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TRANSNATIONAL CORPORATIONS AND INDUSTRIAL MODERNIZATION IN BRAZIL

Results of a questionnaire administered to the largest foreign-owned companies in the manufacturing sector during November 1991/January 1992

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ANSWERS GIVEN BY 55 TRANSNATIONAL CORPORATIONS IN THE BRAZILIAN MANUFACTURING SECTOR TO A QUESTIONNAIRE ON TECHNOLOGICAL BEHAVIOUR IN THE 1980s AND PROSPECTS FOR THE 1990s

1. Introduction

This report presents the answers given by 55 of the 100 largest industrial transnational corporations (TNCs) in Brazil to a questionnaire on TNCs and modernization in the Brazilian manufacturing sector in the 1980s and the 1990s. The report complements the paper "Transnational Corporations and the Manufacturing Sector in Brazil: Technological Backwardness in the 1980s and Signs of a Significant Restructuring in the 1990s".* The paper, which was presented at the Regional Symposium on Foreign Investments in Santiago (October 1992) is a summary report on the main findings of a study based on the questionnaire and on interviews with presidents and high-ranking executives of the enterprises surveyed. The study is part of a project on TNCs and industrial restructuring in Latin America, involving three other country cases (Chile, Colombia and Mexico).

The questionnaire concerned the technological behaviour of large TNCs in the context of the continuing crisis in the Brazilian economy, as well as their future prospects. The explanatory letter sent to the executives contextualized the questionnaire by stating that it had been written on the basis of the following well-known historical situation :

1. With the exception of a few branches and of the 1984-1986 growth period, the Brazilian manufacturing sector has been virtually stagnant since 1981, in sharp contrast to its extraordinary performance in previous decades. Macroeconomic instability and recession were the main characteristics of the 1980s.

2. This situation occurs at a time of rapid modernization in the world's industry, based on the diffusion of microelectronic-based products and processes (and of biotechnology and new materials), as well as the dissemination of "time-saving/quality-controlling" organizational techniques. As a result, the Brazilian manufacturing sector is becoming increasingly outdated.

3. The period of stagnation in Brazil is also one of "productive globalization" in the world, not only by means of rapid growth in international trade, but especially by means of an extraordinary increase in the worldwide flow of foreign direct investment (29% per annum between 1983 and 1989). In sharp contrast to previous decades, the yearly flow of foreign direct investment in the past 11 years has been scant, meaning that Brazil is being excluded from the current "globalization" process.

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* By R. Bielschowsky and published by ECLAC, October 1992.

2. The sample

The 55 TNCs surveyed in this study were selected from among the 100 largest manufacturing TNCs in Brazil according to sales. It is estimated that their total sales in 1990 represented around 13% of the total manufacturing sales made by all enterprises in Brazil, and nearly 40% of the total sales of all the manufacturing TNCs.

The 55 firms are responsible for an estimated 17% of the value of Brazilian manufacturing exports, and for nearly 40% of the value of manufacturing exports from TNC subsidiaries in Brazil.

In 1990 they had approximately 326,000 employees, averaging 5,920 employees per firm, with the following breakdown:

Less than one thousand employees - 3 firms;
One thousand to three thousand employees - 17 firms;
Three thousand to five thousand employees - 15 firms;
Five thousand to ten thousand employees - 13 firms;
Over ten thousand employees - 7 firms.

Thirty-five of the 55 TNCs are 100% owned by the parent company: in six others foreign ownership ranges between 75% and 99%; six firms are 50% to 74% foreign-owned, and the remaining eight firms are 25% to 50% foreign-owned.

The breakdown by country origin of the parent company is as follows: United States - 21 firms; Germany - 8 firms; United Kingdom - 4 firms ; France - 4 firms; other European countries - 8 firms; Japan - 7 firms; Argentina - 2 firms ; Canada- 1 firm.

The selection criteria for the sample —i.e., the largest firms— makes it unwise to extrapolate the views of its representatives to apply to the entire universe of TNCs in Brazil. In considering the results presented herein, it should be kept in mind that leading firms are expected to have a specific attitude towards technical progress, so that their answers are not representative of the small and medium-sized TNCs in Brazil —and even less representative of the attitudes of small and medium-sized national firms.

In this respect, it should also be taken into account that the firms' investment attitudes are greatly influenced by their current performance, so that the answers to the questionnaire reflect the recent performance of the firms. Unfortunately, the available information on output growth by the firms in the sample is not precise. All the same, it suffices to indicate that, on average, they grew faster in the 1980s than the Brazilian manufacturing sector as a whole —which grew by 10% in the period 1989-1991. When asked about output performance in that period, 28.6% reported that their output grew over 50%, another 28.6% said that output growth was between 20% and 50%, 22.4% said that it grew between 0% and 20%, and 20.4% said that output declined during that period.

The following figures indicate the sectoral composition of TNCs in the sample, both according to the number of enterprises and to sales. To characterize the sample more precisely —and to avoid implying that the comparison means the sample is representative of all TNCs— a comparison to the figures for all TNC subsidiaries in Brazil (based on a sample consisting of over 3,300 large and medium- sized firms, of which approximately 500 are TNCs) is supplied. As can be seen, the sample's sectoral composition is quite similar to the overall sectoral composition.

