarter of the 19th century (Wythe 1946; Dean 1969; Villela and Suzigan 1973). Yet, as Table 1 shows, it is during the past 30 years that perhaps the most dramatic changes have taken place in the manufacturing base. Ignoring for the moment intra-industry changes, it can be seen that in 1950 the industrial mix was dominated by basic consumer non-durable sectors such as textiles, clothing, food and drink. Subsequently, this traditional group has declined in importance owing to the rapid expansion of the so-called 'dynamic' industries, particularly within the sectors of metallurgy, machinery, chemicals, electrical-electronic and transport equipment. By 1975 these five sectors accounted for over 50% of industrial production (by value) and 40% of industrial employment. Other figures also indicate that in recent years these same sectors have received three-quarters of industrial investment. Clearly, a number of other factors must be invoked to explain these essentially structural changes. Among the most important factors are State policy action, public enterprise and the expansion of foreign interests - especially multinational corporations - (Suzigan 1976; Vieira and Camargo 1976).

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Implicitly, the course and style of the industrialisation process from 1950-1980 has resulted in a subsidiary role for Brazilian private industrial enterprise (empresa privada nacional, or EPN). At a most basic level this is shown by the decline of traditional sectors, which are mostly in the hands of domestic capital, and the rise of the dynamic industries, which are largely dominated by state and foreign enterprises. More broadly, it is apparent that at the least, Brazilian concerns have met with a variety of challenges and problems, including: the possibility of denationalisation, new technologies, bureaucratic hazards, financial difficulties and other constraints of the country's rapidly-changing political economy. In detail, however, the impact of institutional and other factors upon key aspects of EPN organisation and spatial structure during the 1950-1980 period is still far from clear. The objective of the present paper is thus to sharpen understanding in this field.

The paper is arranged in two parts. Part one outlines the broad components of the Brazilian industrial system. Emphasis is given to the growing public-sector role, the further internationalisation of the economic (and specifically, industrial) base and efforts to strengthen the Brazilian private sector. In part two, a variety of empirical evidence is presented for private Brazilian firms, giving due weight to both the large enterprises and the small and medium firms (or pequenas e médias empresas) which are most prevalent in the industrial structure. For its detailed analysis, part two draws upon the dynamic sector industries in particular. Survey data, documentary evidence and case studies supported, as appropriate, by published work, are used to illustrate specific aspects. Finally, some conclusions are drawn about the position and role of Brazilian private enterprise in the industrialisation process.

Table 1

Percentage shares of principal dynamic and traditional industries in total employment and value of production, 1950-1974.

	1950	1960	1970	1974
<u>Employment share</u>				
Dynamic group	17.5	27.9	33.8	40.6
Traditional group	50.8	40.7	34.4	31.9
<u>Value of production</u>				
Dynamic group	21.5	36.6	45.8	54.0
Traditional group	58.1	41.7	33.9	27.6

Source: Industrial Census of Brazil for each year; 1974 data from Anuário Estatístico 1976.

Notes: (1) 1974 data excludes figures for firms with fewer than five employees.

(2) The following sectors are included in each group: Dynamic group - metallurgy, machinery, electrical-electronic transport and chemicals (latter including plastics, pharmaceuticals, etc.); Traditional group - textiles, clothing food and drink.

(i) Broad spatial and economic trends

Spatial trends

Economic - and, specifically, industrial - development in Brazil has been very uneven spatially. Of this fact, the literature leaves no doubt (see, for example: Furtado 1961, 1963; Gauthier and Semple 1974; Gilbert and Goodman 1976), although it might be suggested that in a country almost continent-sized, spatial inequalities are to be expected. In general terms, attention is drawn to the overall economic importance of the Southeast region. This importance can be traced back in historical time, but it is evident that recent industrial development has reinforced the economic standing of the Southeast vis-à-vis other regions.⁴ In 1970 the Southeast accounted for over half the total number of industrial firms and 70% of the industrial employment. São Paulo state, which is the leading industrial state within the region, is also dominant nationally, having increased its share of total industrial employment from 35% in 1950 to 48% in 1970, although its share of firms fell slightly (Cunningham 1976).

The general pattern of industrial concentration is even greater in the dynamic sectors referred to above. This can be seen on two main spatial levels. Firstly, in 1970 São Paulo state had almost 50% of all firms in these sectors and about 60% of the employment. Secondly, these industries are especially evident in metropolitan locations. For example, in 1970 the metropolitan areas of São Paulo and Rio de Janeiro had two thirds and four fifths respectively of their state employment totals in these (dynamic) sectors.

These trends do not deny the fact that industry has been growing in other parts of Brazil during the past 30 years (Haddad 1975; Hay 1979). Rather, they emphasise one specific aspect of the industrialisation process: the increasing dominance of large enterprises in both the spatial and structural dimensions. Given the growing importance of state and foreign interests among the largest concerns, and considering their market power, there are some far-reaching implications for the mass of small and medium private firms which account for over 90% of industrial enterprises.

Economic trends

The greater part of the 1950-1980 period is served by a fairly wide literature (see, for example: Baer 1975; Bergsman 1970; Fishlow 1973; Furtado 1973; Robock 1975; Suzigan 1978; Tavares 1974). In spite of some minor differences in interpretation of economic trends, there is basic agreement on fundamental points. Throughout the period manufacturing industry has been the leading sector of economic growth. Further, over the 30-year span a number of cycles of expansion and recession can

be identified. According to Baer and Villela (1975), the following subdivisions can be made: 1947-1962 (the sixth stage in a series beginning with stage 1 at pre-World War 1), characterised as a period of high economic growth rates, with average annual growth of GDP in excess of 6%, such rates being higher (7.8% p.a.) in the latter part of the period (1956-1962); 1962-1967, characterised as a period of stagnation, with declining economic growth rates (averaging 3.4% p.a.) said to be caused by a drastic decline in industrial activity; and 1968-1973, characterised by rapid economic expansion, with average GDP growth of 9% p.a. and higher rates (11% plus p.a.) for industry.⁵

While this sequence is generally corroborated by other evidence, the validity of treating 1947-1962 as a single unit might well be queried. In this respect, Rattner (1979) sharpens the focus by subdividing this period into three: 1947-1951, a period of expansion; 1952-1956, a recession; 1957-1961, a further period of expansion. No supporting evidence is given by Rattner, although the suggested patterns appear to be justified on the basis of annual GDP growth rates, and by those for manufacturing specifically. Thereafter, the sequence follows Baer and Villela, but for the addition of a final phase: recession beginning in 1974-1975.

By world standards of GDP growth, the current phase of recession in Brazil has not yet seen very low or negative growth rates. Rather, there has been a marked decline in comparison with the spectacular rates achieved during the height of the 'economic miracle' during 1968-1973. In 1973 GDP grew at 14%. This fell to 9.8% in 1974 and 5.6% in 1975. After what is believed to have been an inflation-led rise in 1976 (9.2%), annual rates for 1977-1979 were between 4.7% and 6.4%; preliminary figures for 1980 suggest an economic growth rate of 7%. Industrial growth rates have also been reduced but the recent trends do not resemble the stagnation of the early to mid-1960s. However, the rapidly accelerating inflation rate is one feature in common with that former period. In 1979 the annual inflation was 92%, rising to over 100% during 1980.⁶ Yet, whereas in the early 1960s exhaustion of possibilities for 'easy' import substitution and political instability were invoked as causal factors, from 1973 the high cost of crude oil imports has been a major contributory factor to the inflationary process.⁷

From the political standpoint the 1950-1980 period can be divided almost equally into a civilian phase until 1964 and a military phase thereafter. While a variety of policy instruments and other measures have been used by post-1964 governments to expand the industrial base of the economy, the development model followed is rooted in the institutional framework begun in preceding years, especially under Vargas (both presidencies) and Kubitschek (Wirth 1970; Suzigan 1976, 1978).

(ii) The increasing role of the state

The Brazilian state has had a long-standing role as a provider of utilities and a supplier of basic industrial inputs. The period 1889-1945 was important in these respects, since early public enterprises were set up and the policy apparatus was expanded (Villela and Suzigan 1973). The 1930s comprised a critical phase. During the early 1930s industry replaced agriculture as the leading sector of economic growth (Baer 1965). Also, changes in the organisation of the military establishment heightened its role within the state apparatus and its influence upon the direction of economic-industrial policy (Wirth 1970; Hayes 1976).

These earlier trends appear to have further significance in the 1950-1980 period. In the 1950s public-sector agencies such as the National Development Bank (BNDE) and Petrobrás (the oil refining monopoly) were set up, while policies to stimulate production of consumer durable goods began to be implemented. During the 1960s and 1970s state involvement intensified. Notably, the industrial policy matrix was expanded, and an industry ministry was introduced in 1960.⁸ With reference to public enterprises, a study carried out by the Fundação Getúlio Vargas in 1973 indicated that, whereas in 1959 there was a total of about 130 (two-thirds in the states, and the remainder at federal level), between 1960 and 1969 a further 214 came into being (FGV 1973). Suzigan (1976) stresses that this growth was largely a result of subsidiaries having been created by existing public enterprises.⁹ As a further point, the growth of public sector expenditure is shown by Rezende (1974). He estimates that between 1947 and 1969 (excluding state enterprises) this rose from 17.1% to nearly 30% of GDP. Rezende also points out that this growth was not a continuous process, and identifies 1955-1960 and 1964-1969 as periods of rapid acceleration in public sector outgoings (p.26).

By the mid-1970s, the scale of public sector expansion caused private interests to argue the case for some reduction in state participation: FIESP, the São Paulo Federation of Industries, was among the leading exponents of desestatização. Both the Geisel government (1974-1979) and the Figueiredo government which took power in March 1979 took up this issue. In the first half of 1979 there was considerable speculation about selling some state concerns to private industry, although by early 1981 there was little evidence of action taken in this respect. On the contrary, there was further expansion of state enterprises during 1979-1980. (Cunningham 1981a). However, some deep cuts have been announced in planned direct investments by state companies, and in public sector imports.¹⁰

(iii) The increasing internationalisation of the economic base

Two interlinked components are briefly examined here: the growth in Foreign Direct Investment (FDI); and the increasing importance of international financial and technological inputs.

Foreign Direct Investment

Historically, FDI has had a significant part to play in Brazilian economic development (Graham, 1968), but the past thirty years have seen an unprecedented growth of FDI (Schliemann 1979). As a result, large numbers of subsidiaries of Multinational Corporations (MNCs) have been established, especially in manufacturing. MNCs are now evident across the whole range of industry, but in particular they dominate most of the dynamic industries (with the main exceptions being the largely state-run steel and petroleum refining sectors) which successive governments have sought to promote. United States MNCs have predominated throughout the 1950-1980 period, although the 1960s and 1970s witnessed increasing diversification in the pattern of source countries. The actual extent of foreign ownership in industry has been variously estimated, but the overall figure seems to be in the region of 30% (for details of foreign ownership, see: Connor 1977; Evans 1971; Newfarmer 1977; Newfarmer and Mueller 1975; Tyler 1975; Von Doellinger and Cavalcanti 1975).

