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ESTUDO DA COMPETITIVIDADE DA INDÚSTRIA BRASILEIRA

EXPORTING AND THE SAGA FOR COMPETITIVENESS
OF THE BRAZILIAN INDUSTRY - 1992

Nota Técnica

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INTRODUCTION

The Brazilian economy has - for a whole decade - presented what have probably been its worst economic indicators ever recorded, and by the end of the 1980s the difficulties were even sharper. Inflation mounted to as high as 3000 % on a 12-months basis by mid-1990, and averaged more than 800 % in the following 2 years, whereas real GDP per capita fell 15 % between 1988 and 1992.

Meanwhile, exports grew at a very rapid pace, yearly growth rates reaching nearly 5 % between 1980 and 1992, thanks mainly to industrial products, the exports of which increased so as to account for 74 % of total exports by 1992.

These two sets of figures have led to some analyses that find in the dynamism of exports an important source of growth for the industrial sector, thus partially compensating for the depressed domestic market. According to such views, industrial exports have become important not only as a source of foreign-exchange, as most previous analyses of the Brazilian experience have suggested, taking into account, among other things, the relatively small weight of the external sales for total domestic production. By disaggregating the sources of growth one finds that the external market has also increased its importance as a source of demand for some industrial sectors.

Furthermore, the experience of 1986 - when several exporters diverted products from the external market to meet the overheated domestic demand and very soon found that the cost of losing foreign contracts proved to be too high - has led to expectations that the increasing involvement with the export activity is likely to become a more permanent issue than before.

At the same time, the period since 1987, and more intensely since 1990, has witnessed an unprecedented movement towards the opening of the Brazilian economy to imports.

The pre-condition for domestic producers to operate successfully in a more open context is to improve competitiveness so as to survive the inflow of competing imports and to maintain (or increase) their share of the international markets. Improved competitiveness has thus become an explicit target for private producers and policy makers in Brazil as it never did before.

The present study draws on the primary results of a large research jointly undertaken by the Instituto de Economia -Universidade Federal do Rio de Janeiro, Universidade de Campinas and Ministerio de Ciencias e Tecnologia on the main features of Brazilian industry with regard to its competitiveness. The research aimed at portraying the basic recent steps undertaken by Brazilian industrial firms in pursuing competitiveness, their views about the main trends and their

plans for future action in this regard. A total of 1,500 questionnaires were sent to firms all over the country, and firms were selected on the basis of their contribution to sectoral production, according to the 1985 Census.

The results reported here correspond to a partial processing of data from 350 firms that have answered the questionnaire. It was assumed that in order to evaluate the peculiarities of the export sector one should have a sample of firms built in such a way that could allow for isolating the effects of exports (i.e., sectoral comparability of exporters and non-exporters), firm size as well as sectoral specificities. A subsample of 199 firms comprising 11 sectors¹ was then identified and forms the basis for the present analysis.

This study is part of a broad set of papers dealing with a wide range of subjects directly and indirectly related to the basic issue of competitiveness of the Brazilian industry². More specifically, the present paper aims at: a) identifying the basic action undertaken in the last five years with regard to improving competitiveness, as reflected in the answers to the questionnaire and b) trying to relate whatever differences might be found in the behaviour of the firms to the differences in their involvement with the export activity.

This should be seen as only a first approach to the subject, since shortage of time did not allow to: a) take into account all the information³ available from the research and b) process the data isolating the specific effects due to firm size, sectoral specificities and the involvement with exports.

Furthermore, one should not expect to find here a comprehensive testing of the effects stemming from the involvement with the external market. That would require further work, taking into consideration the characteristics of the period of analysis -above all the domestic recession and exchange-rate overvaluation that have affected the export sector - and controlling for firm size and sectoral specificities, among other attributes.

Instead, what this first approximation aims at is a picturing of what efforts have been made by the firms surveyed in order to foster competitiveness, and try to identify indications that the involvement with the exporting activity might lead to a differentiated approach. As a by-product, we tried to check whether these sample results confirmed in broad terms some specific procedures that characterize exporting firms elsewhere.

1 Steel products, Power Generating Machinery, Automobile Industry, Cotton Textiles, Pulp, Paper, Cement, Producers of TV, Radio & Sound Receivers, Fertilizers, Furniture and Apparel & Clothing.

2 A parallel piece of work dealing with broad issues based on the same primary data is Bielschowsky (1993)

3 A number of aspects, such as a detailed account of manpower training, the entrepreneurs' view of the limitations imposed by the physical and technological infrastructure and others have not been considered here.

The structure of the paper is as follows. The second Section presents very briefly an overview of some positive effects that might be expected from an increased involvement with exporting, as a reference for a comparative evaluation of the results obtained.

In the third Section we present a description of the sample of firms and the basic lines of the questionnaire. The fourth Section summarizes the basic findings and how they compare with previous evidence, and the main conclusions and some policy implications are presented in the last Section.

1. A BRIEF ACCOUNT OF THE POSITIVE EFFECTS TO BE EXPECTED FROM EXPORTING

Theory - as well as empirical evidence from the experience of several countries - would lead one to expect a positive relation between exporting and the improvement of competitiveness. Not only maintaining a certain level of competitiveness is a pre-condition for a successful export performance. There is a virtuous circle that links more exports to more efficient production processes, to better identification of international market opportunities, greater contact with technical progress, and so on, all of which feeds back into improving the conditions for exporting more and in a more sustained way.

At the firm level, it is often found that firms in developing countries have difficulties in collecting rents accruing from new technologies and thus spend relatively limited resources in basic, innovative research and development (R&D) activities, orienting instead their research activities to the adaptation of foreign technologies.

But causality is likely to work in both directions. Exports increase the size of the market and might thus increase the return to innovative activities. Also, for an exporter the external market might impose more rigorous conditions, thus reinforcing the demand for these technological change activities.

One might therefore expect that - as far as the type of technologically improving activities is concerned - the greater the degree of involvement of a given firm with the export activity, the higher the probability of it adopting cost-cutting, quality improvement and product differentiation innovations.

As far as the way of acquiring technology is what matters, one might use the classification adopted by Kirim (1990) for modes of transfer of knowledge. These transfers might take place according to "formal" (market mediated) contracts (direct investment, licensing, management contracts, turnkey projects), or they might be absorbed via nonmarket ("informal") mechanisms such as learning by exporting, imitation, keeping up with the technical literature, visiting trade fairs, scientific exchange and others.

This is not the place to go into an extensive survey of the related literature. Suffice it to review some pieces of evidence relative to a developing country which moved recently towards a more liberal trade orientation - information about Turkey provides a basis for comparison - and a few indicators already available for Brazil.

We take as reference for the Turkish experience the results reported in Kirim (1990), for 659 firms in 1987-88.

Kirim finds no discernible difference in the extent of the relative R&D spending of exporters and domestic-market-oriented firms. Export orientation seemed to influence the direction, of technological search efforts. The three most important technological change activities for exporters were, in order of importance: 1) cost reduction; 2) capacity stretching (expanding the physical yield of existing plant and equipment without investing in any major way in new capital equipment); 3) quality improvement.

For non-exporters, the ranking was somewhat different, starting with quality improvement in the first place and followed by cost reduction and (lastly) capacity stretching.

Since competing with imports requires predominantly product quality, and only to a lesser extent price differentials, the technological activity of domestic-market-oriented firms would be expected to be oriented more toward product differentiation and less toward cost-reducing technological search activities. Exporting firms, on the other hand, could be expected to undertake systematic cost-reducing, quality-improving and product-developing technological change activities.

There seems to be also differences between exporters and non-exporters, in the way these technological changes take place. Exporting firms appeared as not only involved in more cost-reducing technological activities than domestic-market-oriented firms, but also these activities were carried out more systematically by the former.