Table 1

SECTORAL COMPOSITION OF FIRMS IN THE SAMPLE AND AMONG BRAZILIAN SUBSIDIARIES OF MANUFACTURING TNCs
Number of firms and sales (1990)

	NUMBER OF FIRMS (% distribution)		SALES (% distribution)	
	All TNC subsidiaries in Brazil	TNCs in the sample	All TNC subsidiaries in Brazil	TNCs in the sample
Food, beverages and tobacco	10	9	13	21
Chemicals/petrochemicals	27	25	26	22
Metallurgy	12	9	12	6
Mech. engineering, electrical and electronic goods	25	25	22	20
Transport equipment	5	20	18	26
Other sectors	21	12	9	6
TOTAL	100	100	100	100

Source: Based on Revista Visão's "Quem é Quem na Economia Brasileira", 1991, ed. Abril and on data from the Joint ECLAC/DESD Unit on Transnational Corporations.

3. The questionnaire

The questionnaire is divided into four parts, as follows:

1. The firm in the Brazilian crisis in the 1980s: domestic market and exports.

2. Efficiency enhancement and modernization in the 1980s: the firm's situation by the end of a decade of difficulties in Brazil and of intense international technical progress.

3. Future strategy and desired economic policy in the rest of the 1990s (assuming growth and macroeconomic stability from 1993 onwards).

4. Concluding questions.

The executives were asked to answer questions on future investments and modernization, assuming future macroeconomic stability and growth recovery. They were asked to suppose that the currently huge macroeconomic difficulties will be overcome so as to allow for a new investment and growth cycle in the Brazilian economy.

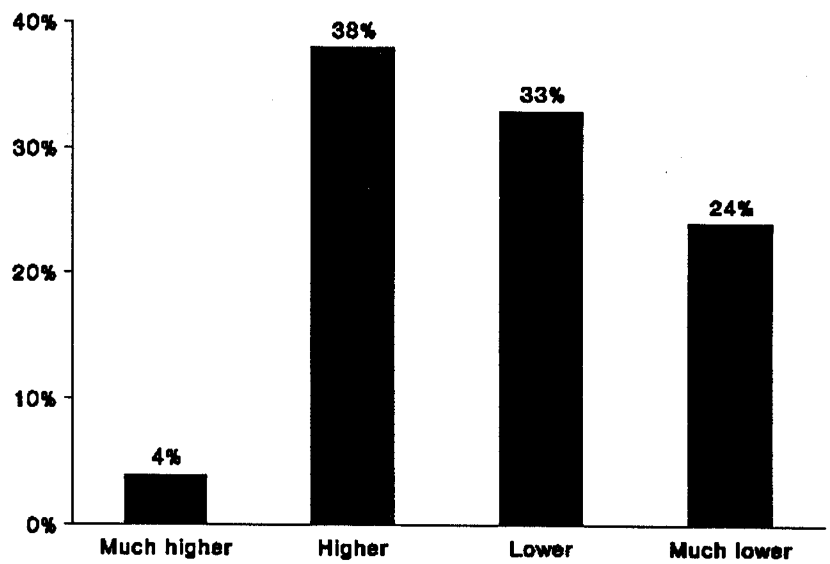
Relative Profits of Brazilian Subsidiaries

The historically highly profitable manufacturing sector in Brazil had three very bad years recently: 1987, 1990 and 1991. This is apparent in the answers given by the TNCs in the sample on their relative profitability.

Question No. 1

In the last five years and in comparison to your firm's parent company, as well as to its subsidiaries in other parts of the world (within the same sector in which your firm operates), your net profits have been:

(1) Much higher
(2) Higher
(3) Lower
(4) Much lower



DISTRIBUTION OF RESULTS (in percentages)

	Much higher	Higher	Lower	Much lower
TOTAL	4.4	37.8	33.3	24.4

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

Factors that Influenced the Brazilian Economy

Macroeconomic conditions (inflation, public sector financial crises, high domestic interest rates and balance-of-payments problems) were the major negative factors influencing Brazil's economic performance in the 1980s.

Question No. 2

How would you rate the impacts of the following on **Brazil's economic performance** in the last 10 years?:

(1) Very positive
(2) Positive
(3) Neutral
(4) Negative
(5) Very negative
(6) Not applicable

DISTRIBUTION OF RESULTS (in percentages)

	Very negative	Negative	Neutral	Very positive	Positive	Not applicable
Price instability (inflation)	80.0	20.0	0.0	0.0	0.0	0.0
Public-sector financial crises	64.0	26.0	8.0	0.0	2.0	0.0
Domestic interest rates	53.1	34.7	8.2	0.0	4.1	0.0
Problems in the balance of payments	51.0	44.9	2.0	0.0	2.0	0.0
Import barriers	49.0	34.7	6.1	0.0	10.2	0.0
Availability of foreign exchange	31.3	58.3	6.3	0.0	4.2	0.0
International interest rates	28.6	28.6	28.6	0.0	14.3	0.0
Behaviour of domestic demand	28.6	55.1	8.2	0.0	6.1	2.0
Evolution of real wages	25.0	50.0	14.6	2.1	6.3	2.1
Evolution of international competitiveness	24.5	44.9	8.2	2.0	20.4	0.0
Evolution of exchange rates	24.5	57.1	10.2	0.0	8.2	0.0
Trade union problems	22.9	58.3	12.5	0.0	6.3	0.0
Behaviour of imports of goods that compete with the goods your firm produces	11.4	15.9	31.8	0.0	25.0	15.9
Evolution of productivity	10.4	39.6	10.4	4.2	33.3	2.1
Behaviour of imports of goods that do not compete with the goods your firm produces	8.9	17.8	28.9	0.0	35.6	8.9
Behaviour of exports	6.0	6.0	4.0	12.0	70.0	2.0

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Factors that Influenced Firms' Performance in the 1980s

Macroeconomic conditions affected the firms' performance very negatively in the 1980s. Productivity improvements and the behaviour of exports affected it positively.