Foreign inflows have fluctuated over the period of study. They began to be substantial from the mid-1950s, induced by a combination of high tariffs on imported manufactures and special concessions on imports of capital equipment which were offered to ventures in preferred new industries (Gordon and Grommers 1962; Bergsman 1970). Liberal profit remittance laws until 1962, when restrictions were briefly introduced under Goulart, provided a further stimulus. The unstable political and economic climate of the early 1960s and the less-welcoming approach to foreign investment adopted by government reduced the level of foreign inflows. Under the new military government after 1964, however, foreign concerns were offered fresh incentives to establish new plants in Brazil, or to expand existing installations there.

By the later 1960s, the restoration of international business confidence was reflected in large amounts of new foreign investment. Excluding reinvestments and profit remission deductions, such investment totalled over US\$200 million in 1969, while during the height of the 'economic miracle' in 1973, they rose to over US\$1,000 million. Interestingly, in spite of the economic recession since 1974, Banco Central data show that FDI has remained high; indeed, it was well above the 1973 level in each year until 1979.¹¹ Ultimately, control of foreign capital invested in Brazil is exercised from abroad. Partly to counteract this, policy measures have been introduced to foster association between foreign concerns and Brazilian public or private interests in joint ventures (Evans 1977, 1979).

Other external aspects

Foreign loans and credit to Brazil were relatively limited until about 1960, when the Alliance for Progress was initiated by the United States (Robock 1975). According to unpublished evidence also cited by Robock (1975, p.69), from 1949-1973 lending to Brazil through US AID, the IDB and IBRD totalled US\$4.3 billion, with more than half of this being committed in the 1968-1973 period.

Apart from the US, which remains the largest single source of external financing, from 1966 loans and credit to Brazil from other parts of the international financial world also expanded (Carvalho Pereira 1974). Notably, loans have been required to finance large-scale industrial and energy projects, and public sector expansion of the steel and petrochemicals industry have exerted particular demands in this respect. Since 1974, external resources have become even more crucial in attempts to offset the rising cost of oil imports (in 1979 oil accounted for more than a third of the total import bill: US\$6.2 billion out of 17.9 billion). However, the contracting of ever larger loans in recent years has led to the build-up of a very large gross external debt (standing at about US\$52 billion at end June 1980), thus causing a heavy burden of debt service repayments (these totalled US\$10.3 billion in 1979, and estimates for 1980 are put at US\$12.7 billion).

Accompanying the internationalisation of the economic base, the increased use of advanced technology has been evident. The acceleration of these inputs can be traced to the rapid expansion of MNCs in the later 1950s and then from the mid-1960s. While constraints of time and space do not permit discussion of this aspect, it can be mentioned that high technology has had a marked effect on the country's need to finance imports of capital goods (Erber et al. 1974). At the same time, there have been repercussions within the Brazilian capital goods industry itself, as well as a broader impact upon domestic industry as a whole. Notably, pressure for the modernisation and restructuring of firms in traditional industries has been considerable. Additionally, in their attempt to acquire the latest trapping of technological innovation, Brazilian private concerns have had to divert increasing sums into payments for technical assistance and technology transfer contracts (Biato et al. 1973; Bonelli 1976).

(iv) Efforts to strengthen Brazilian private industry

It has been suggested above that Brazil's industrial strategy has meant a subsidiary role for local private concerns. This, and related issues arising from increasing state control of the economy (estatização) and multinational penetration, have aroused much criticism both from leading industrial organisations and individuals. A central argument has been that locally-owned private firms should be accorded a larger part in industrial development, and in particular, that measures should be taken to ensure the availability of financial and technical resources to them.

However, it is possible to argue that private Brazilian firms have benefited from a variety of new elements in the industrial system. These include: the general expansion of the industrial base (especially the supply of energy and raw material inputs); larger funds (public and private) available to industry; the retention of protective legislation; the introduction of further policies designed to increase the domestic component in industrial products and to speed technology transfer; and the reduction of risk through association with public enterprises and

foreign firms in joint ventures. Having said this, it needs to be recognised that Brazilian private industry is not homogeneous, being largely composed of small and medium enterprises, many of them individually owned and typically operating in traditional consumer non-durable sectors (Barros and Modenisi 1973; Rattner 1979). These concerns can be contrasted with the larger-scale domestic enterprises, organised along corporate lines; often, these firms have substantial ranking in the dynamic-sector industries, as well as strong representation in traditional preserves like textiles, foodstuffs and furniture (Queiroz 1965; Michin 1973).

During the 1950-1980 period, the articulation of the case for strengthening Brazilian private enterprise has gathered momentum, and some steps have been taken to this end at government policy level. While limited efforts were apparent in the 1950s, during the course of the 1960s and 1970s the strengthening of this sector became a priority in BNDE policies. In 1964 FINAME was set up by the bank as a new source of long-term and special financing for Brazilian companies.¹³ Other programmes have aimed at improving the organisational structure of private domestic firms, both in the large and medium-small sized categories. Since 1972 a BNDE agency, CEBRAE, has been developing a specific role concerning the use of management techniques in smaller enterprises.¹⁴ Also, in 1974 three specialised financing subsidiaries of the BNDE were created: Embramec, Fibase and Ibrasa. Embramec (Empresa Mecânica Brasileira) was set up to stimulate the production of high technology equipment and capital goods. Its board of directors includes several leading private industrialists, among them Paulo Villares (of the Villares group), Giordano Romi (of Industrias Romi) and Cláudio Bardella (of the Bardella group), as well as representatives from the major public concerns. Fibase (Financiamento de Insumos Básicos) devises projects in priority sectors and finances production of basic industrial inputs. It participates with private firms in the production of raw materials and intermediate products, notably in the chemicals, plastics, fertilisers, non-ferrous metals and pulp and paper industries. Finally, Ibrasa (Investimentos Brasileiros) is an investment company in which BNDE is the main shareholder supported by up to 40% of private national capital. State companies are excluded from these funds which are channelled towards small and medium enterprises in particular. The operations of all three subsidiaries essentially involve purchasing equity in Brazilian companies, in an attempt to ensure a balance between foreign and local interests.

Official policy has also attempted to eliminate risk for local private enterprises, by encouraging joint ventures with subsidiaries of state concerns (such as Petroquisa, a subsidiary of Petrobrás, or Fibase of the BNDE) as well as with foreign firms. In practice, local private firms have tended to be minority partners in large projects, although efforts have been made to encourage joint ventures in which local firms are the majority partners. This is especially apparent in newer fields such as the electronics industry. In September 1974 two Brazilian

firms - Digibrás and Equipamentos Eletrônicos - entered into a joint venture with Ferranti (UK) to form a new national computer equipment company, Cobra.

Some additional examples of developments which have been favourably disposed to private Brazilian firms include: preferential selection of domestic firms to supply components for some industries (as with, for example, the choice of three electronics firms in December 1977 to supply the Brazilian mini-computer industry); positive discrimination in favour of domestically-produced equipment when calculating incentives and/or approving projects submitted to the Industrial Development Council (CDI);¹⁵ and government intervention, in selected cases, to prevent domestic firms from being purchased by foreign concerns (for example, the Philips bid to take over the C&S Company in August 1975).

Much detailed evidence on the above points remains to be researched. Yet, it seems that only during the past five years has there been any consistent exploration of problems and possibilities for local firms through the joint efforts of government policy makers and industrialists. As Schmitter (1971) has emphasised, one effect of the coup in 1964 was to reduce consultation between government and other interest groups on policy matters. Industrial policy appears to have been no exception, and a long period of non-consultation persisted until about 1975-1976. A FIESP document (FIESP 1975) may have had some influence in re-opening the case for the Brazilian private sector, although the attempts of the Geisel government to initiate dialogue (or distensão) on political and economic fronts was probably more important.

Following high level discussions within the government economic council (the CDE), a document was issued in June 1976, advocating 'action for national private enterprise' in its title (CDE 1976), and a working party was convened. The brief of the working party was to make 'concrete suggestions on ways of consolidating the position of Brazilian private enterprise.' Apart from government and public sector representatives, three members of the working party were drawn from the private sector: Octávio Gouveia de Bulhões, Hélio Beltrão (these first two had also held Cabinet posts in the military governments of Castello Branco and Costa e Silva respectively), and José Mindlin (owner of the Metal Leve group of industries). Between November 1976 and January 1977 each of these three members prepared separate working papers in distinct spheres. Bulhões' analysis treated monetary aspects; that of Beltrão was devoted to capitalisation of private enterprises; and Mindlin outlined a broader set of considerations cum policy proposals.¹⁶

It is apparent that these working papers formed the core of proposals contained in a document which was issued in March 1977.¹⁷ In practice, some measures had already been put into operation by the time the document appeared; such measures included a new Corporation Law and a line of credit (PROCAP) worth Cr\$2 billion for capitalisation of Brazilian private firms. Other priority

proposals set out in the document, concerned: the need to stimulate participation of local firms in new industries; the creation of lines of credit for capitalisation and to reduce the financial burden; adjustment of price controls; and revision of schemes for savings inputs. Most of these requirements appear to have been met in principle, by a series of policy measures which were simultaneously approved in the document. Among these items of legislation, CDE Resolution no. 9 can be singled out, in that it advocated the strengthening of local firm participation in capital goods, basic industries and mining.

Despite the positive indicators, events during 1978-1980 and into 1981 tend to suggest that there has been only limited improvement in the overall conditions affecting local firms. In July 1978 a document was issued by a group of eight leading businessmen (mostly industrialists) in Sao Paulo.¹⁸ While this document was also more broadly involved with the current campaign for a return to civilian politics and democracy, there is persistent criticism of the inadequate level of support to private local firms (especially concerning long-term capitalisation), and further need for greater controls to be put upon the activities of both foreign enterprises and the public sector. Specific attention is drawn to the plight of small and medium firms, and there is a further plea for government to invite greater active participation in industrial policy formation.

The inner thoughts of domestic industry were also outlined in a document prepared by the Brazilian National Confederation of Industry (CNI) and submitted to the President-elect in January 1979 (CNI 1979). Uniting within its organisation some 21 state-level industrial federations and 549 affiliated unions, the CNI tends to be a particular spokesman for small and medium industry throughout Brazil. Many of the points contained in this document echo those already outlined above, although the question of limited support to small and medium firms through credit mechanisms in the private sector is especially emphasised.

During 1979 and 1980 the further political opening (or abertura) promoted by the Figueiredo government permitted additional published and verbal criticism of government policy failures with respect to local firms. In particular, leading local industrialists have continued to press the case for further government support. An influential address on this theme was delivered by Paulo Villares (Executive Director of the Villares group of companies) to the Escola Superior de Guerra (the intellectual core of the military establishment) in July 1980. Also, in January 1981 a 'nationalist manifesto', signed by top industrialists, businessmen and military figures was widely publicised. However, prevailing economic problems and the introduction of further deflationary measures seem certain to draw government attention away from many of the important issues raised for some time.