Furthermore, both exporting and domestic-market-oriented firms have predominantly acquired their technologies from formal, non-equity modes of technology acquisition only in those cases where the products or technologies were new to them. Domestic-market-oriented firms relied predominantly on domestic and informal sources for acquiring technologies whilst exporting firms relied on market-mediated transfer mechanisms. The main reason seems to be that "in activities that are new to the country and to the industry the easiest way to gain access to the technologies is by entering into a formal agreement with a foreign supplier; in other areas where domestic firms have been established for some time, it was always preferable to obtain the incremental knowledge without actually paying for it"(p.1354).

There is apparently no corresponding processed information of this kind using Brazilian data. But at least three sets of evidence dealing with specific characteristics of exporting firms are available that provide a background for a comparative evaluation of the results obtained in the present enquiry.

First, Braga (1990) reports on data for 4342 establishments, referring to 13 industrial sectors in 1981.

He finds - similarly to Kirim for Turkey - that the probability of rationalizing the production process by using product quality control methods, control of raw materials and changes in lay-out of the productive plant increases with foreign ownership, technology imports, exports and size. The probability of using quality control is also positively affected by product diversification. Furthermore, it is found that not only the involvement with exports has intense impact over all the technological activities considered but also that a firm that exports has a much higher probability of dedicating itself to a technological activity than a non-exporting firm.

The export/sales ratio, size and foreign capital ownership also increase the probability of a given firm developing new products and creating a manpower training program.

Willmore (1992) reports on the results for 17,053 Brazilian manufacturing firms in 1980.

He finds, firstly, a negative relation between R&D and exporting. The existence of a programme of research and development appears to have no significant effect on the probability that a firm will engage in export or import activities. The causality seems to be in the opposite direction, since Braga/Willmore (1991) found that exporting increases the probability that a Brazilian firm will engage in R&D.

Exporters tend to be much more concerned with advertising. Firms producing highly advertised, hence differentiated, goods are more likely to participate in international trade than others. Also, exporting firms depend more intensely on imports than domestic-market-oriented firms.

Finally, some complementary evidence was obtained by Willmore, and published as CEPAL (1985), from data for 12,435 firms in 1978.

It shows that firm size is the most important factor affecting both the probability that a firm will export and its subsequent export performance. As far as the competitive attributes being considered above are concerned, it is found that advertising expenditures and license agreements have a very strong and positive relationship with both the probability of exporting and export performance, once again very much in line with the results reported for Turkey.

2. THE SAMPLE

The analysis is based on data for 199 firms from 11 industrial sectors. These firms exported in 1992 a total of US\$ 6.2 billion, corresponding to 23% of the total Brazilian exports of industrialized products in that year.

In order to evaluate the role of the involvement with export-ing the primary data were processed by grouping the respondent firms according to their export/total sales ratios, in five groups arbitrarily defined as:

- i) non-exporters (firms with X/Y ratio up to 5%);
- ii) firms with X/Y ratio between 6% and 10%;
- iii) firms with X/Y ratio between 11% and 30%;
- iv) firms with X/Y between 30% and 50% and
- v) firms with X/Y ratio over 50%.

The sample is described according to the number of firms in each bracket and to their participation in the total sample exports as follows:

Export/Sales Ratio (%)	Number of Firms (%)	Share (%) of Sample Export	
		1987-89 (average)	1992
0 to 5	54.2	0.93	0.37
6 to 10	8.4	0.83	1.26
11 to 30	22.3	34.25	30.38
31 to 50	9.5	35.16	43.16
over 50	5.6	28.83	24.83
Total	100.0	100.00	100.00

More than half of the firms have a very low (less than 5%) export coefficient, and are hence considered as non-exporters, or domestic-market-oriented firms. The second point to stress from these figures is that the group of firms with export coefficients between 30 and 50% presented the most impressive performance in terms of the external market, increasing significantly its share in total sample exports between the two periods considered here.

Most (72%) of these firms are part of economic groups, a characteristic common to all five sets of firms. In all but the last group, about half (48%) of them are multiproducers (i.e., produce several items) and (47%) have several producing units (multiplant).

3. BASIC RESULTS

3.1. Recent Adjustment

The analysis of these data calls for some previous remarks about the year - 1992 - when they were collected. It is known from previous researches that most of the productive sector - manufacturing in particular - in Brazil was by that time experimenting a significant change, after some traumatic experience since 1990, when liquidity was drastically reduced by government policies, national product had negative variation, domestic interest rates went up very markedly, inflation remained at monthly levels around 25 % and an open trade policy pushed domestic producers into an unprecedented exposure to competing imports. It is therefore expected that the adaptive movement by the firms is present in these data as much as the basic differences between exporters and non-exporters.

A second remark is that the questionnaire was designed to identify the basic features of the productive sector insofar as the measures to improve competitiveness are concerned. Hence, the questions were not totally tailor-made to deal with the specific subject of the exporting activity. The analysis from the viewpoint of the involvement with the external is therefore a by-product, even though a great amount of information - unprecedented in several aspects - is available from the processed data.

Keeping these two points in mind, it is interesting to note that most (59%) of the firms classified as non-exporters or domestic-market-oriented (DMOs) - those with export/sales coefficient lower than 5% had in 1987-89 total sales worth less than US\$ 20 million, whilst those firms with export/sales ratios over 30% had in that year sales worth over US\$ 120 million, indicating a positive relation between size and export/sales ratios in the sample.

In 1992 the same positive relation between the X/Y ratio and the total sales remained, but there are clear indications that the exporters were less vulnerable to the domestic recession: among the DMO firms 70% had sales below US\$ 20 million (compared with 59% in 1987-89), whereas for exporters the impact is inversely proportional to the export/sales ratio, as shown by the following indicators:

X/Y (%)	% of firms with sales over US\$ 120 million	
	1987-89 (average)	1992
10 to 30	44	33
31 to 50	64	57
over 50	62	62

This would indicate that - as expected - the external market has worked as a "cushion", softening the negative impact of domestic recession on these firms in direct proportion to their involvement with exports.

As a confirmation of the importance of the external market as a buffer against domestic recession, one could add that the proportion of firms with export/sales ratio between 10 and 30% that had total exports worth at least US\$ 12 million increased from 58% in 1987-89 to 74% in 1992, whereas for those firms with export/sales ratio over 30% that proportion remained close to 90% in the two periods.

The number of employees per firm has a distribution similar to that of total sales: 63% of DMO firms had up to 500 workers in 1987-89, whilst for the firms with export/sales ratio over 10% between 25% and 36% of the firms had more than 3,000 workers.

In 1992 there is a clear adjustment process, with significant reduction of jobs. For non-exporters the proportion of firms with up to 500 employees increased to 76%, whereas for the exporters with export/sales ratio over 10% the proportion of firms with over 3,000 workers fell to between 13% and 29%.

This reduction in jobs had a corresponding variation also in the decision process within the firms, as reflected in the number of hierarchical levels. Half of the non-exporters had in 1987-89 up to 5 decision levels⁴, and this proportion increased in 1992 to 67%. The same occurred with the several groups of exporters, in increasing proportion with their export/sales ratio, as shown below:

X/Y ratio	% of firms with up to 5 hierachical levels	
	1987-89 (average)	1992
6 to 10	67	75
11 to 30	46	60
31 to 50	15	46
over 50	12	40

It follows from the previous paragraphs that a first set of differences between exporters and DMO firms stem from their capacities in coping with domestic recession and in the intensity of adjustment in the use of production factors.