Question No. 3

How would you rate the effects of the following on your **firm's performance** in the last 10 years?:

(1) Very positive
(2) Positive
(3) Neutral
(4) Negative
(5) Very negative
(6) Not applicable

DISTRIBUTION OF RESULTS (in percentages)

	Negative	Very negative	Positive	Very positive	Neutral	Not applicable
Evolution of exchange rates	59.2	20.4	0.0	0.0	20.4	0.0
Problems in the balance of payments	50.0	8.0	0.0	0.0	36.0	6.0
Evolution of real wages	44.9	12.2	8.2	2.0	30.6	2.0
Availability of foreign exchange	42.9	6.1	2.0	0.0	44.9	4.1
Price instability (inflation)	40.0	52.0	6.0	0.0	2.0	0.0
Behaviour of domestic demand	38.8	26.5	14.3	0.0	20.4	0.0
Import barriers	38.0	20.0	18.0	2.0	22.0	0.0
Public-sector financial crises	36.0	42.0	0.0	0.0	16.0	6.0
Trade union problems	34.0	10.0	2.0	0.0	52.0	2.0
Evolution of international competitiveness	30.6	8.2	30.6	4.1	24.5	2.0
Domestic interest rates	26.0	54.0	8.0	0.0	12.0	0.0
International interest rates	22.4	2.0	14.3	0.0	61.2	0.0
Behaviour of imports of goods that compete with the goods your firm produces	14.6	4.2	14.6	2.1	50.0	14.6
Evolution of productivity	10.4	2.1	66.7	4.2	16.7	0.0
Behaviour of exports	10.0	2.0	52.0	14.0	22.0	0.0
Behaviour of imports of goods that do not compete with the goods your firm produces	8.3	4.2	14.6	0.0	60.4	12.5

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

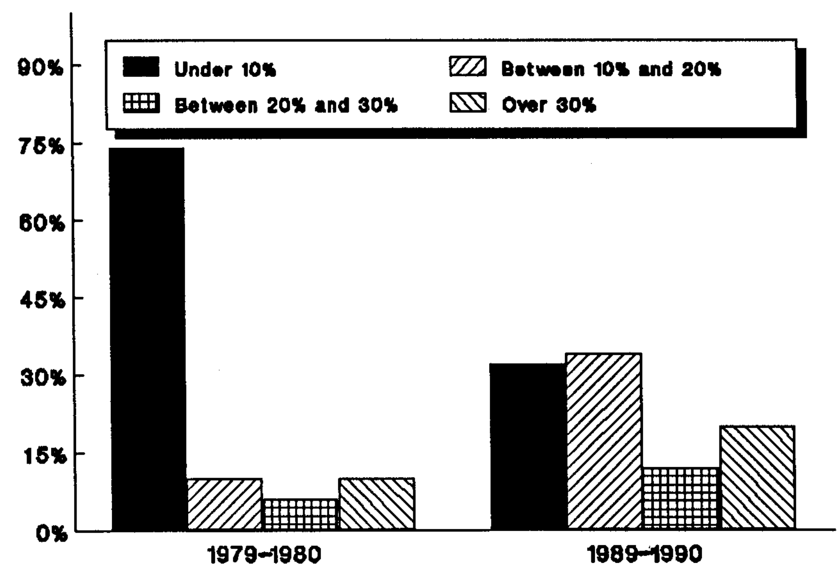
Question No.4

Export Coefficients

The firms greatly increased their export coefficients in the 1980s.

<u>Question No. 4</u>

What percentage of your sales represented exports in 1979-1980 and 1989-1990?:



DISTRIBUTION OF RESULTS (in percentages)

	Under 10%	Between 10% and 20%	Between 20% and 30%	Over 30%
1979-1980	74.0	10.0	6.0	10.0
1989-1990	34.0	34.0	12.0	20.0

<u>Source</u>: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Export Behaviour of Firms

Increased efficiency (cost reductions, productivity and quality improvements) and reaction to domestic recession were the major positive factors supporting export performance in the 1980s. Import barriers and transport problems were the most negative factors.

Question No. 5

Rate the aspects listed below as to their influence on your firm's export behaviour in the last 10 years:

(1) Very positive
(2) Positive
(3) Neutral
(4) Negative
(5) Very negative
(6) Not applicable

DISTRIBUTION OF RESULTS (in percentages)