(i) The problem of definition and data sources

An initial fundamental problem concerns the definition of Brazilian private industrial enterprise (referred to hereafter as EPN). At the simplest level, EPN enterprises may be defined as those which are wholly or dominantly owned by private residents of Brazil. Ideally, such firms would be 90-100% Brazilian, although from the discussion in part one it follows that mixed ownership patterns often reduce this participation. Technically, the definition is usually taken to include all firms where 51% or more of social capital is in Brazilian private hands. While this may appear to be straightforward, a number of problems frequently defy the accurate classification of firms. In the first place it may be difficult to distinguish the private element, since there is a tendency to generalise capital ownership into the two categories national (nacional) and foreign (estrangeiro). This aspect becomes important when, in the absence of company breakdowns of social capital, more aggregate data have to be used. A more important point is that EPN ownership may be more complex than that of a single firm. This is especially relevant among the larger Brazilian corporate enterprises, where there may be a range of parent-subsidiary structures spread across a variety of industrial and other sectors (e.g. finance, commerce). Thus, ownership details might vary within individual components of the group. Further, enterprise ownership is not static, and patterns may change over time, so carrying intra-firm, intra-group or intersectoral implications. Such changes in ownership are not always easy to document; similarly, the reasons for such changes are rarely clear. It is frequently assumed that ownership changes are imposed by outside interests (for example, multinationals), yet, there may be important cases where EPN firms have a far from passive role, perhaps striking their own bargain with the outsider.¹⁹ Finally, the ownership question is often complicated by issues such as company control, control of technological inputs, and so on.

A further methodological question concerns firm size and the measure(s) used. In the various analyses presented below, a basic subdivision into small, medium and large firms has been made where necessary, based upon the employment criteria most frequently used in Brazil: 10-99 (small); 100-500 (medium); 500 and over (large).²⁰

Data sources used include a variety of unpublished documents, primary survey results, industrial directories and material compiled during field research in Brazil. Particular problems with individual sources are raised in the part of the text to which they relate.

(ii) Evidence on growth and survival patterns

There are considerable gaps in the data base necessary for a full systematic study of growth and survival patterns of the EPN. On the one hand, foundation dates are not always easy to trace, while on the other, detailed information about firm 'deaths' (through bankruptcies, mergers etc.) extending back in time for thirty years is even more difficult to obtain. These deficiencies, together with the observed tendency for internationalisation of industry over the period of study, partly explain why recent work in this field has treated one major aspect: the denationalisation of local firms by MNCs. Even so, the range of industries covered by the relevant studies has been limited (see: Bertero 1972; Evans 1971, 1979; Newfarmer 1977, 1979). Some further aspects of growth and survival are touched upon by Martins 1965; Queiroz 1965; Diniz and Boschi 1978. Perhaps the most detailed study to appear so far on the theme is that of Rattner et al. (1979), which treats small and medium enterprises.

In the section below a variety of material is used to amplify existing evidence, or report findings in the case of the study by Rattner et al.

Survey evidence from IUPERJ

The author was given free access to the raw data gathered from industrial firms in 1976 by IUPERJ as part of a specific project (Diniz and Boschi 1978:a). The survey was directed at firms located in the metropolitan areas of São Paulo, Rio de Janeiro and Belo Horizonte, and covered food, electrical-electronic and other capital goods industries. Only the latter two groups of industry have been used in the present analysis.²¹

For the original survey, an initial listing of 5,572 firms and 1,353 firms in the two sectors was reduced to 434 and 487 firms respectively, using a random number programme.²² Questionnaires were then sent to these firms. The former group achieved a 20% reply rate (87 replies), and the latter a 14% reply rate (67 replies). From the combined total of 154 firms, the present author selected only those firms having over 51% Brazilian ownership. 135 firms were in this category, and although it was not possible to determine the precise extent of public participation for all firms, it is unlikely (from other evidence) that such participation was substantial.

Since all firms in the sample were obviously survivors, attention was given to their formation dates as an indicator of growth patterns during different sub-periods. On aggregate, it was found that half the firms (68/135) were established in the post-1960 period, while almost 30% (39/135) were set up in the 1950s. The remaining 28 firms (roughly 20%) had pre-1950 origins, the bulk of these being formed in the 1940s.

A finding of particular interest was that 27 of the 68 firms formed since 1960 had foundation dates during the recession years

of 1962-66 inclusive (while 34 had origins during the expansion years from 1968-74). This is perhaps surprising, given the economic recession associated with the years from 1962. Clearly, it would be valuable to know further details of the proportion of survivals to firms deaths during that period.

When firm size is taken into consideration, it is apparent that the predominance of small and medium enterprises strongly influences the aggregate pattern. 93% of the total sample was, in fact, in the small and medium size range, with 70 and 56 firms respectively. Two-thirds of the small, and more than a third of medium enterprises originated in the post-1960 period, while only one of the nine large enterprises was established after 1960. These findings are summarised in Table 2 below.

Table 2

Foundation dates of Brazilian firms from the IUPERJ survey
by sector and firm size

FIRM SIZE	<u>Electrical-Electronic</u>				<u>Other Capital Goods</u>			
	Pre- '50	50s (%)	Post- '60	TOTAL FIRMS (abso- lute No.)	Pre- '50	50s (%)	Post- '60	TOTAL FIRMS (abso- lute No.)
Small	20	26	54	(39)	10	16	74	(31)
Medium	17	53	40	(30)	23	35	42	(26)
Large	100	-	-	(2)	57	29	14	(7)
				<u>71</u>				<u>64</u>

Source: Calculated from original survey data from IUPERJ survey, Rio de Janeiro 1976.

In certain respects the findings raise more questions than they answer. Clearly, information about the proportion of survivals these firms represent would increase the explanatory power of the observations. Further details about the evolution of individual firms would also be useful. For example, a firm which could be classified as small at its origin in 1963, may have grown into the medium category by 1976. The basic trend, as might be anticipated from other work, is that larger firms tend to have been set up in earlier periods, these being only few in number on a contemporary basis when compared to small and medium firms. Conversely, small and medium firms have more recent origins. Yet, it is certainly significant to point out that the post-1950 period as a whole has witnessed the growth of EPN concerns in dynamic industries during the same time that public sector and foreign interests have forged the expansion of such industries. The predominance of small and medium firms in this process is perhaps at first surprising, given the constraints

known to affect firms of this size. It does, however, tie in with Evans' (1979) suggestion that

'Local capital in significant amounts has found its way into "modern" industries.' (Evans, p.120).

It also provides a positive response to his question as to whether

'...this capital has discovered, within these industries, sub-areas in which small-scale competitive production is still possible.' (ibid).

Further questions are also raised about the relationship between small and medium enterprises, and large concerns, both in static terms and over time.

Evidence from the study by Rattner et al. (1979)

At this point, it is appropriate to review the main findings of the study by Rattner et al., which specifically treats small and medium firms. The recent work is, in fact, a follow-up study of a survey carried out in 1963, involving Brazilian private enterprises in the cities of São Paulo, Porto Alegre and Salvador. The recent survey was carried out in 1976 and involved 165 of the firms originally surveyed in 1963.

It was found that of the original sample, while some 60% of firms had survived the intervening years 1963-76 (99 firms out of 165), far less than half the total survivors (40 out of 99, or 24% of the sample) had continued under identical ownership. Notably, a quarter of the survivors (24 out of 99) had admitted new partners with up to 49% of company shares. Interestingly, 16 of the 99 survivors had been sold to either foreign or national concerns (10 and 6 firms respectively). Also, older firms had better survival ratings.

Of the non-survivors (66 out of 165), mortality tended to be greater among firms which, at the time of the initial survey in 1963, had not completed their first three years of life. As a further point, the highest survival rate was experienced in Porto Alegre (61%), followed by São Paulo (44%), while the city of Salvador had the lowest rate (27%). The non-survivors included 31 firms which were traced, and 35 firms which could not be traced but where all the evidence pointed to closure. Among the 31 closures which were fully documented, 25 took place between 1963 and 1969. As far as could be ascertained, competition and lack of working capital appear to have been among the principal motives for closure, while of 31 firms affected there were 16 in 'dynamic' sector industries.²³ In terms of firm size, almost a half of the closures were in firms employing less than 20 people, and, typically, partners in such firms tended to be composed of family members or of groups of friends and acquaintances.

This brief review cannot do justice to the full published study, but it does indicate the degree to which small and medium firms can undergo rapid change over relatively short periods of time.

Aspects of firm survival indicated by bankruptcy patterns

Insolvency, judicially declared, gives rise to the legal process of liquidation. Thus, some general patterns of firm survival can be inferred from a study of Brazilian firms that have failed owing to bankruptcy. Unfortunately, past data unearthed to date does not permit analysis on a detailed level, and temporal and spatial coverage tends to be limited.

For the following analysis annual insolvency data were available for both São Paulo and Rio de Janeiro over the period 1953-67 inclusive. From 1967-78 (inclusive) annual data were obtained for São Paulo only, although this material provided much more information (from 1969 onwards) about the types of industry affected. It should be pointed out that in Brazilian law, bankruptcy proceedings can take two main forms: voluntary (involving the Concordata) and involuntary (termed Falência). Only involuntary insolvency data were used. Such data as are available reflect stages in the legal process by which firms are liquidated. Two main variables are of relevance here: requests for liquidation (Requerimentos) and decreed liquidation (Decretos). The former represents the initial stage of the process during which one or more concerns may file requests against an enterprise which is failing to meet its commitments (the number of requests may thus often exceed the actual number of firms involved, and this needs to be borne in mind when using the data). It may be the case that numbers of requests are a more accurate reflection of the economic climate at a given time, than the decreed insolvency pattern, since decrees represent a later stage of the liquidation process and are far more likely to reflect the pace of the legal system.

As a general point, it can be mentioned that the types of firm most susceptible to failure are Limited Companies (Sociedades de Responsabilidade Limitada) and those firms which are individually owned (Firmas Individuais). According to the 1970 Industrial Census, these two ownership types accounted for 32% and 56% respectively of total firms in Brazil, although together they only accounted for 25% of the value of industrial production. By implication, these firms comprise the small and medium enterprises which are predominantly owned by the Brazilian private sector. Conversely, it is apparent that Corporations (the Sociedades Anônimas, or S.A.) - which include large private Brazilian firms, public enterprises and foreign concerns - rarely fail.

Table 3 below shows annual totals for insolvencies in Rio de Janeiro and São Paulo over the period 1953-67.²⁴ While with data of this kind care must be taken in interpreting economic trends, attention can be drawn to the distinct upswing in insolvency requests during two sub-periods: 1956-59 and 1965-67.

Table 3

Annual insolvency totals in Rio de Janeiro and São Paulo, 1953-67

YEAR	REQUESTS		DECREES	
	RIO	S.P.	RIO	S.P.
1953	154	430	88	157
1954	157	444	73	101
1955	171	444	91	112
1956	200	641	85	139
1957	176	770	82	174
1958	221	824	76	165
1959	375	681	133	183
1960	222	544	87	145
1961	214	427	67	154
1962	217	512	86	89
1963	138	421	34	69
1964	168	588	47	93
1965	179	958	42	105
1966	299	1,313	51	91
1967	428	1,865	80	95

Source: Conjuntura Econômica, Rio de Janeiro (various issues).

Note: Annual data cover slightly different periods: 1953-55 Jan-Oct; 1956-62 Jan-Nov; 1963-67 Jan-Oct. (all periods inclusive).