However, be it due to the sensation that the worst recessive period is over, or to the hopes of improved competitiveness stemming from the adjustment process, more than half of the firms in

⁴ Firms were asked whether they had up to 3 decision levels, 4 or 5 levels, 6 or 7 levels, or over 7 levels. In 1987-89 21% of the firms with X/Y ratio between 10 - 30% and 31% of firms with X/Y ratio between 30 - 50% had more than 7 levels. In 1992 those proportions fell to 4% and 15% respectively.

every group - independently of their export/sales ratio - expected higher profits in 1993-95 than in 1992, and in 1996-98 in comparison with 1993-95.

It is worth noticing that the improved competitiveness is not necessarily related to more imports. Data show that 60% or more of non-exporters did not import either capital goods or inputs in 1987-89 nor in 1992. Exporting firms have apparently a greater dependence of imports: more than 25% of the firms with an export/sales ratio above 10% imported inputs worth more than US\$ 10 million both in 1987-89 and in 1992.

This is consistent with the results obtained by Willmore (1992), as reported in Section II: there is a higher propensity to import in exporting firms as compared to DMO firms.

Another basic characteristic of the exporting firms in this sample has to do with the market of destination for their exports. There seems to be some differences in the markets of destination, and these differences appear to be linked to the export/sales ratio, and hence to the size of the firms. In the smallest group of exporters (firms with export/sales ratio between 6-10%) 75% of the firms indicate sales to Mercosur in 1992, 42% to "other countries of Latin America" and 50% to USA and EEC. Among those firms with export/sales ratio over 50%, 87% export to the USA, 62% to the EEC and only 12% to Mercosur.

It would seem therefore that all firms export to the USA and the EEC, but only a limited number of them - and not the largest - explore the regional market⁶. Needless to say, this generic conclusion has to be qualified by information at the sectoral level.

When asked about how the firms channel their sales, it turns out that by and large all the firms use mostly their own sale structures. It is certainly remarkable that only for medium exporters (firms with export/sales between 10 and 50%) there is reference to the use of trading companies and licensed firms, when one would have expected the smaller exporters to be the main customers of those intermediaries.

5 Although that proportion was higher (61%) in 1987-89 than in 1992 (56%) for inputs, indicating that even in this group there was some increase in the consumption of imported inputs.

6 The relative importance of Mercosur is worth some additional consideration. The percentage of firms indicating it as important in each group is as follows:

X/Y	0-5	6-10	11-30	30-50	Over 50
(%)	27.5	75.0	42.9	30.8	12.5

Although the Southern Cone market is considered as important for most firms in the 6-10% interval, one must take into account the relatively high proportions indicated by the firms in other groups. For those firms with X/Y ratios between 0 and 5% this is the market with the highest indicators. For the two groups of firms with X/Y ratios between 11 and 50% the percentages are significant, although smaller than the corresponding indicators for USA/Canada. Notice, however, that the above referred groups comprise the bulk of the sample exports.

In summary, evidence reviewed so far indicates an overall movement towards adjusting the number of jobs and the hierarchical structure in each firm, and suggests the existence of basic differences between exporters and non-exporters with regard to their capacity to resist the domestic recession and in their propensity to import. Also, there are differences among exporters with regard to the market of destination of their external sales and the way they channel their exports.

Table 1 summarizes the main indicators in 1992 in comparison to 1987-89.

TABLE 1
SAMPLE INDICATORS BY GROUPS OF FIRMS

X/Y Ratio (%)	Total Sales Variation (%) <hr/> 1987-89/1992	Export Variation (%)	Input Imports/ Sales (%)		Employment/Sales (%)	
			1987-89 (average)	1992	1987-89 (average)	1992
			0 to 5	-4.9	-48.6	9.3
6 to 10	-2.2	96.4	3.6	8.1	1.6	1.3
11 to 30	-7.1	9.3	4.8	5.2	0.8	0.7
31 to 50	5.6	44.3	5.5	5.6	0.6	0.5
Over 50	8.4	9.0	8.1	9.6	0.4	0.4

Source: See text

A comparison of the first two columns of Table 1 shows that for all groups of exporters external sales increased more than total sales between the two periods. Also, growth in total sales was sharper for those groups of firms that have some export activity. Export performance was particularly intense for those firms with export/sales ratio between 6-10% and those between 31-50%. But even though these results must be qualified by sectoral information⁷ they suggest that as a whole some export was better than no exports, although it is not clear whether more exports are better than less exports. That is, one can not say - from these data - that increasing the export/sales ratio above a certain level is by itself an assurance of better overall sales performance. In other words, it seems more reasonable to talk of exports working as a buffer against domestic recession than thinking of this period as one of export-led growth.

Table 1 also shows that in general all groups of firms increased their imported component, but it is worth stressing that the variation in the import/sales ratio was more intense for small exporters (those firms with export/sales ratio between 6-10%) and for the largest exporters (firms with export/sales ratio over 50%), so that there does not seem to be a linear relation between the export/sales ratio and the import/sales ratio.

⁷ Export price variation might help explain some of these results.

Finally, the last two columns of Table 1 confirm the overall reduction in the number of jobs for all groups of firms. But - once again - this is not a major characteristic linked to the export/sales ratio: suffice it to see that for the largest exporters the employment/sales ratio remained the same in the two periods.

What these indicators point at is that there are actually differences between exporters and DMO firms, but the evidence seems to be that the adjustment process reflected in these figures is apparently more a result of strategies to improve or consolidate the competitive position of the firms in the domestic market than the outcome of strategies for penetration in the external market. This should become even more clear in the next discussions about market strategies, productive performance and managerial, technological and productive capability.

3.2. Market Strategies

Firms were asked whether they intended to explore specific or several, diversified market segments, and which would be the main tool in their strategies with regard to the domestic and the external markets.

It is remarkable that between 52% and 63% of the firms in almost all groups revealed interest in exploring specific market segments. This seems to indicate a wide concern with competitive-ness via specialization. Only for those firms exporting more than half of their production that proportion was a bit smaller (38%) and similar to the proportion of answers pointing to all market segments.

This approach of specialization-leading-to-competitiveness comes out even more clearly from the information related specifically to the competitive strategies of the firms.

Table 2 summarizes the information with regard to the product strategy and the administration of production, showing - for each group of firms - the percentage of firms that gave affirmative answers.

According to Table 2 firms aim at specific market segments, and are (mostly non-exporters) worried with the identification of brand name and with specific clients requirements. Also, a number of exporters of all sizes are concerned with providing technical assistance for their domestic sales, as well as improving the technical specificity of their products.

Technical specificity of products is also an attribute strongly considered for exports, the more so the higher the export/sales ratio of the firms. Coupled to the importance given to the

identification of brand name and delivery time, this would seem consistent with the previous indications of targeting strategies for acting in specific market segments.

TABLE 2
COMPETITIVE STRATEGIES OF FIRMS
(Product and Production Administration)

Attributes	No. of Firms	Export/Sales (%) Ratio				
		0-5	6-10	11-30	31-50	51-100
(% of firms*)						
Product Strategy						
Domestic Market:	100					
Identification of brand name		45	33	n.s.	n.s.	38
Efficiency of Technical Assistance		n.s.	n.s.	n.s.	n.s.	38
Technical Specificity of Product		n.s.	33	38	38	38
Specific clients requirements		38	33	n.s.	n.s.	n.s.
External Market:	100					
Low price		n.s.	50	46	n.s.	n.s.
Identification of brand name		n.s.	n.s.	n.s.	n.s.	38
Delivery time		n.s.	n.s.	n.s.	n.s.	38
Technical Specificity of Product		n.s.	33	36	77	75
Production Flow						
Administration:	176					
Reduce inventories		50	80	50	53	n.s.
Improve raw materials utilization		36	47	45	60	70
Reduce emission of pollutants		n.s.	n.s.	n.s.	n.s.	50
Reduce jobs		n.s.	33	38	n.s.	n.s.
Reduce productive bottlenecks		n.s.	n.s.	35	47	n.s.
Production Process:	107					
Increase standardization		n.s.	n.s.	n.s.	n.s.	60
Increase flexibility		65	92	65	79	40
Main Productive Unit:	171					
Outsourcing basic services		40	47	67	73	90
Specialize product line		n.s.	47	47	n.s.	n.s.
Renew product line		59	60	61	73	50

n.s. - non-significant (less than 33%)

(*) Firms were asked to indicate each attribute as "important" or "very important", and could indicate up to two attributes. Figures show the percentage of firms in each case.