	Positive	Very positive	Negative	Very negative	Neutral	Not applicable
Combination of foreign and domestic markets so as to diversify risks	57.4	12.8	0.0	0.0	17.0	12.8
Operational improvements in the drawback system	57.4	4.3	4.3	0.0	27.7	6.4
Evolution of labour productivity	55.3	17.0	2.1	0.0	21.3	4.3
International strategy of the parent company	53.2	6.4	0.0	2.1	27.7	10.6
Evolution of product quality and/or design	51.1	14.9	0.0	0.0	23.4	10.6
Reduction in costs owing to increases in the output scale	44.7	17.0	2.1	2.1	21.3	12.8
Use of potential export capacity existing at the beginning of the 1980s	44.7	10.6	2.1	0.0	23.4	19.1
Latin American multilateral trade agreements	36.2	8.5	6.4	0.0	40.4	8.5
Investments in export activities	36.2	6.4	6.4	0.0	36.2	14.9
Behaviour of the domestic market	31.9	19.1	12.8	2.1	31.9	2.1
Evolution of real wages in relation to international competitors	27.7	2.1	6.4	4.3	57.4	2.1
Evolution of energy costs	25.5	2.1	25.5	6.4	38.3	2.1
Investment abroad (marketing, joint ventures, etc.)	19.6	2.2	4.3	0.0	28.3	45.7
Availability of export financing	19.1	0.0	27.7	17.0	31.9	4.3
Evolution of the exchange rate	4.3	0.0	48.9	27.7	19.1	0.0
Reduction of fiscal and financial export subsidies	2.1	2.1	40.4	25.5	29.8	0,0
Exchange rate instability	2.1	0.0	58.3	25.0	14.6	0.0
Barriers to imports of inputs and equipment	0.0	2.1	36.2	42.6	14.9	4.3
Inefficiency of the national telecommunications structure	0.0	2.1	29.8	6.4	55.3	6.4
Informatics market reserve	0.0	0.0	42.6	40.4	8.5	8.5
Transport problems	0.0	0.0	38.3	53.2	8.5	0.0
Constraint clauses in technology contracts	0.0	0.0	17.4	8.7	39.1	34.8

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

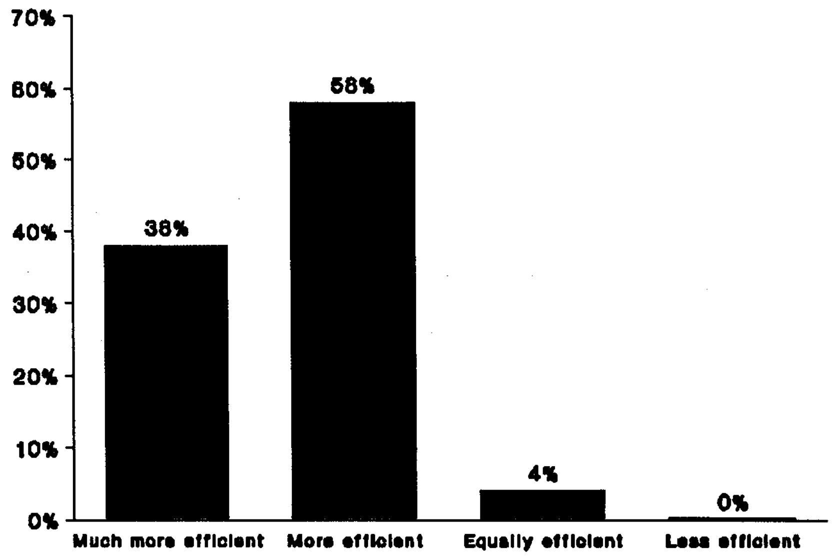
Efficiency (I)

38% of the firms in the sample see themselves as much more efficient now than in the early 1980s.

Question No. 6

Is your firm more efficient now than in the early 1980s?:

(1) **Much more efficient**
(2) **More efficient**
(3) **Equally efficient**
(4) **Less efficient**



DISTRIBUTION OF RESULTS (in percentages)

	Much more efficient	More efficient	Equally efficient	Less efficient
TOTAL	38.0	58.0	4.0	0.0

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

Efficiency (II)

> ***Gains in efficiency were mainly related to better quality. But over one third of the firms said they had made great progress in decreasing costs.***

Question No. 7

How did your firm's efficiency develop in the 1980s in the following areas?:

(1) Great progress
(2) Some progress
(3) No progress
(4) Not applicable

DISTRIBUTION OF RESULTS (in percentages)

	Great progress	Some progress	No progress	Not applicable
(a) Decrease in costs due to output rationalization	36.0	54.0	6.0	4.0
(b) Labour productivity	30.0	64.0	6.0	0.0
(c) Decrease in stocking time	26.0	56.0	14.0	4.0
(d) Quality of product in terms of durability	24.5	26.5	10.2	38.8
(e) Quality of product in terms of manufacturing defects	38.0	44.0	8.0	10.0
(f) Quality of product in terms of performance	32.0	44.0	4.0	20.0
(g) Improvements in product design	22.9	31.3	10.4	35.4
(h) Adjustment to technical requirements of the world market	24.5	55.1	4.1	16.3
(i) Adjustment to time requirements of the world market	16.3	40.8	12.2	30.6
(j) Greater flexibility in the manufacturing process	24.5	57.1	6.1	12.2

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

Technological Updating in the Last Ten Years

Technological updating concentrated on organizational techniques. Automation was weak.

Question No. 8

What happened in your firm with regard to technological updating?:

(1) Intense
(2) Weak
(3) Non-existent
(4) Not applicable

DISTRIBUTION OF RESULTS (in percentages)

	Intense	Weak	Non-existent	Not applicable
(a) Technological updating was . . .	68.0	32.0	0.0	0.0
(b) Automation of the manufacturing process was . . .	34.0	60.0	6.0	0.0
(c) Introduction of new organizational techniques ("just in time", etc.) was . . .	58.0	34.0	8.0	0.0
(d) Difficulty in technological updating owing to technological complexity was . . .	10.0	46.0	28.0	16.0

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Reasons for Technological Updating

Modernization efforts sought to improve product quality and product diversification. They also sought to cut costs, but without reducing total wage costs.