Table 4

Annual insolvency totals in São Paulo, 1967-78

YEAR	TOTAL	REQUESTS		DECREES	
		No. OF FIRMS	IND FIRMS	TOTAL	IND FIRMS
1967	3,689	n.a.	n.a.	494	n.a.
1968	3,538	"	"	619	"
1969	4,551	"	595	896	"
1970	4,331	"	701	969	207
1971	3,871	2,776	631	701	160
1972	4,777	3,248	843	945	233
1973	5,750	3,654	798	1,098	238
1974	3,174	2,285	481	671	135
1975	3,518	2,504	698	662	130
1976	3,752	2,707	770	744	190
1977	5,554	3,714	1,163	835	223
1978	8,089	4,893	1,335	1,031	259

Source: Boletim da Associação Comercial de São Paulo (Instituto de Economia Gastão Vidigal) São Paulo, each year from 1968.

Notes: Annual data are Jan-Dec.inclusive; the discrepancy between the 1967 requests total shown in this Table and that shown in Table 3 is explained by the fact that the Table 3 data are for numbers of firms affected by requests.

n.a.-data not available.

The latter falls within the period of economic recession which began in 1962. It also coincides with the initial period of policy construction under the first military government headed by Castello Branco, and during which Roberto Campos as Planning Minister was able to implement a range of monetarist measures. It may well be that the 'credit squeeze' which was one immediate outcome of these measures was a decisive factor affecting firm survival in this period. The peak in insolvencies indicated between 1956-59 is clearly of a lesser scale than that in the mid-1960s. It also occurred within the period of economic expansion generated during the Presidency of Juscelino Kubitschek. An important observation about the nature of growth which characterised the Kubitschek years is that it was associated with increasing inflation. In a discussion of economic trends from the mid-1950s Bergsman (1970) states:

'Both the inflation and the growth, which occurred simultaneously until 1963, can be seen as results of a more-or-less common set of policies - some of the policies that spurred the growth also spurred the inflation.'

Although it is true that inflation was still at a fairly moderate level in the second half of the 1950s, averaging 20% p.a. during the four years from 1956-59, by the end of Kubitschek's term the annual average was almost 30%. One impact of these (and other) trends upon industry seems to have been an increase in the problem of financing working capital requirements (cf. Bergsman, p.62). If this was so, it seems likely that the rise in insolvencies from 1956-59 is a reflection of problems generated by rapidly changing economic conditions, in spite of the fact that the direction of overall growth was positive.

Two further peaks in the level of insolvency requests can be identified from Table 4, which has figures for São Paulo only, from 1967-78. The relevant years are 1972-73 and 1977-78. The former sub-period falls within the height of the 'economic miracle' phase, while the latter is part of the recession stage evident from the mid-1970s. Given the lack of perspective on these very recent events - although the causes of insolvencies in the current phase seem obvious enough - discussion will be confined to an interpretation based upon the resulting patterns in industry alone.

A rare opportunity to examine the types of industries affected by bankruptcy proceedings in the capital of São Paulo between 1969 and 1978 is provided by data contained in the annual reports of the São Paulo Commercial Association.²⁵ Tables 5(a) and 5(b) show the appropriate details.

As a general point, it can be seen that during the ten-year period a total of 8,015 industrial firms were affected by involuntary legal proceedings leading to liquidation, while from 1970-78 there were 1,775 decrees issued.

Table 5 (a)

Total industrial firms affected by insolvency requests, and distribution by type of industry, São Paulo, 1969-78

YEAR	TOTAL	MET	MEC	M.E	M.T	QUI	PLA	TEX	APP	F'D	FUR	W'D	PUB
1969	595	130	50				53	40	58	132	71		61
1970	701	129	31	55	23	20	42	41	47	44	91	20	68
1971	631	121	32	35	34	22	33	40	40	40	69	30	48
1972	843	148	54	35	18	25	46	32	32	147	79	47	85
1973	798	111	43	30	25	28	58	37	24	109	85	45	85
1974	481	65	23	28	11	17	37	19	23	56	64	24	57
1975	698	118	45	28	18	24	55	51	20	85	64	38	78
1976	770	154	47	39	22	30	77	46	24	53	46	45	77
1977	1,163	273	85	47	30	39	56	92	52	45	74	51	133
1978	1,335	309	79	40	43	43	99	88	73	50	64	64	158
TOTAL	8,015	1,558	532	337	224	248	556	486	393	761	707	364	850

Source: Boletim da Associação Comercial de São Paulo (Instituto de Economia Gastão Vidigal), São Paulo, each year.

Key to Industries: MET Metallurgy; MEC Machinery; M.E. Electrical; M.T. Transport; QUI Chemical; PLA Plastics (includes Rubber); TEX Textiles; APP Clothing (includes Shoes); F'D Food; FUR Furniture; W'D Wood; PUB Printing and Publishing. The industries selected include those most numerous among the insolvency totals; the two groups indicated reflect a rough division into dynamic and traditional industries, although the metallurgical sector has long-standing traditional as well as dynamic sector importance.

Table 5 (b)

Insolvency decrees in industry and distribution by type of industry, Sao Paulo 1971-78 (sectoral heads as in Table 5 (a))

YEAR	TOTAL	MET	MEC	M.E	M.T	QUI	PLA	TEX	APP	F'D	FUR	W'D	PUB
1971	160	20	2	11	7	11	11	19	10	13	15	8	14
1972	233	43	14	9	8	7	11	19	12	32	18	9	24
1973	238	33	14	8	3	5	18	14	13	33	23	17	22
1974	135	13	8	9	1	3	7	13	6	17	21	7	13
1975	130	18	12	10	4	8	9	9	4	8	14	8	14
1976	190	28	11	15	11	6	11	16	7	12	21	6	18
1977	223	40	17	10	7	6	13	25	20	4	16	16	16
1978	259	67	15	10	4	9	19	15	14	11	11	18	20
TOTAL	1,775	262	93	82	45	55	99	130	86	130	139	89	141

Source: Boletim da Associação Comercial de São Paulo (Instituto de Economia Gastão Vidigal), São Paulo, each year.

Key to Industries: MET Metallurgy; MEC Machinery; M.E. Electrical; M.T. Transport; QUI Chemical; PLA Plastics (includes Rubber); TEX Textiles; APP Clothing (includes shoes); F'D Food; FUR Furniture; W'D Wood; PUB Printing and Publishing. The industries selected include those most numerous among the insolvency totals; the two groups indicated reflect a rough division into dynamic and traditional industries, although the metallurgical sector has long-standing traditional as well as dynamic sector importance.

The data on insolvency requests show that virtually a fifth of total firms affected were in metallurgy. This industry, while it is generally treated with others of the 'dynamic' group, has a long-standing importance also as a traditional industry in São Paulo. In 1970, Census data for the município of São Paulo indicate that 10% of all industrial firms were in metallurgy (2,501 out of 20,543 establishments). Interestingly, insolvency data for the same year show that some 129 firms were affected in the industry. This corresponds to 5% of the total in metallurgy, and may give an indication of the likely turnover rate.

Other large casualties can be observed in: printing and publishing (850); food (761); furniture (707); plastics and rubber (556); machinery (532); and textiles (486). If metallurgy is excluded from the dynamic group, it is apparent that these industries have been less affected by insolvency than the traditional group, with 23.5% and 44.2% of insolvencies respectively.

Returning to the peaks in insolvency requests in 1972-73 and 1977-78, several observations can be made. In 1972 and 1973 it appears that, in addition to the usual high level of insolvencies in metallurgy, levels were exceptionally high among food and printing and publishing firms. Larger than usual totals were also seen in machinery, wood and furniture and plastics. By contrast, the pattern in 1977-78 reveals an above average number of requests in all industries except food, with exceptionally high levels in metallurgy, machinery, chemicals, plastics, textiles, clothing, and printing and publishing. The findings for 1977-78 raise important questions about the real impact of the current recession on Brazilian industrial firms, especially since the dynamic group of industries appears to have been affected more adversely than its previous record.

As a final point, it is emphasised that while the evidence gleaned from the study of bankruptcy patterns may be lacking in detail and explanatory power, the findings leave no doubt that insolvency has been a considerable and continuous problem for Brazilian industry, not least in the country's industrial hub: São Paulo.

(iii) Evidence from a locational study of the largest enterprises

Aspects of industrial location in Brazil have been treated at some length by the present author (Cunningham 1974, 1979). Major work in this field includes: Taylor 1962; Geiger 1963; Rattner 1972; Haddad 1975; and Dickenson 1978. In this section attention is devoted to one specific aspect: the location of large enterprises in the capital goods and chemical sectors. In particular, locational patterns observed for large private domestic firms are compared with patterns for multinational enterprises in the same industries. Enterprises from five dynamic-sector industries which have undergone rapid growth since 1950 were selected for analysis from a basic listing in the 1979 Visão survey

Quem é Quem. The five industries are as follows: metal fabrication; machinery (including motors and industrial equipment); electrical, electronic and communications equipment; transport equipment (including naval, railway, air, automotive components and agricultural equipment); and chemicals (including plastics and pharmaceuticals). Actual enterprises used in the analysis were Brazilian private enterprises belonging to essentially corporate groups (these being perhaps the nearest domestic equivalents to MNCs), and enterprises classified as MNCs by Visão.²⁶ In all, a total of 214 private Brazilian (group) enterprises and 284 MNCs (out of 566 MNCs covered by the entire Visão survey) were studied. Additionally, given the importance of public enterprise in the petrochemical sector (through Petrobrás and its subsidiaries), 24 public firms were included in that part of the analysis. Table 6 summarises the numbers of enterprises studied in each industry and shows the actual total of enterprises in each sector listed by Visão. It is emphasised, however, that the enterprises studied correspond to all those classified as the Brazilian private group enterprises and multinationals in each sector. The remaining enterprises (not studied here) were thus predominantly firms under private Brazilian individual ownership with a relatively small number of public enterprises.

Table 6

Numbers of enterprises used in the locational analysis

SECTORS	No. OF ENTERPRISES STUDIED		ALL ENTERPRISES IN SECTOR (<u>VISÃO</u>)
	EPN	MNC	
Metal fabrication	62	46	370
Machinery	31	71	292
Electrical	22	41	139
Transport	36	35	171
SUBTOTAL	151	193	972
Chemicals etc.	63	91	361
TOTAL	214	284	1,333

source: Visão - Quem é Quem na Economia Brasileira (São Paulo, 1979).

Location of enterprises in metal fabrication, machinery, electrical and transport equipment industries

It can be seen from Table 6 that MNC enterprises accounted for only a fifth of total enterprises covered by the Visão survey. Brazilian private enterprises are thus predominant in numbers, with the 'group' concerns (151 shown in Table), accounting for 15% of the total, and firms under individual ownership (616 firms not shown above) comprising virtually two-thirds of the total. However, the numerical predominance of Brazilian concerns is strongly countered by the much larger scale operations of MNCs. While accounting for only a fifth of enterprises, MNC asset shares were over 40% of the total for the four sectors combined. In the electrical and transport sectors, where the share of firms was 30% and 20% respectively, asset shares rose to 51% and 56%.²⁷

The results of a comparative analysis of MNC and Brazilian private (group) enterprises at plant level are summarised in Table 7. Actual locations have not been mapped, but Figure 1 shows the regional and state divisions of Brazil and the relative location of the principal industrial zones within the country's major industrial triangle which will be referred to in the text.