Source: see text

It is also worth noting that low price is an attribute not considered for sales in the external market, and only those firms with low export/sales ratios seem to take it into account. This seems consistent with the assumption that Brazilian exporters are "price-takers", that is, too small to influence international price levels.

Figures referring to production flows also reveal some clear trends. Firms are by and large aiming at the reduction of inventories. Notice that this is true for all those dependent of the domestic market for most of their operations and one reason is probably the cost of keeping inventories in a recessive inflationary environment. This might also explain why the largest exporters do not consider this item in a significant magnitude⁸.

There is also a universal concern with improving the utilization of raw materials, in increasing proportion to the involvement with exports. This is due not only to improved competitiveness; for the largest exports there is also a parallel preoccupation with the emission of pollutants, a probable consequence of barriers imposed by importing countries⁹.

It was shown in previous paragraphs that the adjustment in recent years comprised a significant reduction in jobs. According to Table 2, one might expect that no further reduction is to be expected of significant magnitude; only for some groups of firms there is indication of intended reduction of jobs and productive bottlenecks.

Figures at the bottom part of Table 2 confirm that firms aim at increasing flexibility of production processes, outsourcing basic services in direct proportion to their export/sales ratios and renew their product line. Once again, this seems consistent with the previous indications of a search for competitiveness based on specific market segments with more efficient and flexible production processes.

There are also some differences between exporters and non-exporters with regard to their approach to other firms, as shown in Table 3.

All firms (rationally) prefer to buy inputs at low prices. It is, however, interesting to note that the concern with the technical specification of the inputs - although significant for all groups of firms - is an attribute far more important for the largest exporters. This might be a reflection of the more exigent external market. Not so much for durability.

⁸ Notice that this means a different approach to that previously reported for the Turkish firms.

⁹ This is confirmed by the indications - to be discussed later in the text - that the largest exporters are suffering a negative impact from non-tariff barriers.

TABLE 3

COMPETITIVE STRATEGIES OF FIRMS
(Relations with Suppliers and Other Firms)

Attributes	No. of Firms	Export/Sales (%) Ratio				
		0-5	6-10	11-30	31-50	51-100
(% of firms*)						
Input Purchases:	107					
Lower Price		83	75	66	71	88
Technical Specification		54	50	59	79	75
Durability		n.s.	33	33	n.s.	33
Input Suppliers:	106					
Preference for lowest number of suppliers		37	67	50	79	44
Joint R&D programs		n.s.	58	n.s.	50	n.s.
Joint product development		43	75	50	86	44
Information about product quality		63	92	73	93	56
Stable commercial links		38	75	77	79	78
Suppliers certified by the firm		40	67	53	71	56
Suppliers offering the most advantageous conditions		53	33	37	36	44
Links with Other Firms:	105					
Association for specific projects		n.s.	50	52	71	70
No strategy		55	33	n.s.	n.s.	n.s.

n.s. - non-significant (less than 33%)

(*) Firms were asked to indicate each attribute as "important" or "very important", and could indicate up to two attributes. Figures show the percentage of firms in each case.

Source: see text

Firms in general prefer to deal with a limited number of suppliers, and - mainly the exporters - give importance to stable, long-term commercial links with their suppliers. Most firms care about product quality and say they exchange information about that with their input suppliers. But whilst domestic-market-oriented firms often consider buying from suppliers that offer the most advantageous conditions, it would seem from figures on Table 3 that exporters tend to prefer those suppliers certified by the firm and often carry joint product development programs.

Furthermore, exporters tend to strategically associate with other firms for developing specific projects, whilst most domestic-market-oriented firms say they have no strategy in that regard.

This might be an additional indicator of the higher degree of exigence, stability of rules required (and barriers imposed) by the external market as compared to domestic sales.

Additional evidence of the firms's approach to modernization and to dealing with specific market segments follow from their investment strategy.

As shown in Table 4, a significant share of the firms consulted have shown intention to invest both in increasing capacity and (more intensely) in modernizing productive capacity. Figures reflect furthermore an intention to produce new items technologically similar to the present production lines. This is particularly characteristic of those firms with higher export/sales ratio, who aim also at explicitly specializing product lines.

One interpretation of these outcomes seems to be that exporters are in general more sensitive to the requirements and exigences of the external market, and although there is a general trend towards modernizing production processes, common to most of the firms surveyed, the evidence is stronger for the firms with greater involvement with the external market.

Differences are also found in the way firms finance their investment, although at this level of analysis not much can be said about the extent to which the differences are due to the export/sales ratios or to the size of firms.

Figures in Table 4 suggest that the lower the export/sales ratio (or the smaller the firm) the higher the dependence upon its own resources for financing investment. In fact, it is worth noting that about 80% of the domestic-market-oriented firms and small exporters depend upon own resources, while less than one-third of the largest exporters do so. Instead, figures indicate an increasing reliance upon public credit and (as expected) external private financing directly proportional to the grouping of firms according to their export/sales ratios. Notice, furthermore, that the largest exporters rely almost exclusively upon public credit and external private financing: last column shows scarce (if at all) indication of own resources and domestic private credit.

TABLE 4

COMPETITIVE STRATEGIES OF FIRMS
(Investment Policy and Determinants of Current Stage)

Attributes	No. of Firms	Export/Sales (%) Ratio				
		0-5	6-10	11-30	31-50	51-100
(% of firms*)						
Investment Strategy:	110					
Increase capacity in current lines		54	33	74	38	50
Modernization without capacity variation		42	67	58	56	70
New products tech. similar to actual production		41	33	45	56	60
Specialize product line		n.s.	58	36	38	40
Financing:	179					
Own resources		79	87	73	71	n.s.
Public credit		n.s.	40	43	71	70
Domestic private financing		n.s.	47	35	53	n.s.
External private financing		n.s.	n.s.	38	65	60
Localization:	110					
Present local		88	75	71	88	100
Latin American countries (non-Mercosur)		n.s.	50	50	n.s.	n.s.
Determinants of Present Strategy:	176					
Domestic recession		78	87	85	71	40
Import competition		n.s.	n.s.	n.s.	47	n.s.
Market globalization		n.s.	73	46	59	60
Mercosur		n.s.	47	n.s.	65	n.s.
Consumers requirements		54	40	77	71	90

n.s. - non-significant (less than 33%)

(*) Firms were asked to indicate each attribute as "important" or "very important", and could indicate up to two attributes. Figures show the percentage of firms in each case.

Source: see text

Not surprisingly, by and large the firms intend to maintain their productive units in their present localization, but for half of those firms with export/sales ratios between 6% and 30% (small to average exporters) there are indications of planned investment in other Latin American countries, out of the Mercosur area. This last figure calls for a cautious interpretation, for it might comprise capital movements into some of the region's tax heavens.

A final set of indicators that seem to confirm previous conclusions has to do with the factors that have actually determined the present strategy adopted by the firms.

As shown at the bottom part of Table 4, and as might have been expected, given previous indicators, domestic recession did affect all groups of firms, but more intensely those that depend most on the domestic market. Import competition, on the other hand, is generally not considered as important, but for some medium-to-large exporters.

Market globalization is particularly relevant for most exporters, and all groups of firms - mainly the largest exporters - care increasingly about consumer requirements.