Question No. 9

How important was each of the following aspects as a motive for your firm's technological updating in the last 10 years?:

(1) Very important
(2) Important
(3) Slightly important
(4) Not important

DISTRIBUTION OF RESULTS (in percentages)

	Very important	Important	Slightly important	Not important
TARGETS				
Improvement in product quality	53.1	34.7	12.2	0.0
Decrease in manufacturing costs	48.0	44.0	8.0	0.0
Introduction of new products and changes in existing ones	46.9	34.7	18.4	0.0
Decrease in the wages/sales ratio	8.3	39.6	41.7	10.4
DETERMINANTS				
Concern about international competitiveness of exports	40.8	32.7	14.3	12.2
Competition pressure from other firms	28.0	36.0	34.0	2.0
Competition pressure from imports in the domestic market	6.0	14.0	36.0	44.0

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Technological Updating

Although the firms said that satisfactory technological updating took place in the last 10 years . . .

Question No. 10a

Taking into account world-wide technical progress in your sector, what happened in your firm with regard to technological updating in the last 10 years?:

(1) Progress has been excellent
(2) Progress has been satisfactory
(3) Progress has been unsatisfactory
(4) Progress has been very unsatisfactory

DISTRIBUTION OF RESULTS (in percentages)

	Excellent	Satisfactory	Unsatisfactory	Very Unsatisfactory
TOTAL	14.0	58.0	28.0	0.0

. . . they recognize that they compare unfavourably to international standards as far as automation, organizational techniques and productivity are concerned. But their plants are not much older, and their products' operational and overall quality is up to international standards.

Question No. 10b

How do you qualify the following aspects related to technological progress in your firm, as compared to the current technological level in the world's main exporting firms in your sector?:

(1) Higher
(2) Similar
(3) Lower
(4) Much lower

DISTRIBUTION OF RESULTS (in percentages)

	Higher	Similar	Lower	Much lower
(a) Modernity of equipment	6.0	60.0	34.0	0.0
(b) Digital automation	0.0	24.0	60.0	16.0
(c) Intensity of use of new organizational techniques	6.0	40.0	52.0	2.0
(d) Labour productivity	6.1	36.7	57.1	0.0
(e) Quality of plant operation	16.3	61.2	22.4	0.0
(f) Quality of products	14.3	77.6	8.2	0.0
(g) Quality of skilled labour	6.0	54.0	38.0	2.0
(h) Quality of unskilled labour	2.0	28.6	55.1	14.3
(i) Price in the domestic market	40.4	44.7	12.8	2.1

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

Differences in Degree of Technological Advancement

Technological backwardness is explained mainly by uncertainties in the Brazilian economy and the postponement of investment decisions, as well as the recession in the domestic market. Trade barriers are also important.

Question No. 11

The factors that may explain any differences between your firm's technological level and the one prevailing internationally are listed below. How important do you think they are?:

(1) Very important
(2) Important
(3) Not important
(4) Not applicable

DISTRIBUTION OF RESULTS (in percentages)

	Very important	Important	Not important	Not applicable
Uncertainties in the Brazilian economy and postponement of investment decisions	66.0	24.0	6.0	4.0
Recession in the domestic market	50.0	38.0	8.0	4.0
Government price controls	49.0	18.4	16.3	16.3
Informatics market reserve law	46.0	28.0	12.0	14.0
Import barriers	44.9	30.6	18.4	6.1
Exchange rate instability	36.7	40.8	16.3	6.1
Difficulties in importing technology	34.0	24.0	18.0	24.0
Low per capita income	32.0	40.0	18.0	10.0
Brazilian foreign investment constraints	26.0	42.0	26.0	6.0
Limited output scale owing to domestic market size	20.0	40.0	22.0	18.0
Lack of competition from imports	16.0	36.0	18.0	30.0
Limited entrepreneurial scale	8.2	12.2	36.7	42.9
Quality of skilled labour	4.0	44.0	22.0	30.0
Quality of unskilled labour	4.0	42.0	24.0	30.0
Insufficient competition in the domestic market	2.0	26.0	40.0	32.0
Lack of interest by the parent company	2.0	4.1	20.4	73.5
Lack of consumer information	0.0	18.4	40.8	40.8
Technological backwardness of the parent company	0.0	0.0	16.3	83.7

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Industrial Automation

Trade barriers are ranked highest among a number of possible negative factors hindering industrial automation.

Question No. 12

To what degree are the following factors negatively affecting industrial automation in your firm?:

(1) Significantly
(2) Moderately
(3) Not at all
(4) Not applicable

DISTRIBUTION OF RESULTS (in percentages)

	Significantly	Moderately	Not at all	Not applicable
Informatics market reserve	67.3	12.2	10.2	10.2
Expensive equipment	57.1	30.6	8.2	4.1
Import barriers	46.9	30.6	16.3	6.1
Lack of output scale	22.4	22.4	22.4	32.7
Low-quality equipment	20.4	36.7	28.6	14.3
Low labour costs	16.3	44.9	30.6	8.2
Suppliers' lack of technological capabilities	10.2	44.9	30.6	14.3
Labour quality	10.2	34.7	51.0	4.1
Negative attitude of middle management towards new forms of worker relations	6.3	35.4	45.8	12.5
Speed of technical obsolescence of equipment	4.2	35.4	41.7	18.8
Lack of technical assistance	2.1	41.7	39.6	16.7
Customers' lack of technological capabilities	2.0	16.3	57.1	24.5
Conflicts in worker relations	0.0	20.4	57.1	22.4
Conflicts in supplier and customer relations	0.0	10.2	61.2	28.6

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

New Organizational Techniques

No major obstacles hinder the adoption of new organizational techniques. Suppliers' lack of technical capabilities and a negative attitude of middle management towards new forms of worker relations are rated highest among a number of possible negative influences.