Perhaps, predictably, in the light of the brief discussion about locational patterns in part one, the general finding was that locations within the município of São Paulo and the rest of the São Paulo metropolitan area were the most important elements of a distribution pattern heavily skewed towards the state of São Paulo. Yet, there was a consistent tendency for a larger proportion of the Brazilian private concerns to be located in parts of the country other than São Paulo state. By contrast, of the four sectors studied, only in the electrical industry did MNC locations outside São Paulo state account for more than a third of the total. The wider distribution of electrical firms can be accounted for by past takeovers of domestic concerns (cf. Newfarmer 1977) and by the fact that a significant number of MNC subsidiaries have been set up to take advantage of regional fiscal incentives in the Northeast, and to a lesser extent, the Manaus Free Zone.²⁸ Where MNC plants were located elsewhere than São Paulo state, with the exception of the electrical industry, the receiving states were almost entirely confined to Rio de Janeiro, Minas Gerais, Rio Grande do Sul and Bahia. In the case of the Brazilian private enterprises (EPN), the list of states included the above plus Santa Catarina, Pernambuco, Amazônia and several Northeast states.

It is worth emphasising one aspect brought out by the breakdown of intra-metropolitan São Paulo locations (partially shown in the Table). The município of São Paulo itself accounted for over half the MNC enterprises in all sectors except transport, where plants were predominantly located in the so-called 'ABC' municípios adjacent to São Paulo itself (Santo André, São Bernardo do Campo, and São Caetano do Sul). As is well known, from the mid-1950s, land in these districts was increasingly given over to MNC car plants. By contrast, the domestic enterprises in

Fig. 1

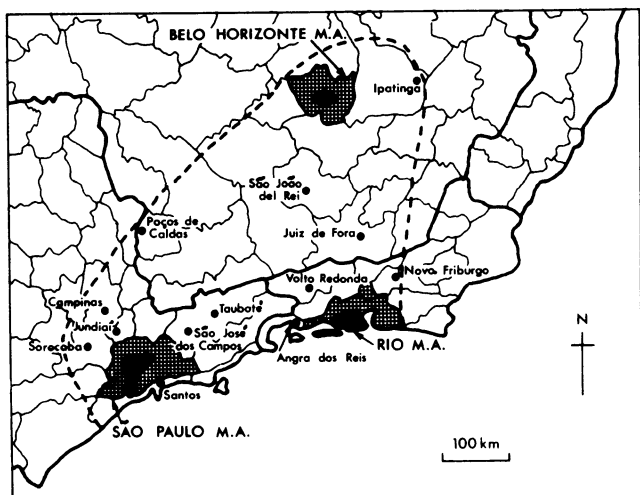
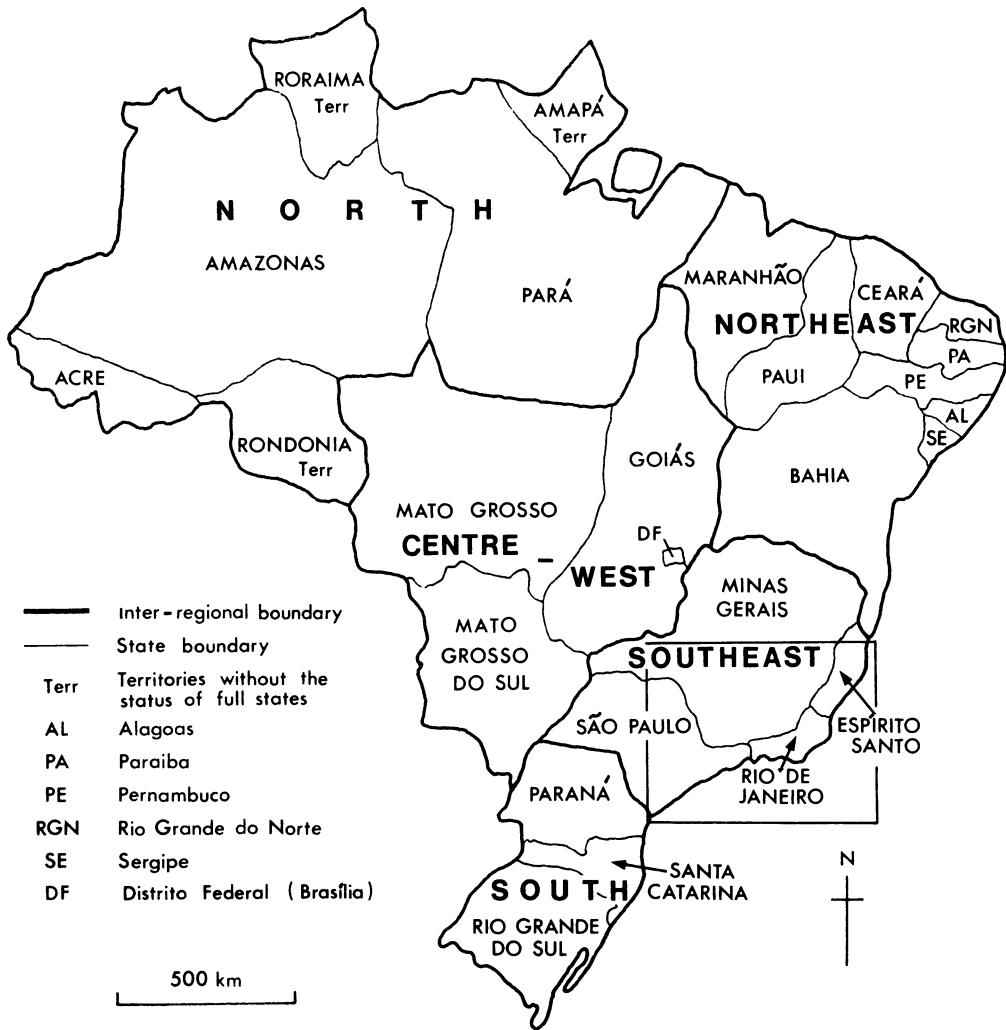
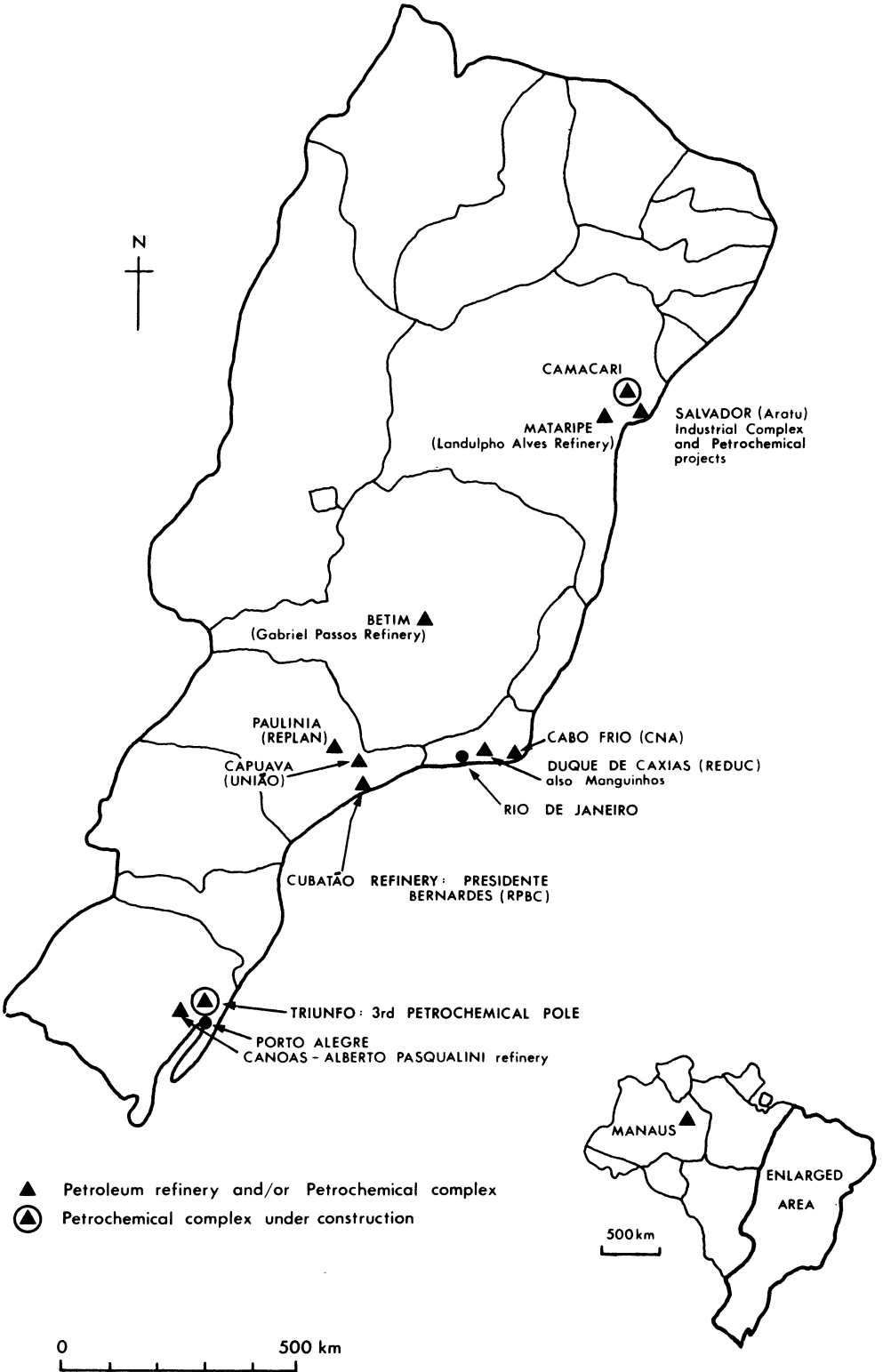


Fig. 2



- ▲ Petroleum refinery and/or Petrochemical complex
- ⊙ Petrochemical complex under construction

0 500 km

500 km

transport are divided almost equally between São Paulo itself and the rest of the metropolitan area. This pattern can be explained partly as a reflection of the historical development of the industry, whereby local firms produced transport goods, including components for imported vehicles - many firms thus being located in the city of São Paulo before the arrival of MNCs - a fact that the contemporary role of local firms is now largely given over to the manufacture of components to supply MNCs.

Brief mention can be made of a separate analysis of headquarters locations (in so far as it is possible to refer to headquarters of MNC subsidiaries) for which data are not shown. The city of São Paulo was the main HQ for the EPN (group) enterprises and the local headquarters for MNC enterprises, although a larger proportion of MNCs located there than did EPN concerns. This was matched by a more pronounced separation of administrative and productive plant locations in the case of MNCs. In less than a fifth of the MNCs studied was the HQ in the same location as the factory. This compares with 40-50% for the large Brazilian enterprises. These findings are consistent with the general characteristics expected of MNCs from the literature (cf. Kindleberger 1970).

Location of enterprises in the chemicals industries

The number of enterprises by ownership category is shown in Table 8. This Table includes all enterprises listed by Visão, although for analytical purposes only the 91 MNC and 63 EPN (group) enterprises were used.