Interestingly enough, these figures suggest that Mercosur has become an important factor for some firms, but the indications are that only for those groups of firms with export/sales ratios between 6% and 50% - that is, small to medium exporters - does the subregional market matter, both for the definition of their competitive strategies and for the definition of their investment policies.

3.3. Productive Performance

The evidence presented so far has shown the increasing preoccupation of firms with consumers requirements, technical specification of inputs and products, more efficient use of inputs and raw materials and other indicators, all pointing to a same direction of increased competitiveness.

A similar movement can be identified when one looks into the changes that have taken place in recent years in the productive process.

Tables 5, 6 and 7 show some basic indicators of the adaptation of the productive process to the competitive strategy adopted by the firms.

There is an overall tendency to reduce the average production time. Between 1987-89 and 1992 there has been an increase of the number of firms with production time of less than 10 days, coupled to a simultaneous reduction of the percentage of firms with a production cycle of more than 30 days. A similar movement corresponds to the percentage of firms that have reduced their average delivery time.

The indicators relative to the average rate of reprocessing and the average rate of defect units per total production also show a general reduction - between the two periods - of the percentage of firms with more than 10% of production with dispersfects.

It is, however, worth noting that half of the group of largest exporters have - in both periods - a nul rate of reprocessing, which might indicate a pre-existing worriness with efficiency, not found in other firms. On the other hand, this same group shows an increase of the percentage of firms with rate of defective units/production over 10% between periods, what would call for further, detailed analysis.

There is a marked reduction of the average rate of input rejection in all groups of firms between 1987-89 and 1992 - more intensely among the smaller exporters and domestic-market-oriented firms - which confirms the preoccupation with a better use of inputs, but could also reflect a policy of reducing costs.

The argument that allows one to assume that such changes are in fact related to movements linked to competitiveness come from the indicators that show a general reduction of the rate of returned products/total sales as well as a corresponding increase in the rate of raw material efficiency consumption rate, which would reflect more efficiency in the production process¹⁰.

This is additionally confirmed by a set of informations which indicate that in comparison with 1987-89 the 1992 product prices and production costs were relatively lower, firms payed higher wages, market acceptance of brand name was similar or higher, firms (mainly exporters) took less time for delivering products, provided relatively more technical assistance, and produced items with higher technological sophistication, more adequate to technical specifications, with the same durability and increasingly more adequate to clients specifications.

The possibly negative counterpart to these positive movements is the indication that firms in general increased the share of energy consumption in total costs, and this is particularly clear for the largest exporters. But as the question refers to costs, it does not come clear whether this is due to the higher tariffs or to actual consumption.

When asked about how the firms view their main competitors (Table 8), the overall reaction seems consistent with previous evidence, as it reflects a movement towards increased market acceptance of brand name, less time required for product delivery, more efficient provision of technical assistance, etc. The only aspect that is worth noting is the difference that appears between exporters and domestic-market-oriented firms in the sense that the latter tend to reflect the inflationary domestic environment, considering product prices and wages higher in 1992 than five years earlier.

¹⁰ Notice that this does not allow one to test the hypothesis advanced by Kirim (1990), that exporters and non-exporters rank differently their efforts with regard to cost reduction activities and quality improvement.

TABLE 5
 COMPETITIVE STRATEGIES OF FIRMS
 (Productive Performance)

Attributes	No. of Firms	Export/Sales (%) Ratio				
		0-5	6-10	11-30	31-50	51-100
Average Production Time	145					
In 1987-89						
Up to 10 days		37	27	19	25	40
Over 30 days		28	18	63	67	40
In 1992						
Up to 10 days		43	36	19	33	40
Over 30 days		28	18	50	50	40
Average Delivery Time	167					
In 1987-89						
Up to 10 days		37	27	8	8	25
Over 90 days		23	27	64	62	50
In 1992						
Up to 10 days		44	33	22	31	37
Over 90 days		20	27	42	54	25
Average Reprocessing Rate	169					
In 1987-89						
None		18	13	14	14	50
Over 10%		29	20	42	36	25
In 1992						
None		18	13	14	7	50
Over 10%		25	20	19	29	25
Average Rate of Defective Units/ Total Production	169					
In 1987-89						
None		17	7	3	7	13
Over 10%		31	27	33	43	25
In 1992						
None		17	7	3	7	13
Over 10%		24	13	19	36	38

Source: see text

TABLE 6

COMPETITIVE STRATEGIES OF FIRMS
(Productive Performance)

Attributes	No. of Firms	Export/Sales (%) Ratio				
		0-5	6-10	11-30	31-50	51-100
(% of firms)						
Average Rate of Input Rejection	101					
In 1987-89						
Up to 1%		40	42	46	31	63
Over 10%		33	17	32	31	13
In 1992						
Up to 1%		45	50	56	31	75
Over 10%		30	8	18	23	13
Average Rate of Returned Products/ Total Sales	169					
In 1987-89						
Up to 1%		59	73	58	64	75
Over 10%		19	0	17	29	13
In 1992						
Up to 1%		69	67	61	64	88
Over 10%		14	0	11	21	13
Energy Costs/Direct Costs	169					
In 1987-89						
Up to 1%		16	27	29	14	0
Over 10%		41	13	28	43	38
In 1992						
Up to 1%		15	13	11	14	13
Over 10%		35	20	25	29	50
Raw Material Efficiency Consumption Rate (nominal/effective rate)	101					
In 1987-89						
Up to 80%		10	25	7	8	13
Over 97.5%		48	25	54	38	50
In 1992						
Up to 80%		10	17	7	8	13
Over 97.5%		58	42	64	46	63

Source: see text

TABLE 7
 COMPETITIVE STRATEGIES OF FIRMS
 (1992 compared to 1987-89)

Attributes	No. of Firms	Export/Sales (%) Ratio (% of firms*)				
		0-5	6-10	11-30	31-50	51-100
Product Price	158					
Lower		46	73	72	64	57
Production Costs	158					
Lower		28	67	53	64	71
Average Wages	154					
Higher		38	47	48	31	n.s.
Similar		35	n.s.	n.s.	n.s.	71
Market Acceptance of Product Brand Name	155					
Higher		40	47	n.s.	43	57
Similar		52	40	65	50	43
Time Required for Delivery	154					
Less		40	67	63	50	71
Time for Developing New Products	135					
Less		33	67	67	50	67
Efficiency in Technical Assistance	136					
Higher		46	67	54	83	67
Technological Sophistication	137					
Higher		46	53	48	69	67
Adequacy to Technical Specification	143					
Higher		40	33	63	43	57
Similar		46	67	n.s.	50	43
Product Durability	129					
Similar		57	79	55	56	80
Adequacy to Clients Specification	137					
Higher		55	46	71	50	86

n.s. - non-significant (less than 33%)

(*) Firms were asked to indicate each attribute as "important" or "very important", and could indicate up to two attributes. Figures show the percentage of firms in each case.

Source: see text

TABLE 8

COMPETITIVE STRATEGIES OF FIRMS: VIEW OF THE MAIN COMPETITOR
(1992 compared to 1987-89)

Attributes	No. of Firms	Export/Sales (%) Ratio (% of firms*)				
		0-5	6-10	11-30	31-50	51-100
Product Price	152					
Similar		40	43	37	50	71
Production Cost	151					
Higher		n.s.	36	n.s.	36	71
Average Wages	148					
Higher		n.s.	36	n.s.	n.s.	43
Similar		45	43	35	38	n.s.
Market Acceptance of Product Brand Name	150					
Higher		n.s.	64	n.s.	36	n.s.
Similar		41	n.s.	41	36	n.s.
Time Required for Delivery	150					
Similar		46	57	n.s.	43	57
Time for Developing New Products	138					
Similar		n.s.	n.s.	n.s.	43	57
Efficiency in Technical Assistance	135					
Higher		n.s.	64	36	42	43
Similar		36	36	36	42	0
Technological Sophistication	136					
Higher		n.s.	53	42	n.s.	n.s.
Adequacy to Technical Specification	141					
Similar		49	50	46	64	43
Product Durability	129					
Similar		51	69	48	78	60
Adequacy to Clients Specification	139					
Higher		n.s.	50	41	n.s.	n.s.
Similar		44	33	37	69	n.s.

n.s. - non-significant (less than 33%)

(*) Firms were asked to indicate each attribute as "important" or "very important", and could indicate up to two attributes. Figures show the percentage of firms in each case.