Question No. 13

To what degree are the following factors negatively affecting the introduction of new organizational techniques in your firm?:

(1) Significantly
(2) Moderately
(3) Not at all
(4) Not applicable

DISTRIBUTION OF RESULTS (in percentages)

	Significantly	Moderately	Not at all	Not applicable
Informatics market reserve	22.9	18.8	25.0	33.3
Suppliers' lack of technological capabilities	22.4	42.9	22.4	12.2
Negative attitude of middle management towards new forms of worker relations	16.3	51.0	26.5	6.1
Labour quality	10.4	47.9	35.4	6.3
Conflicts in supplier and customer relations	8.2	8.2	51.0	32.7
Expensive equipment	6.3	31.3	35.4	27.1
Low-quality equipment	6.3	25.0	31.3	37.5
Lack of output scale	4.3	27.7	27.7	40.4
Import barriers	4.2	27.1	41.7	27.1
Speed of technical obsolescence of equipment	2.2	8.7	43.5	45.7
Lack of technical assistance	2.1	23.4	44.7	29.8
Customers' lack of technological capabilities	2.0	36.7	44.9	16.3
Low labour costs	0.0	24.5	51.0	24.5
Conflicts in worker relations	0.0	16.3	61.2	22.4

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Future Performance of the Brazilian Economy and Firms

Domestic market growth, complemented by exports, will be the determining factor for the firms' future performance.

Question No. 14

Assuming macroeconomic stability and growth (say, at 5% to 7% per annum), which of the following hypothetical situations will be crucial for the Brazilian economy and for your firm's performance in the future?:

(a) Brazilian economy's performance
(b) Firm's performance

DISTRIBUTION OF RESULTS (in percentages)

	Brazilian economy's performance	Firm's performance
(a) Domestic market growth	8.0	22.0
(b) Domestic market growth, but also greatly influenced by exports	52.0	58.0
(c) Domestic market and export growth, at the same level of importance	26.0	8.0
(d) Export growth, but also greatly influenced by domestic market	14.0	10.0
(e) Export growth	0.0	0.0

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

Investment in the 1990s

Question No.15

Assuming that growth and stability are recovered, investments in the 1990s will be higher, but not much higher, than in the 1980s. Equipment modernization and replacement are slightly more important as targets for investment than increased output capacity <u>per se</u>.

<u>Question No. 15</u>

What will happen in the 1990s as compared to the 1980s, regarding the various kinds of investment listed below (assuming that economic growth and stability recover starting in 1993)?:

(1) Much higher values
(2) Higher values
(3) Lower values
(4) Much lower values

DISTRIBUTION OF RESULTS (in percentages)

	Much higher values	Higher values	Lower values	Much lower values
(a) Investment to increase output capacity	14.6	56.3	27.1	2.1
(b) Investment to modernize existing plants	24.0	66.0	8.0	2.0
(c) Investment to replace equipment	16.7	66.7	14.6	2.1
(d) Investment to change the product mix	13.6	65.9	20.5	0.0
(e) Investment to adjust to the requirements of the external market	16.7	58.3	20.8	4.2
(f) Investment to improve product quality	15.2	78.3	6.5	0.0
(g) Investment in local R&D	11.6	74.4	11.6	2.3
(h) Investment to purchase foreign technology	14.0	62.8	18.6	4.7
(i) Investment in human resources	26.5	69.4	2.0	2.0
(j) Investment in environmental measures	40.8	55.1	4.1	0.0
(k) Investment in organization/management	22.2	73.3	4.4	0.0
(l) Investment in other sectors	11.4	51.4	22.9	14.3

<u>Source</u>: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

Technological Updating until the Year 2000

Intense technological updating is expected (in a context of growth), especially in new organizational techniques, but also in automation.

Question No. 16

Considering the differences between your firm's technological level and the international technological frontier, how intense will your firm's technological updating be by the year 2000?:

(1) Very intense
(2) Intense
(3) Weak
(4) Non-existent

DISTRIBUTION OF RESULTS (in percentages)

	Very intense	Intense	Weak	Non-existent
(a) Technological updating will be . . .	28.0	56.0	16.0	0.0
(b) Automation of the manufacturing process will be . . .	28.0	40.0	32.0	0.0
(c) Introduction of new organizational techniques ("just in time") will be . . .	32.0	54.0	14.0	0.0
(d) Difficulties in technological updating owing to technological complexity will be . . .	2.1	18.8	58.3	20.8

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Reasons for Technological Updating in the 1990s

Modernization in the 1990s will focus mainly on cost reduction, motivated primarily by concern about the international competitiveness of exports, although competition with other firms in the domestic market and competition with imports are also relevant factors.

Question No. 17

How important is each of the aspects listed below as a motive for your firm's future technological updating?:

(1) Very important
(2) Important
(3) Slightly important
(4) Not important

DISTRIBUTION OF RESULTS (in percentages)

	Very important	Important	Slightly important	Not important
TARGETS				
Decrease in manufacturing costs	69.4	28.6	2.0	0.0
Improvement in product quality	51.0	34.7	14.3	0.0
Introduction of new products and changes in existing ones	38.8	44.9	12.2	4.1
Decrease in the wages/sales ratio	6.3	64.6	25.0	4.2
DETERMINANTS				
Concern about international competitiveness of exports	51.1	34.0	6.4	8.5
Competition pressure from other firms	20.4	53.1	22.4	4.1
Competition pressure from imports in the domestic market	18.8	43.8	27.1	10.4

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Investment and Desired Economic Policies

Favourable macroeconomic conditions are rated as by far the most important policy targets for positively influencing the firms' future investments. Decreases in corporate income tax liberalization measures are also rated as important.