Mention has been made elsewhere of the central role of the state-owned company Petrobrás in the industry - particularly in oil refining and the production of basic chemicals. The 24 public enterprises shown above (mostly under the aegis of Petroquisa, the subsidiary set up in 1967 to enable joint ventures to take place between the public sector and private concerns) actually control a third of assets among all enterprises listed in this sector by Visão. This concentration of assets was even higher than in the case of MNCs, which with 56 enterprises had almost a third of assets also. Additionally, attention should be drawn to the overriding importance of imported petroleum in providing one of the largest inputs for Brazil's 'modern' chemical industry, which has undergone extremely rapid expansion in recent years. Oil imports largely explain the mainly coastal or near-coastal locations of the main Petrobrás refineries shown in Figure 2. In turn, these refineries have provided a focus for both private plants (MNC and EPN) and joint ventures of Petroquisa, although in some cases, pipelines have assisted interior locations.

Table 7

Location of Multinational and Brazilian private (group) enterprises in metal fabrication, machinery, electrical and transport sectors, 1979

(No. of Plants)

LOCATION	METAL		FAB'N		MACHINERY		ELECTRICAL		TRANSPORT	
	MNC	EPN	MNC	EPN	MNC	EPN	MNC	EPN	MNC	EPN
São Paulo Município	12	15	26	11	20	3	7	10		
Rest of M.A.	9	15	22	2	7	4	16	9		
M.A.S.P. Subtotal	(21)	(30)	(48)	(13)	(27)	(7)	(23)	(19)		
Other S.F. State	9	3	10	10	2	2	9	4		
TOTAL S.P. State (a)	30	33	58	23	29	9	32	23		
All other parts Brazil (b)	15	25	16	8	16	11	9	14		
TOTAL (a) & (b)	45	58	74	31	45	20	41	37		
Plant Locations unknown	7	7	3	2	2	3	3	3		
Actual No. Enterprises	46	62	71	31	41	22	35	36		

Source: Enterprises listed in Quem é Quem na Economia Brasileira, Visão, São Paulo, 1979; Plant locations for these enterprises from Anuário das Indústrias, FIESP, São Paulo, 1979.

Notes: M.A. Metropolitan Area; M.A.S.P., Metropolitan Area of São Paulo; S.P. São Paulo; MNC Multinational; EPN Brazilian Private Enterprises (abbreviated from the Portuguese: Empresa Privada Nacional). Actual No. of Enterprises does not correspond to the total given by (a) plus (b) Plant Locations Unknown, owing to the fact that there were several enterprises with multi-plant operations.

Table 8

Numbers of enterprises and ownership structure of the
chemicals sector, 1979

(No. of Enterprises)

SECTOR	PUBLIC (EG)	MNC	EPN		TOTAL
			GROUP	SINGLE	
Chemical/Petrochem.	21	56	41	101	219
Plastics	-	15	20	56	91
Pharmaceuticals	3	20	2	26	51
TOTAL	24	91	63	183	361

Source: Quem é Quem na Economia Brasileira, Visão, São Paulo, 1979.

Notes: PUBLIC Public Sector (or State) enterprises; EG abbreviated from the Portuguese Empresas do Governo; MNC Multinationals; EPN Brazilian Private Enterprises abbreviated from the Portuguese Empresa Privada Nacional.

Only the EPN (Group) enterprises were used in the analysis of Brazilian private concerns.

Table 9 summarises the locational characteristics of the firms studied, at plant level. Differences in patterns between MNCs and the Brazilian concerns are remarkably clear. Out of an actual total of 103 MNC plants, only 14 were found elsewhere than the states of São Paulo and Rio de Janeiro (although 18 plant locations were not traced). In fact, over a third of all plants belonging to MNCs were located in the município of São Paulo alone, with a seventh in the 'ABC' districts (especially São Bernardo do Campo). In all, the metropolitan area of São Paulo had over half the total MNC plants. For the Brazilian (EPN) concerns, the location pattern was almost the opposite of that for MNCs. More than 40% of all plants were located outside São Paulo - Rio, the majority of these being in the Northeast region, with large numbers also in the South. Less than a quarter of plants were in the município of São Paulo and the combined proportion of plants in the metropolitan area was only about a third of the total.

To some extent, the analysis under-represents the importance of MNCs in a variety of joint ventures with Petroquisa (and other public sector concerns), many of which are located in states other than São Paulo - Rio, and especially in Minas Gerais, Bahia, Pernambuco and Rio Grande do Sul. These concerns would not show in the Visão classification as MNCs, since in most of these cases the public sector controls the majority share of capital.

Viewing the locational evidence above as a whole, it is apparent that there is a good deal of scope for more detailed study in this sphere. In particular, it would be valuable to extend the analysis to the individual enterprises which are so numerous in the enterprise structure. Moreover, there is an urgent need to examine aspects of inter-firm linkages and intra-firm structure within a locational framework. Having said this, attention can be drawn to one clear finding. This concerns the much more marked locational concentration of MNC subsidiaries (especially in the Southeast region, and specifically the metropolitan area and state of São Paulo) as compared with subsidiaries of large private Brazilian firms. At the regional level, this finding suggests that fiscal incentives offered to MNCs to locate in less prosperous regions such as the Northeast,²⁹ have not yet proved sufficiently attractive alternatives to profit-maximising activities in mainly metropolitan locations such as those of São Paulo and Rio. At the metropolitan scale, this preference of MNCs is consistent with the observations of Connor (1977) concerning the tendency for MNC affiliates to locate in competition with other MNCs, and the market power of such enterprises.

Table 9

Location of Multinational and Brazilian private (group) enterprises in the chemical industry, 1979.*

LOCATION	MNC	No. of Plants	EPN
São Paulo Município	34		8
Rest of Metropolitan Area	22		7
M.A.S.P. Subtotal	(56)		(15)
Other São Paulo State	9		7
Total São Paulo State (a)	65		22
<u>Other parts of Brazil (b)</u>			
Rio de Janeiro State	9		2
South Brazil	1		11
Northeast Brazil	6		15
Other	4		2
TOTAL (a) plus (b)	85		52
Plant Locations Unknown	18		16
Actual No. Enterprises	91		63

Source: Enterprises listed in Quem é Quem na Economia Brasileira, Visão, São Paulo, 1979; Plant locations for these enterprises from Anuário das Indústrias, FIESP, São Paulo, 1979.

Notes: See Notes to Table 8.

* Includes Plastics and Pharmaceuticals.

(iv) Case Studies of firms in capital goods industries

The case studies presented below allow a closer look at the complexity of ownership and production relationships, and permit a glimpse into some financial and technological aspects of private Brazilian enterprises. While coverage is limited to larger firms in the capital goods industry - broadly defined to include machinery, electrical goods, automotive components, etc. - it is intended that these studies will give further perspective to issues raised elsewhere in the paper, especially contemporary problems affecting domestic concerns.

Table 10 summarises the basic characteristics of the nine firms studied. For reasons of confidentiality, the names of the Brazilian firms are not disclosed, although those of public

agencies and foreign concerns associated with them are stated where known. From the Table, it can be seen that the dominant fields of manufacturing output were components for the automotive industry (mainly vehicles), electrical products and machinery; the number of firms in each being five, two and two respectively. The foundation dates, without exception, bear out earlier observations about the tendency for larger enterprises to have been in existence for longer periods of time than smaller concerns. The importance of the 1950s is clear given that five firms and one subsidiary had origins in that decade; the remaining firms were set up in the previous two decades - two in the 1940s and two in the 1930s - although three subsidiaries were created in the 1970s. Ownership details show the range of combinations that one might expect in firms which almost certainly originated as 100% Brazilian (private). From available evidence only one firm of the nine appeared to be in this category at the end of 1979. The remainder had varying amounts of foreign participation, with US multinationals being most numerous (four firms) and Japanese, Swiss and UK MNCs having a stake in one firm each. Several firms also had additional participation in share capital by BNDE or its subsidiaries (Embramec, Ibrasa) while all firms had received project financing or loans through the bank. Finally, with respect to location, although there is a marked bias towards the state of São Paulo, three out of eight plants were in interior - as opposed to metropolitan - São Paulo, with one of the metropolitan firms having established a new plant in Minas Gerais state. The two remaining firms were located in the states of Rio de Janeiro and Rio Grande do Sul respectively, with the latter having subsidiary plants in the Northeast (Recife) and Amazônia (Manaus).

It is emphasised that information used in the compilation of the case studies was not of uniform quality, nor did it always cover the same range of aspects in equivalent detail.

Notes (Table 10): Ownership details circa 1978/79 or latest available; National share includes any public participation - shown in far right-hand column where known.

Foundation dates in parentheses refer to subsidiaries created in same or similar field.

Several firms had one or more subsidiaries in different economic activities; ownership details shown here refer only to the main company in the manufacturing sphere indicated; where relevant, subsidiaries in the same area of manufacturing are indicated both in the Table and the individual case studies.

No 3: Location may include Sorocaba in addition to São Bernardo.

No 4: For ownership details, see Case Study.

Table 10

Summary of basic characteristics of case-study firms

CASE No	MAIN OUTPUTS	FOUNDATION	LOCATIONS	OWNERSHIP NAT	FOR	ENDE LINKS
1	Auto-components	1951	Mauá Santo André Belo Horizonte	95.47	4.5(US)	BNDE shares up to 25%?
2	Auto-components (& metal working)	1951	S. Bernardo	61.6	38.3(US)	Financing (FINAME)
3	Auto-components	1953	S. Bernardo	66.7	33.3(US)	IBRASA shrs
4	Optical and Carbuettors }	1941 (1956) (1973)	São Paulo	(UNCERTAIN)		IBRASA & Embramec
5	Electrical	1945	Rio de Janeiro	83.3	16.6(JAP)	IBRASA shrs
6	Electrical	1934	Canoas Recife Manaus	80.0?	20.0(US)	IBRASA shrs
7	Machinery etc.	1938	Santa Barbara d'Oeste	100.0	-	Financing
8	Machinery etc.	1957 (1970)	São Paulo Sorocaba	62.9	37.1(SWZ)	Financing
9	Braking systems	1953 (1974)	Limeira	70.0	30.0(UK)	Financing

Source: Unpublished documents; interviews in Brazil July-October, 1979.

Notes - See page 28

CASE STUDY No.1

- Foundation: 1951
- Locations: Two plants in Mauá and one in Santo André (both in the São Paulo metropolitan area).
- Subsidiaries: One in which the company has a 99% interest related to the auto-parts field; one in which it has a 95% stake - a shock absorber plant newly set up in Belo Horizonte (see Table); two in the agricultural field (both 50% interests) and one in elastomeric fibres (50%).
- Ownership: 95.4% national; BNDE appears to have held about 25% of social capital since May 1976; the foreign component (4.5%) is held by Monroe (US).
- BNDE financing: This company was one of the first to gain financing under FIPEME (a programme of the bank introduced in 1965 for small and medium firm financing), for expansion of its shock absorber factory (one of the original ones in Mauá) and for the production of piston rings.