Source: see text

3.4. Managerial, Technological and Productive Capability

Evidence surveyed at the beginning of this work indicate that exporters tend to have a different approach to expenditures with technology, technical assistance, etc. when compared to domestic-market-oriented firms. The information obtained from the present sample of firms tends to confirm such discrepancies.

Table 9 summarizes a number of such indicators, relative to 1987-89 and 1992.

It is interesting to note, first of all, that about half of the non-exporters have no expenditure at all with research and development (R&D) in both periods, whereas a similar proportion of the largest group of exporters spend over 4.5% of their total sales in this activity. This obviously confirms expectations based on the analysis of broader samples (Braga (1990), Braga/Willmore (1991)) mentioned at the beginning of this article. There are, however, indications that - probably due to the overall cost cutting policy - there has been a reduction in this item in 1992 in comparison to the previous period.

A similar relation is also found with regard to expenditures in engineering, sales expenditures, technical assistance and manpower training programs - exporters spend relatively more in these items - and here again the indications are of a general reduction between the two periods.

The differences between exporters and domestic-market-oriented firms are even sharper when one considers some activities associated with the monitoring of the technological standard of production. Table 10 shows some relevant indicators.

As similar to the findings of Kirim (1990) for Turkey, it comes clear from figures in Table 10 that most services like projects, product tests, certificate of compliance with technical requirements and consultancy in marketing, management and quality are acquired in the domestic market, and that there is a concentration of affirmative answers in the group of largest exporters. No significant number of non-exporters has declared the purchase of those services either domestically or abroad.

Typically the type of services purchased abroad are associated with product specificities, and consist of tests, certificate of compliance with technical specifications and consultancy in quality. This is consistent with previous reasoning that large exporters are subject to fierce consumers pressures and competitive efforts.

Notice, however, that the non-existence of indicators corresponding to purchase of technological services by non-exporters does not indicate lack of concern with quality. Evidence presented above - higher efficiency with technical assistance, higher adequacy to technical and clients specifications, among others - clearly suggests an increasing preoccupation with quality improvement. What the figures in the upper part of Table 10 seem to show is that, first, even domestic-market-oriented firms have not been significantly affected by importing competition (as indicated in Table 4 - import competing is not an important issue for the designing of the firms' strategies), and second, that (as similar to the findings of Kirim (1990) for Turkey) these firms are more likely to acquire technologies mainly from informal sources in the domestic market.

This is partially confirmed by the figures in Table 11. When asked about the origin of the technical norms they use, firms indicate a predominance of their own criteria for raw material handling, machinery operation and product standardization. Domestic-market-oriented firms rely on official norms for input qualification, product specification, standardization and tests, whilst large exporters use also international norms for product specification and tests.

Another important information to derive from Table 10 is that in spite of the continued period of recessive economic activity in Brazil most firms in all groups - but mainly exporters - have indicated that their products compare very favourably (last or penultimate generation) with those produced by the main world exporters.

Furthermore, the productive capacity is also said to compare positively: between 40% and 70% of the firms indicate that the most important equipment is less than 10 years old, and belong to the last or penultimate technological generation. Domestic-market-oriented firms - more intensely hit by domestic recession - compared less favourably, as illustrated by the lower proportion of answers, but it is nevertheless remarkable that the corresponding indicators for this group of firms are in the 40-50% range.

TABLE 9

COMPETITIVE STRATEGIES OF FIRMS
(Managerial, Technological and Productive Capability)

Attributes	No. of Firms	Export/Sales (%) Ratio				
		0-5	6-10	11-30	31-50	51-100
(% of firms)						
R&D Expenditures/Total Sales	169					
In 1987-89						
None		52	n.s.	n.s.	n.s.	n.s.
Over 4,5%		n.s.	n.s.	n.s.	36	50
In 1992						
None		49	n.s.	n.s.	n.s.	n.s.
Over 4,5%		n.s.	n.s.	n.s.	n.s.	37
Engineering/Total Sales	169					
In 1987-89						
None		50	n.s.	n.s.	n.s.	n.s.
Over 4,5%		n.s.	n.s.	36	36	37
In 1992						
None		47	n.s.	n.s.	n.s.	n.s.
Over 4,5%		n.s.	n.s.	n.s.	36	38
Sales Expenditures/Total Sales	169					
In 1987-89						
Up to 5%		39	40	44	43	25
Over 10%		n.s.	n.s.	n.s.	36	38
In 1992						
Up to 5%		35	47	50	43	50
Over 10%		n.s.	n.s.	n.s.	36	n.s.
Technical Assistance/Total Sales	169					
In 1987-89						
Up to 0.5%		40	n.s.	n.s.	n.s.	n.s.
Over 4.5%		36	33	36	43	50
In 1992						
Up to 0.5%		34	n.s.	n.s.	n.s.	n.s.
Over 4.5%		37	33	n.s.	36	38
Training Programs/Total Sales	169					
In 1987-89						
0.3 to 0.8%		n.s.	33	38	n.s.	n.s.
Over 2.5%		35	n.s.	n.s.	n.s.	38
In 1992						
0.3 to 0.8%		n.s.	47	47	36	n.s.
Over 2.5%		35	n.s.	n.s.	n.s.	n.s.

n.s. - non-significant (less than 33%)

Source: see text

TABLE 10

PRODUCTIVE CAPABILITY AND TECHNOLOGICAL STANDARD

Attributes	Export/Sales (%) Ratio				
	0-5	6-10	11-30	31-50	51-100
(% of firms)					
Services Acquired in 1991-92					
a) In the Domestic Market					
Project	n.s.	n.s.	n.s.	n.s.	50
Tests	n.s.	n.s.	n.s.	36	63
Metrology	n.s.	40	n.s.	n.s.	50
Certificate of Compliance with Technical Specifications	n.s.	n.s.	n.s.	n.s.	50
Consultancy in Marketing	n.s.	n.s.	n.s.	36	38
Consultancy in Management	n.s.	n.s.	n.s.	71	75
Consultancy in Quality	n.s.	40	n.s.	50	88
b) Abroad					
Tests	n.s.	n.s.	n.s.	n.s.	50
Certificate of Compliance with Technical Specifications	n.s.	n.s.	n.s.	n.s.	38
Consultancy in Quality	n.s.	n.s.	n.s.	n.s.	38
Generation of the Main Products of the Firm Compared to the Technological Standard of the Main World Exporters					
Last or Penultimate	41	73	67	71	75
Number of Years of the Most Important Equipment					
Up to 10 Years	49	67	47	n.s.	37
Technological Generation of the Most Important Equipment					
Last or Penultimate	41	60	64	69	63

n.s. - non-significant (less than 33%)