Question No. 18

How would the economic policy changes listed below influence your firm's future investment decisions?:

(1) Very positively
(2) Positively
(3) Not at all
(4) Negatively
(5) Very negatively
(6) Not applicable

DISTRIBUTION OF RESULTS (in percentages)

	Very positively	Positively	Not at all	Negatively	Very negatively	Not applicable
Economic growth	90.0	10.0	0.0	0.0	0.0	0.0
Price stability	64.0	36.0	0.0	0.0	0.0	0.0
Decrease in corporate income tax	48.0	48.0	4.0	0.0	0.0	0.0
Exchange rate stability	46.0	52.0	2.0	0.0	0.0	0.0
Decrease in indirect taxation	44.0	52.0	4.0	0.0	0.0	0.0
Liberalization of the rules and laws affecting foreign investment	40.0	52.0	8.0	0.0	0.0	0.0
Improvements in income distribution	38.0	52.0	10.0	0.0	0.0	0.0
Supply of adequate infrastructure for energy, transport and telecommunications	38.0	52.0	8.0	0.0	0.0	2.0
Liberalization of barriers to imports of inputs and equipment	36.0	58.0	4.0	0.0	0.0	2.0
Recovery of export subsidies	32.0	48.0	14.0	2.0	2.0	2.0
End of informatics market reserve law	32.0	46.0	12.0	0.0	0.0	10.0
Decrease in social security charges	28.0	64.0	8.0	0.0	0.0	0.0
Real devaluation of the exchange rate	25.5	53.2	10.6	8.5	0.0	2.1
Privatization of State-owned firms	24.0	52.0	22.0	0.0	0.0	2.0
End of prohibition on pharmaceutical patents	12.2	18.4	12.2	0.0	0.0	57.1
Liberalization of barriers to imports of final goods	10.0	34.0	30.0	18.0	6.0	2.0

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

Import Tariffs

The firms' general appraisal of the current reduction in import tariffs is very positive. However, their implementation during a recession is seen as a problem by many firms.

Question No. 19

What is your appraisal of the Government's current import tariff reduction policy?:

(1) Excellent
(2) Reasonable
(3) Wrong
(4) Very wrong

DISTRIBUTION OF RESULTS (in percentages)

	Excellent	Reasonable	Wrong	Very wrong
(a) Generally speaking	44.0	56.0	0.0	0.0
(b) As to the timing of its introduction, considering the uncertainties related to the exchange rate's instability	18.0	52.0	26.0	4.0
(c) As to the timing of its introduction, considering the Brazilian economy's current recession	14.0	42.0	38.0	6.0
(d) As to selectivity (different tariffs according to different groups of goods)	14.0	72.0	12.0	2.0
(e) What do you think of a possible option for less selectivity?	13.0	45.7	34.8	6.5
(f) As to the speed of the tariff reductions	12.5	70.8	10.4	6.3
(g) What do you think of a possible option to increase the speed of the tariff reductions?	18.0	28.0	42.0	12.0
(h) What do you think of a tariff reduction for the goods you produce greater than that programmed by the Government?	18.4	36.7	32.7	12.2
(i) What do you think of a tariff reduction for other goods greater than that programmed by the Government?	18.4	42.9	36.7	2.0

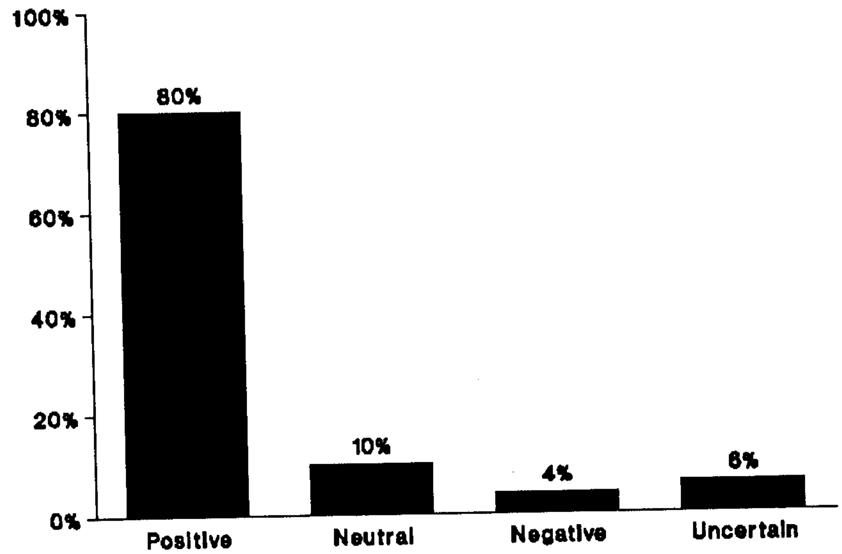
Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Effects of the Trade Liberalization Programme

The trade liberalization programme is expected to have a positive influence on future investments by the overwhelming majority of enterprises.

Question No. 20

In a scenario of economic growth and stability (as from 1993) and full implementation of the customs liberalization programme until 1993, how do you rate this programme as to the effects it should have on your future investment?:



(1) Positive
(2) Neutral
(3) Negative
(4) Uncertain

DISTRIBUTION OF RESULTS (in percentages)

	Positive	Neutral	Negative	Uncertain
TOTAL	80.0	10.0	4.0	6.0

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

Southern Common Market Treaty (MERCOSUR)

The MERCOSUR Treaty is not expected to have a major impact on the firms' activities. Large increases in trade (especially exports) with Argentina, Paraguay and Uruguay are nevertheless expected by one third of the enterprises.