Products and markets

- (i) Shock absorbers: The company practically has a monopoly in supplying the Brazilian auto industry (in 1977, the company supplied 6.1 million of 7.2 million units) and this item accounted for 33% of sales in 1977.
- (ii) Piston rings: The company supplies a large part of the market for piston rings in the auto industry; for example, in 1975 it supplied 20% of demand of Volkswagen; 50% Skania-Saab; 50% Ford Tratores; 20% Peugeot; and two and a half million units to Motores Perkins; these accounted for 28% of sales (1977).
- (iii) Engine blocks/heads: also account for 28% of sales (1977); two-thirds of output goes direct to car manufacturers, a quarter to distributors of parts.

Sales in general: In 1977 Volkswagen accounted for 22% of sales, followed by General Motors (12.7%); Scania (8%); Ford (6%); overall, eight companies took 70% of sales; only about 6% of output is exported.

Technology

The company has pursued an aggressive policy of technological development, and has a relatively high degree of sophistication in technology and marketing strategies; it has its own research/technical centre; there is strong evidence of several technical assistance contracts with three foreign concerns: Monroe; Sealed

Power Corporation (US) for motor components; and Boge GmbH (WG) for a line of shock absorbers.

Backgrounds of main company executives

The current President first went to work as Director of a family firm which imported auto-components back in 1940; in 1951, the firm was sold, and the present company was founded; the Vice-President is an engineer, who held apprenticeships in the US (Monroe, TRW Gemmer, Ford, General Motors, Carnegie), West Germany (Boge, Volkswagen), Sweden (Saab-Scania) and UK (Leyland, Rover); it is interesting to note the extent to which the current links of the company reflect the experience and contact of the company Vice-President.

Problems

The company has been adversely affected by the crisis in the car industry from about 1975; especially notable was excess capacity although from mid-1979 there was apparently some improvement over 1978.

CASE STUDY No.2

- Foundation: 1951
- Location: São Bernardo do Campo, São Paulo.
- Ownership: This company is but one of a large Brazilian group of enterprises operating in the field of steel production and heavy equipment manufacture; the ownership details relate only to the company in the case study: national 61.7%, foreign 38.3% (US Dana Corp.), the foreign partner having entered in 1974.
- Products: The company produces components destined for the Brazilian car industry, and also products derived from iron-founding, including axles, etc.
- Expansion: A large-scale expansion project was proposed in 1974, at a time when the Brazilian transport sector was beginning to face new problems; this was given financial support by BNDE, although the project had not been completed by early 1978.
- Technology: The company signed some of the earliest licensing and technical assistance contracts during the phase when the automobile industry was being set up in the 1950s, in particular with Hastings manufacturing Co. (US) and Goetzewerke Friedrich Goetre AG (WG) for piston rings (founding and moulding processes); in 1972 it began a series of contacts with the Sealed Power Corp. (US) with a view to establishing technical assistance programmes, but this does not appear to have materialised, and in 1974 new negotiations with Dana Corp. (US) finally produced a contract for technology transfer through Dana's 'Perfect Circle' division; at the same time Dana gained a stake in the company of almost 40%.
- Problems: The company appears to have encountered substantial technological development problems, and also had failed (by the mid-1970s) to renew much of its existing machinery and equipment; it could be inferred that the current economic recession is aggravating these problems.

CASE STUDY No.3

- Foundation: 1953
- Location: São Bernardo do Campo (metropolitan area of São Paulo) and Sorocaba.
- Ownership: 66.7% national (including some shares held by IBRASA) and 33.3% foreign, held by SPS Co. (Jenkinstown, Pennsylvania US); negotiations with SPS apparently began as far back as 1959, but were only brought to fruition in 1966.
- Company growth: The company had small beginnings, originally as a machinery shop; later began to specialise in screws and related products such as Allen-type keys and other small components.
- Financing: The company has had support from both the BNDE and the Industrial Development Council (CDI) over a number of years, dating back to the implantation of the automobile industry in the mid-1950s.
- Sales: 85-90% of all sales are in São Paulo, over half of sales going direct to the car industry.
- Raw materials: Steel is the basic input and accounts for about 45% of production costs; stocks of steel are thus needed to help offset price rises, especially since 75-80% of the steel used is imported with the remainder being supplied from within Brazil.
- Technology: Until 1969 SPS supplied technology and equipment from North America but apparently in 1969 SPS wanted to increase its stake in the company to a majority shareholding, and brought a certain amount of pressure to bear concerning increases in royalty payments; these events came to a head in 1974 when the Brazilian company approached IBRASA to take a shareholding in the concern; IBRASA did enter taking on mainly Preference shares.
- Other problems: In 1973, the company needed a new factory site, to expand production and acquire a better-organised plant; ideally, it wanted a site in the ABC area of São Paulo, in order to maintain easy sales links and to keep costs of transporting steel down; however, sites in the desired districts proved too costly, so the company reputedly selected a new plant site in Sorocaba (to the NW of São Paulo) taking advantage of incentives being offered with the setting up of a new industrial zone (or estate) there; it is not clear whether this plant is in operation and/or if it involved total relocation.

CASE STUDY No.4

- Foundation: 1941
- Location: Interlagos (part of São Paulo Município) and Socorro, Santo Amaro (also part of Sao Paulo).
- Subsidiaries: In 1956 the company established a carburettor division which eventually became the main source of income, but which was sold to a foreign concern in 1978/79 (for which see details below); a further subsidiary in a similar field (oil and petrol pumps) was set up in 1973 in conjunction with a US firm; a financing subsidiary was established in 1963.
- Ownership: As will be appreciated from the above (and what follows below) the company has been affected by a series of ownership changes in recent years, one of which resulted in the denationalisation of the firm's main product division (carburettors); the original private Brazilian family controlled almost two-thirds of social capital in the company (about 63%) which was almost totally nationally-owned, until 1976; in 1976, the capital structure of the company was completely reorganised - still in the direction of national ownership - with the entry of BNDE subsidiaries IBRASA (28%) and EMBRAMEC (7%) and reduction of the family share to 40%; this reorganisation was apparently brought about by the crisis affecting the automobile industry from about 1975; the eventual outcome was in 1978/79 when the carburettor division was sold to a West German carburettor firm, Weber, and it is not yet clear what changes were effected in the capital structure of the remainder of the firm (i.e. the high-precision optical division); the 1973 subsidiary has apparently retained its original ownership structure, 54.5% of capital being held by the original family members, and 45% by ACF industries (US).

Evolution of the main company

The original enterprise began producing optical equipment exclusively for military use in 1941 (the owner of the firm was reputedly inspired by the support to youth promised by Getúlio Vargas in the late 1930s); from 1951, the firm also began to sell its products to the civil market; then, with the stimulus provided by the setting up of a Brazilian-based car industry from 1956, the company established a carburettor division, with sales directed especially towards the American car firms (Chrysler, Ford, General Motors); American technology, (especially from Bendix) was important, as was also the operation of the financing import/sales subsidiary created in 1963, especially through executive contacts with directors of

CASE STUDY No.4 (cont'd)

firms; by the early 1970s carburettors accounted for 80% of sales.

Composition of sales 1972-75

	Carburettors	%	Optical equipment
1972	79		21
1973	81		19
1974	81		19
1975	67		33

The implication from the sales figures is that the firm's optical division began to resume its former importance after the crisis affecting the car industry reduced carburettor sales.

Technology

As mentioned above, US technology was especially important to the firm's carburettor development - especially the use of Zenith type carburettors; to some extent, however, the American technology and product became less advantageous, owing to competing West German-based technology to which other firms had access and which allowed such firms to increase their sales base to concerns like Volkswagen; nevertheless, it is a widely held view that the carburettor products of this company were well made, to a high standard, and with versatility of use in Brazil.

Denationalisation of the firm

By 1979 the carburettor division was sold to the West German firm Weber, after which it has not been possible to determine the ownership structure of the remainder of the firm; the circumstances surrounding the denationalisation outcome are also somewhat ambiguous but the evidence reviewed below appears to show how oligopolistic practices and multinational competition can affect the outcome for Brazilian private enterprise:

In 1974-75, after the completion of negotiations between Fiat and the state government of Minas Gerais concerning the installation of a major new Fiat car plant in Belo Horizonte (Betim), unpublished documents (circa 1975) reveal that the Italian group Fiat were attempting to bring a German carburettor manufacturer (Weber) to Brazil; this intention was perceived as a threat to existing Brazilian manufacturers of the product, including the case study firm, which might have anticipated losing out completely in winning sales to Fiat, since Fiat is preferentially orientated to the use of West German technology.

It is evident that the case study firm was experiencing some financial difficulties by 1976, when BNDE subsidiaries entered with 35%

of the share capital; the saga continued to unfold during 1978 after the completion of the Fiat plant and the onset of production at Betim, and when the fuller effects of economic recession were being felt (especially in the car industry) by domestic firms; Weber approached the case study firm and offered to buy it out; given the considerable share input of BNDE, it was not viewed as a positive action for the position of the bank (especially concerning its attempts to keep companies in national hands where possible), and some negotiations were entered into with the firm in Case Study No.1 (involving also intervention at the level of the Brazilian President) to endeavour to retain the firm in Brazilian hands; these efforts apparently failed, since the terms offered by Weber were superior to alternative proposals, in the view of the firm owner.

The changes effected after the sale of the carburettor division are not easy to trace; reliable sources indicated that by the end of 1979, the carburettor plant was still producing the usual product, but that there were some problems over quality, arising from labour problems (especially high turnover); it is presumed that the optical division has continued in production and it appears that BNDE has retained its shares in the firm, although perhaps at a reduced level.

CASE STUDY No.5

- Foundation: 1945
- Location: Rio de Janeiro (although the company is reputed to have relocated recently within Rio to one of the new industrial estates: Paciência).
- Ownership: 83.3% national, 16.6% foreign (Mitsubishi Electric Corporation, Japan) circa 1974; IBRASA holds about 22% of Preference capital and 9% of the Ordinary.
- Products: The firm began producing electric lifts, but from 1968 it also began producing power systems for telecommunications and energy generation.
- Sales: In 1973 energy contracts accounted for 75% of total contracts; in national terms, the company accounts for about 20% of value contracted by the telecommunications sector for power systems, and ranks second after Ericsson.
- Technology: Has contracts with Mitsubishi for technical assistance and 'know-how'; it recently began production of motor control panels for Mitsubishi in Brazil.

CASE STUDY No.6

- Foundation: 1934
- Locations: Canoas (Rio Grande do Sul); and subsidiaries in Recife and Manaus.
- Ownership: At least 80% appears to be national (possibly more) with up to 20% held by Rockwell US (formerly the Admiral Corporation); IBRASA has held some shares in the company since 1975.
- Products: The company originally began in the import-export business, especially imports of air conditioners; in 1952, the company entered a new phase, with the onset of production of household fridges and other consumer durables such as radio and T.V. as well as air conditioners; the plants in the Northeast and Manaus specialise in conditioners of various types, while the main company in Canoas has a more diversified output.
- Technology: From 1957 the company has had contracts for technical assistance with the US Admiral Corp. (now Rockwell).
- Problems: Marketing (because the firm has bases distant from major national markets); high administrative costs; only one product of national importance (in the air conditioner market); technological dependence.