No. of firms: 169 respondents

Source: see text

TABLE 11
ORIGIN OF TECHNICAL NORMS USED BY FIRMS

Attributes	Export/Sales (%) Ratio				
	0-5	6-10	11-30	31-50	51-100
(% of firms)					
Input Qualification					
Domestic (ABNT/INMETRO)	51	36	35	n.s.	n.s.
Firms' Own Criteria	n.s.	n.s.	40	33	75
Raw Material Handling					
Firms' Own Criteria	57	40	50	50	100
Machinery Operation					
Firms' Own Criteria	43	40	62	56	100
Product Specification					
Domestic (ABNT/INMETRO)	39	n.s.	n.s.	n.s.	n.s.
International	n.s.	n.s.	n.s.	63	n.s.
Firms' Own Criteria	n.s.	50	n.s.	n.s.	67
Product Standardization					
Domestic (ABNT/INMETRO)	41	n.s.	n.s.	n.s.	n.s.
Firms' Own Criteria	41	55	n.s.	n.s.	60
Product Tests					
Domestic (ABNT/INMETRO)	47	46	n.s.	n.s.	n.s.
International	n.s.	n.s.	n.s.	50	n.s.
Gauging					
Domestic (ABNT/INMETRO)	69	67	69	50	50

n.s. - non-significant (less than 33%)

Source: see text

3.5. Technological Capability

The counterpart of the movement toward more efficient production, quality improvement and higher product competitiveness is the necessity to adopt a number of measures related to the automation of production, the control of the productive process, policies towards human resources and others. Tables 12 to 15 aim at providing an overview of the main related points identified in the answers to the questionnaire, comparing the evolution between 1987-89 and 1992 and the plans for 1993-95.

There has been a clear increase in the number of firms using microelectronic devices in their main productive unit between 1987-89 and 1992. These are mostly medium-to-large exporters, and the indications are that these groups of firms intend to intensify the utilization of these devices in the next two years.

An interesting difference between exporters and DMO firms is found in their approach to the ISO 9000 regulations. Over half of the non-exporters said they either don't know or don't think it is relevant to implement these regulations¹¹, whilst half or more of the exporters are already implementing them. This is consistent with the expectation that exporters are subject to more strict market rules and barriers.

Also consistent with the previous pieces of evidence pointing to an increasing concern with quality and efficiency, there are clear indications for every group of firms of an increase in recent period of the adoption of statistical control of production process, the use of quality control circles, analysis of time and motion, production cells, inbound just-in-time, outbound just-in-time, quality guaranteeing activities in all productive stages, quality controlling activities in all productive stages, and quality guaranteeing and controlling activities on all inputs. The indications are that the use of these mechanisms is likely to intensify in 1993-95.

The indicators are in general more intense in direct proportion to the export/sales ratios of the firms, and this (once more) confirms the increasing concern with quality improvement and cost reduction¹².

Tables 1 and 2 have shown that this movement toward more efficient production had a corresponding perverse effect on employment, with firms outsourcing basic services, among other measures. Figures in Table 15 confirm that all groups of firms -but more intensely the larger exporters - have adopted as an strategy the practice of making stable job contracts with no formal guarantees, as well as use flexibility in broadly defining jobs.

At the same time, however, most firms - again with the predominance of exporters - adopt training programs (systematically or not) and rely mostly upon external institutions for this matter. Optimistic conclusions should be qualified, however, by the indications (Table 9) of a reduction in the training programs/total sales ratios between 1987-89 and 1992.

11 Although another 39% of them indicated that they are already implementing them.

12 Although not much can be said about the ranking of these technological change activities as to the relative importance exporters given them.

TABLE 12
AUTOMATION, PROCESS CONTROL

Attributes	Export/Sales (%) Ratio				
	0-5	6-10	11-30	31-50	51-100
(% of firms)					
% Operations by Microelectronics Devices					
In 1987-89					
Over 20%	n.s.	n.s.	n.s.	n.s.	n.s.
In 1992					
Over 20%	n.s.	n.s.	33	46	71
Projected 1993-95					
Over 20%	n.s.	n.s.	56	66	67
With Regard to ISO 9000 Regulations					
don't know or don't want	54	n.s.	n.s.	n.s.	n.s.
Being Implemented	39	53	51	43	50
Already Implemented	n.s.	n.s.	37	43	50
Statistical Control of Production Process					
In 1987-89					
Over 20%	n.s.	n.s.	n.s.	n.s.	n.s.
In 1992					
Over 20%	n.s.	42	41	n.s.	n.s.
Projected 1993-95					
Over 20%	44	44	64	69	71

n.s. - non-significant (less than 33%)

No. of firms: 169 respondents

Source: see text

TABLE 13
ORGANIZATIONAL PROCEDURES

Attributes	No. of Firms	Export/Sales (%) Ratio				
		0-5	6-10	11-30	31-50	51-100
(% of firms)						
Quality Control Circles (over 20% of workers involved in this activity)	165					
1987-89		n.s.	n.s.	n.s.	n.s.	n.s.
1992		n.s.	n.s.	36	n.s.	n.s.
Projected 1993-95		34	n.s.	66	38	50
Analysys of Time and Motion (number (%) of operations)	141					
1987-89		n.s.	42	n.s.	36	33
1992		n.s.	42	52	54	33
Projected 1993-1995		38	56	65	50	33
Production Cells (over 20% of workers involved in this activity)	140					
1987-89		n.s.	n.s.	n.s.	n.s.	n.s.
1992		n.s.	42	n.s.	n.s.	n.s.
Projected 1993-1995		n.s.	44	33	33	n.s.
Inbound Just in Time (over 20% of workers involved in this activity)	143					
1987-89		n.s.	n.s.	n.s.	n.s.	n.s.
1992		n.s.	33	n.s.	n.s.	n.s.
Projected 1993-1995		47	67	56	n.s.	n.s.
Outbound Just in Time (over 20% of suppliers involved in this activity)	143					
1987-89		n.s.	n.s.	n.s.	n.s.	n.s.
1992		n.s.	n.s.	n.s.	n.s.	n.s.
Projected 1993-1995		n.s.	44	42	46	n.s.
Participation in Just in Time of Clients (over 20% of shipments)	140					
1987-89		n.s.	n.s.	n.s.	n.s.	n.s.
1992		n.s.	n.s.	n.s.	n.s.	n.s.
Projected 1993-1995		n.s.	44	38	n.s.	n.s.

n.s. - non-significant (less than 33%)

Source: see text

TABLE 14
QUALITY CONTROL PROCEDURES

Attributes	No. of Firms	Export/Sales (%) Ratio				
		0-5	6-10	11-30	31-50	51-100
(% of firms)						
Quality Guaranteeing Activities (all productive stages)	112					
1987-89		n.s.	n.s.	n.s.	n.s.	n.s.
1992		n.s.	50	36	54	n.s.
Projected 1993-95		52	70	76	77	63
Quality Controlling Activities (all productive stages)	156					
1987-89		n.s.	n.s.	47	54	38
1992		n.s.	50	43	62	57
Projected 1993-1995		47	40	71	64	86
Quality Guaranteeing Activities on Inputs (all inputs)	119					
1987-89		n.s.	n.s.	n.s.	n.s.	n.s.
1992		n.s.	36	n.s.	42	n.s.
Projected 1993-1995		39	55	63	69	71
Quality Controlling Activities on Inputs (all inputs)	158					
1987-89		n.s.	33	n.s.	62	n.s.
1992		n.s.	n.s.	n.s.	50	38
Projected 1993-1995		58	n.s.	35	55	71

n.s. - non-significant (less than 33%)

Source: see text

TABLE 15
POLICY TOWARDS HUMAN RESOURCES

Attributes	No. of Firms	Export/Sales (%) Ratio				
		0-5	6-10	11-30	31-50	51-100
(% of firms)						
Stable Contracts with no Formal Guarantees	175	45	87	70	71	90
Flexibility in Broadly Defining Jobs	177	45	53	56	71	70
Training Policy:	177					
External Institutions		39	47	65	65	50
Systematic Internal Programs		n.s.	73	78	88	100
Non-Systematic Internal Programs		42	33	38	n.s.	50

n.s. - non-significant (less than 33%)

Source: see text

3.6. External Determinants of Competitiveness

A last set of information is shown on Tables 16 to 21. Firms were asked to isolate which - according to their views - were the main determinants of competitiveness, with regard to market characteristics, industrial organization, relations with suppliers and characteristics of raw materials, attributes of equipment, macroeconomic conditions and international elements.