Question No. 21

How will the Southern Common Market Treaty (MERCOSUR) influence your firm's activities?:

(1) Greatly
(2) Slightly
(3) Not at all
(4) Not applicable

DISTRIBUTION OF RESULTS (in percentages)

	Greatly	Slightly	Not at all	Not applicable
Increase of exports to the three countries	34.0	57.4	6.4	2.1
Increase of imports from the three countries	24.4	53.3	20.0	2.2
Increase of exports from Argentine subsidiary (where it exists)	22.5	22.5	15.0	40.0
Increase of exports to Argentine subsidiary (where it exists)	25.0	25.0	10.0	40.0
Reconsideration of investments, with increase in Brazil	8.7	45.7	34.8	10.9
Reconsideration of investments, with decrease in Brazil	2.3	14.0	58.1	25.6

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Investment in Infrastructure

Firms have very little interest in investing in infrastructure (energy, transport and telecommunications), a factor that must be considered in possible future privatization schemes.

Question No. 22

Would your firm be interested in investing in infrastructure, in the following cases?:

(1) Yes
(2) No

DISTRIBUTION OF RESULTS (in percentages)

	Yes	No
(a) Small investments in electric energy generation	22.4	77.6
(b) Large investments in electric energy generation	4.2	95.8
(c) Small investments in transport	10.2	89.8
(d) Large investments in transport	6.1	93.9
(e) Small investments in telecommunications	26.5	73.5
(f) Large investments in telecommunications	8.3	91.7

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

Interest in Latin America and Brazil in the Future

Question No.23

A decline in parent companies' interest in Brazil and Latin America in the last three or four years was noted by a good number of subsidiaries. Interest should revive if growth and stability recover.

Question No. 23

How will your parent company's interest in Latin America and Brazil evolve in the future, assuming that growth and stability recover?:

(1) It will increase
(2) It will remain unchanged
(3) It will decrease
(4) There should be no clear definition

DISTRIBUTION OF RESULTS (in percentages)

	Increase	Unchanged	Decrease	Undefined
(a) Interest in Latin America	76.6	19.1	0.0	4.3
(b) Interest in Brazil	80.9	10.6	0.0	8.5

Source: **Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.**

Foreign Direct Investment in Brazil

Brazil's excellence as a recipient of Foreign Direct Investment prior to 1980 is expected to be recovered, if growth and stability are recovered.

Question No. 24

How would you rate Brazil as a recipient of foreign direct investment?:

(1) Excellent
(2) Average
(3) Poor
(4) Very poor

DISTRIBUTION OF RESULTS (in percentages)

	Excellent	Average	Poor	Very poor
(a) Until 1980	64.0	30.0	6.0	0.0
(b) Between 1980 and 1991	0.0	34.0	38.0	28.0
(c) In the future, according to your current expectations	8.2	61.2	22.4	8.2
(d) In the future, assuming economic growth and stability recover starting in 1993	72.0	28.0	0.0	0.0

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformação Produtiva na Industria Manufatureira no Brasil.

TNC Subsidiaries in Brazil and Globalization

Intra-firm trade is expected to increase substantially. A significant increase in labour productivity and an intensification of technical progress, especially through innovations in the production process, are also expected. Globalization, in the sense of producing in the Brazilian subsidiaries parts of goods that are manufactured on an integrated basis with plants located in other parts of the world, was of little importance in the past, but will gain some importance in the future.

Question No. 25

How important was your firm as an agent of change in the world industrial sector in the past, and how important will it be in that regard in the future?:

(1) **Very important**
(2) **Important**
(3) **Not important**
(4) **Not applicable**

DISTRIBUTION OF RESULTS (in percentages)

	PAST				FUTURE			
	Very important	Important	Not important	Not applicable	Very important	Important	Not important	Not applicable
INTRA-FIRM TRADE ASPECTS								
(a) Increasing share in the total exports of your international partner	16.7	35.4	37.5	10.4	20.8	45.8	25.0	8.3
(b) Increasing exports to parent company and to other subsidiaries	16.7	25.0	33.3	25.0	18.8	33.3	25.0	22.9
(c) Increasing imports from parent company and from other subsidiaries	0.0	16.7	56.3	27.1	8.3	29.2	35.4	27.1
(d) Specializing in the production of "parts" of goods which are manufactured on an integrated basis with plants located in other parts of the world (example: "world car")	2.1	22.9	27.1	47.9	14.6	27.1	12.5	45.8
ASPECTS RELATED TO SPECIALIZATION AND TECHNICAL PROGRESS								
(e) Changing the output composition owing to changes in relative world prices (energy, exchange rates, etc.)	6.1	32.7	38.8	22.4	12.2	24.5	44.9	18.4
(f) Introducing innovations in the main products	12.2	42.9	34.7	10.2	16.3	46.9	26.5	10.2
(g) Introducing innovations in the production process	16.3	59.2	20.4	4.1	32.7	51.0	12.2	4.1
(h) Increasing labour productivity	16.3	53.1	28.6	2.0	51.0	30.6	16.3	2.0

Source: Questionario/Entrevista. Empresas Brasileiras de Capital Estrangeiro e Transformaçao Produtiva na Industria Manufatureira no Brasil.