CASE STUDY No.7

- Foundation: 1938
- Locations: Santa Barbara d'Oeste (5 plants, not all on same site) and one plant in Santo André; also has a subsidiary in Recife.
- Ownership: 100% national; no BNDE share participation, but the firm receives financing through the bank.
- Products: The company began producing agricultural equipment in the interior of São Paulo state; it later became specialised in lathes (and various components) for light to very heavy uses, and for use with different types of materials (plastics, metals, etc.); it ranks among the top 6 firms in Brazil for lathe production (notably, 5 out of the 6 are Brazilian-owned).
- Sales: 90% of production is for the Brazilian market, with 10% for export (the company accounted for 70% of total Brazilian lathe exports in the 1972-76 period); the company also has a sales network and sales representatives abroad, and holds a commercial contract with a German concern; among its main clients are some of Brazil's largest firms from both private and public sectors, as well as a number of MNC enterprises, some of which are shown below:
- Private Brazilian clients: Aços Villares, Equipamentos Clark, Máquinas Varga, Zanini, Dedini, Emaq;
- Public sector clients: Volta Redonda (CSN), USIMINAS, CVRD, Petrobrás, RFFSA;
- MNCs: Ford do Brasil, General Motors, Volkswagen, Fiat, Voith.
- Technology: The company has a high degree of self-contained technology, and it has always invested in technology; nevertheless, it has had a number of licensing and technology transfer arrangements with MNCs, including; a licence for plastic injection equipment manufacture from the Package Machinery Co (US): royalty payments to Wilhelm Hegenschadt KG (WG) and H. Ernault (France).

CASE STUDY No.8

- Foundation: 1957 (although with precedents back to 1943).
- Location: São Paulo Município and new factory in interior: Sorocaba.
- Ownership: National 62.9%; foreign 37.1% (Swiss accounts for 30%).
- Products: 8 classes - heat exchangers and coolers; distillation pipes; industrial ovens; mixing equipment; petroleum exploration equipment; pressure storage tanks; railway equipment; miscellaneous; the larger part of this production would be to specification (i.e. sob encomenda) as opposed to mass produced items (seriados).
- Importance of company: According to ABDIB (the Brazilian association for basic industries), between 14-20% of national total sales of products in the above fields are accounted for by the company.
- Sales: In 1976/77, sales to the Petrochemical industry (especially Petrobrás) and the rail transport sector accounted for 75% and 14% of sales respectively.
- Raw materials: Brazilian-produced steel accounts for the bulk of raw inputs, with a large proportion of the total coming from USIMINAS.
- Technology: While the company has developed some of its own technology, it has a variety of contracts with mainly US and UK firms; some of the main ones in the 1970s were with: Heat Transfer Research Co; Hudson Products Corp; Brown Fintube Co; Glitsch Inc.; Whiting Corp.
- Problems: The problem of competition with firms in similar fields (many of them private Brazilian concerns) is perhaps a major one; there are perhaps at least 20 other competing firms; nevertheless, this company has about 25% of the heat exchanger market, 75% of that for air coolers, and 60% of that for oil and gas separators; a further problem concerns the heavy dependence on public sector orders (especially in petroleum fields) which might bring difficulties in view of public sector spending cuts.

CASE STUDY No.9

- Foundation: 1953
- Location: Limeira (near Campinas), São Paulo state.
- Ownership: The main company appears to have been at least 95% national until 1971, when Lucas (UK) entered the company with profound repercussions on company statutes and ownership structure; presently the company is about 70% national and 30% foreign (Lucas UK); in 1974 a new subsidiary was set up (in a related field), this being 75% national and 25% foreign-owned (Midland Ross Corp., US).
- Products: The main company is a leading manufacturer of automobile brakes and accessories (in 1975, it was second in Brazil after Bendix in this production); founding (of metal) is also an important related activity.
- Sales: Predominantly to Brazilian car industry, including Volkswagen, General Motors, Mercedes Benz, and also to heavy vehicle market suppliers such as Massey Ferguson, Chrysler, etc.
- Exports: Apparently difficult owing to lack of compatibility with systems used abroad.
- Financing: Has received substantial long-term financing from BNDE, especially for an expansion programme launched in 1974.
- Technology: Presumably Lucas is an important supplier of technological inputs to the company, although the expansion programme under way from 1974 is designed to foster technological development within the firm.

CONCLUSIONS

The material presented in this paper has perhaps raised more questions than have been answered. Yet there is scope for tentative conclusions to be drawn about the position and role of Brazilian private enterprise during a vital period of the country's industrialisation process.

Before 1950, the country's industrial base, though already substantial by Latin American standards, was still largely composed of traditional industries in the hands of private Brazilian interests. Subsequently, structural changes took place, especially involving the diversification and increasing capacity of industry on the one hand, and greater public sector and foreign participation on the other. These changes reduced the Brazilian private component within the resulting overall ownership structure. They also account for the dominance of multinational firms in most of the dynamic industries, and public sector pre-eminence in basic industries such as steel and petroleum, particularly in view of the large-scale investments these industries have required.

While these developments may be viewed as disadvantageous to industrialisation by local enterprises, there is clear evidence that Brazilian concerns of all sizes have been able to establish themselves (or expand) in the dynamic sectors in considerable numbers. Moreover, the majority of firms have done so by their own efforts - initially at least. Having said this, some qualifications must be made.

In particular, Brazilian private enterprises, although often being predominant in firm numbers, tend to be of much smaller scale than their competitors, with implications for the share of assets and sales. Further, in many cases local firms have had to make greater use of foreign technologies (and equipment) in their production techniques to be able to supply the market for components required by MNCs. This may be seen as one factor contributing to the lack of technological development by Brazilian firms themselves. In addition to making royalty payments to, and buying items of equipment from, foreign concerns, domestic companies have frequently had to cede some of their control by taking on foreign partners. This was implicit in several of the case studies, and although it can be argued that this procedure reduces risk for the local company the benefits may be limited if the foreign concerns succeed in penetrating too large a number of firms.

The evidence on growth and survival pointed to a rapid turnover of firms and the vulnerability of small and medium firms. Peaks in insolvencies also demonstrated that rather than simply being associated with economic decline, they were also apparent during expansion phases suggesting that survival is especially affected by rapid changes in the economic climate whatever the direction of change.

Further costs to Brazilian private enterprise may be implicit in aspects arising from the locational analysis. The power of market concentration by MNC firms is one element which can produce marked distortions in the economic environment affecting local firms. Moreover, it is apparent that increasing numbers of local firms have become strongly reliant upon sales to either multinational subsidiaries operating in Brazil or to public sector enterprises, thus perhaps inhibiting the development of stronger reciprocal links among Brazilian private concerns as well as making such concerns more vulnerable to financial collapse in times of economic stringency.

Taken together, the above observations suggest that much of Brazil's private industry exists in a somewhat precarious state. A key question for its future survival and role clearly concerns the extent to which the country's industrialisation course continues to be dominated by high technology, capital-intensive production.

NOTES

1. UN Yearbook of Industrial Statistics, New York, United Nations, 1976.
2. Figures quoted in Bank of London and South America Review, Vol.14, May 1980, p.119.
3. See: Conjuntura Econômica, Vol.31 (12), Rio de Janeiro, December 1977, pp.82-100, and especially Table 1, p.85.
4. Historically, the Southeast (Sudeste) gained in importance after the discovery of gold during the late 17th century in the interior of Minas Gerais state; the 'town' of Rio de Janeiro became the main outlet for gold exports and was created capital of Brazil by the Portuguese in 1763.
5. See Chapter 10 of Baer (1975), A Industrialização e o Desenvolvimento Econômico do Brasil, 'O surto brasileiro, 1968-73.'
6. Bank of London and South America Review, Vol.14, May 1980, p.119.
7. By the early 1970s Brazil was importing at least 20 million tons of crude oil annually, in addition to other products such as gasoline (3m tons), diesel fuel oil and lubricants (1m tons). This compares with imports of less than 50,000 tons of crude oil, 2m tons of gasoline and 3m tons of diesel fuel and lubricants in 1950.
8. The Ministry of Industry was established by Law 3,782 of 22.7.60.
9. Among these, Petroquisa, the subsidiary of Petrobrás, has been especially important in chemicals and related industry.
10. On 18th June 1980, the Economic Development Council (CDE) approved new measures largely aimed at reducing expenditure by the public sector; these cuts will affect direct investments by State companies (15% cut) and public sector imports (cut by about 30%). Further cuts were also announced at the end of 1980.
11. In 1979, the latest year for which information was available, FDI totalled about US\$ 15,963 m.

12. Bank of London and South America Review, Vol.14, May 1980, p.119; ibid., Nov. 1980, p.244.
13. Finame was set up by Decree 55,275 of 22.12.64; Fipeme was also set up, in the following year, as a financing agency for small and medium enterprises.
14. Recently (during 1979) this agency has turned specific attention to the problems of micro-firms (microempresas) throughout Brazil (micro-firms are those with 10 employees or less).
15. For a review of CDI operations, see: Cunningham, S., 'Brazil: recent trends in industrial development', Bank of London and South America Review, Vol.13, April 1979, pp.212-220. Several paragraphs from this article appear on pp. 7-8.
16. This evidence comes from mimeographed copies of the original documents supplied by one of the authors in Brazil.
17. This document was titled Apoio à Empresa Privada Nacional, Brasília, 30.3.77.
18. The document was issued by the business daily Gazeta Mercantil at the Forum set up by this concern; the title of the document was Primeiro Documento dos Empresários (better known as 'the document of the group of eight') in São Paulo, July 1978, and it was signed by the following: Cláudio Bardella, Severo Gomes, José Mindlin, Antônio Ermirio de Moraes, Paulo Villares, Paulo d'Arrigo Velhinho, Laerte Setúbal Filho, and Jorge Gerdau Johannpeter.
19. Concrete cases are difficult to document, but see Evans (1971, 1977 and 1979) for some further coverage of this aspect.
20. This classification may not be compatible with those elsewhere; for example, the Brazilian 'large' group may only correspond to medium-sized concerns in Europe or USA.
21. These were treated as two separate groups in the original study.
22. This was the Lewis Learmonth Uniform Random Number Generator (Naval Postgraduate School, Monterrey, California).
23. See Rattner, H. et al, 1979, Table 3.15, p.100, and Table 3.20, p.103.

24. It appears that the data are for firms affected in the cities of São Paulo and Rio de Janeiro.
25. Boletim da Associação Comercial de São Paulo (annual).
26. Visão began publishing this annual survey in 1967, but only from 1974 has it given more detailed breakdowns of ownership; Visão classifies firms as MNCs when more than 50% of share capital is in the hands of the MNC. Most of the results contained in the analysis and discussion between pages 20 & 27 were incorporated in an article by the author for The Professional Geographer titled 'Multinational Enterprises in Brazil: Regional Development Implications' (February 1981).
27. According to data for Patrimônio Líquido (net worth) shown in the Visão survey, 1979.
28. For some relevant background to incentive policy in the Northeast, see Hirschman, A.O., 'Industrial Development in the Brazilian Northeast and the Tax Credit Scheme of 34/18' Journal of Development Studies, Vol.5, 1968, pp.1-28; Goodman, D.E. and Cavalcanti, R., Incentivos à industrialização do Nordeste, Rio de Janeiro, IPEA, 1974.
29. Fiscal incentives are generally open to all firms, and not specifically designed for MNCs.

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