The questions aimed at identifying how entrepreneurs considered each attribute with regard to its importance for the competitiveness of their firms in the market where they compete as well as its influence on the firm itself. Furthermore, the questions on the effect for the firm referred to the present situation (as of 1992), so that for a given attribute, say, for instance, "conformity with specific client specification", firms would say whether they consider it important for competing and whether the present degree of conformity has an identifiable positive or negative impact on the firm.

In relation to market characteristics, in general the firms of all groups have (not surprisingly) considered as important or very important for competing all the attributes listed in the questionnaire - low sales prices, knowledge of product brand name, fast product delivery, fast development of new products¹³, efficiency in technical assistance, technical sophistication of products, conformity with specific client specifications, exploring specific market segments, and the possibility to explore a large domestic market.

Also, there is no significant indication that any of these attributes would at present bring negative effects for the firms. Instead, most of the firms in all groups show conformity (positive influence) with the present status of product delivery time, efficiency in providing technical assistance, and conformity with technical and client product specifications.

¹³ The only attribute apparently more important for small-to-medium exporters. All the others show a positive correspondence of answers with the export/sales ratio.

TABLE 16

DETERMINANTS OF COMPETITIVENESS AS IDENTIFIED BY THE FIRMS
(Market Characteristics)

Attributes	Export/Sales (%) Ratio				
	0-5	6-10	11-30	31-50	51-100
(% of firms)					
Low Sales Price					
Sectorially:					
Important or Very Important	88	100	94	100	100
For The Firm:					
Positive	48	n.s.	n.s.	n.s.	n.s.
Product Brand Name					
Sectorially:					
Important or Very Important	88	92	90	79	100
For The Firm:					
Positive	64	47	51	n.s.	n.s.
Fast Product Delivery					
Sectorially:					
Important or Very Important	95	100	94	94	100
For The Firm:					
Positive	55	47	49	53	60
Fast Development of New Products					
Sectorially:					
Important or Very Important	54	92	81	81	60
For The Firm:					
Positive	n.s.	n.s.	n.s.	n.s.	n.s.
Efficiency in Technical Assistance					
Sectorially:					
Important or Very Important	71	92	77	94	100
For The Firm:					
Positive	37	40	49	40	40
Technical Sophistication of Products					
Sectorially:					
Important or Very Important	71	75	84	75	60
For The Firm:					
Positive	n.s.	n.s.	n.s.	n.s.	n.s.
Conformity with Technical Specifications					
Sectorially:					
Important or Very Important	80	83	94	94	100
For The Firm:					
Positive	39	40	62	59	90
Conformity with Specific Client Specification					
Sectorially:					
Important or Very Important	73	92	94	94	90
For The Firm:					
Positive	46	40	62	47	70
Specific Market Segments					
Sectorially:					
Important or Very Important	76	100	84	75	100
For The Firm:					
Positive	51	47	56	n.s.	40
Large Domestic Market					
Sectorially:					
Important or Very Important	90	100	97	100	40
For The Firm:					
Positive	46	40	53	47	n.s.

n.s. - non-significant (less than 33%)

No. of firms: 176 respondents

Source: see text

TABLE 17
 DETERMINANTS OF COMPETITIVENESS AS IDENTIFIED BY THE FIRMS
 (Industrial Organization)

Attributes	Export/Sales (%) Ratio				
	0-5	6-10	11-30	31-50	51-100
(% of firms)					
"Diverticalization" of Production					
Sectorially:					
Important or Very Important	72	75	50	75	80
For The Firm:					
Positive	n.s.	n.s.	n.s.	37	n.s.
Market Diversification					
Sectorially:					
Important or Very Important	55	67	70	94	80
For The Firm:					
Positive	n.s.	n.s.	n.s.	44	50
Producing in High Scale					
Sectorially:					
Important or Very Important	85	75	78	94	100
For The Firm:					
Positive	n.s.	n.s.	n.s.	n.s.	80

n.s. - non-significant (less than 33%)

No. of firms: 176 respondents

Source: see text

TABLE 18

DETERMINANTS OF COMPETITIVENESS AS IDENTIFIED BY THE FIRMS
(Intersectorial Relations - Suppliers and Raw Material)

Attributes	Export/Sales (%) Ratio				
	0-5	6-10	11-30	31-50	51-100
(% of firms)					
Long, Stable Relations with Suppliers					
Sectorially:					
Important or Very Important	95	100	97	100	100
For The Firm:					
Positive	76	53	74	53	70
Long, Stable Relations with Clients					
Sectorially:					
Important or Very Important	100	100	97	100	100
For The Firm:					
Positive	85	73	92	82	100
Keeping Own Distribution Systems					
Sectorially:					
Important or Very Important	68	58	63	50	70
For The Firm:					
Positive	42	n.s.	n.s.	n.s.	44
Access to Other Distribution Systems					
Sectorially:					
Important or Very Important	61	33	66	81	90
For The Firm:					
Positive	n.s.	n.s.	n.s.	n.s.	n.s.
Low Price for Raw Materials					
Sectorially:					
Important or Very Important	98	92	97	100	80
For The Firm:					
Positive	50	n.s.	45	53	70
Rapid Access to Raw Materials					
Sectorially:					
Important or Very Important	100	100	93	100	100
For The Firm:					
Positive	48	33	47	41	60
Technical Adequacy of Raw Materials					
Sectorially:					
Important or Very Important	95	100	97	100	100
For The Firm:					
Positive	55	n.s.	58	47	70
Durability of Raw Materials					
Sectorially:					
Important or Very Important	61	83	70	75	70
For The Firm:					
Positive	52	40	n.s.	n.s.	n.s.
Raw Materials Corresponding to Specification by the Firm					
Sectorially:					
Important or Very Important	85	100	93	94	100
For The Firm:					
Positive	43	n.s.	41	n.s.	40

n.s. - non-significant (less than 33%)

No. of firms: 172 respondents

Source: see text

TABLE 19

DETERMINANTS OF COMPETITIVENESS AS IDENTIFIED BY THE FIRMS
(Intersectorial Relations - Equipment)

Attributes	Export/Sales (%) Ratio				
	0-5	6-10	11-30	31-50	51-100
(% of firms)					
Low Price of Equipment					
Sectorially:					
Important or Very Important	83	92	90	94	100
For The Firm:					
Positive	n.s.	n.s.	n.s.	n.s.	n.s.
Rapid Equipment Delivery					
Sectorially:					
Important or Very Important	73	100	87	100	100
For The Firm:					
Positive	n.s.	n.s.	n.s.	n.s.	n.s.
Efficient Technical Assistance for Equipment					
Sectorially:					
Important or Very Important	83	100	93	100	100
For The Firm:					
Positive	35	n.s.	n.s.	41	50
Technical Sophistication of Equipment					
Sectorially:					
Important or Very Important	78	99	93	94	100
For The Firm:					
Positive	41	n.s.	47	41	n.s.
Conformity of Equipment to Technical Specification					
Sectorially:					
Important or Very Important	89	100	83	94	100
For The Firm:					
Positive	35	n.s.	45	35	44
Durability of Equipment					
Sectorially:					
Important or Very Important	90	100	97	100	100
For The Firm:					
Positive	48	n.s.	47	47	60
Facility to Import Raw Material or Component					
Sectorially:					
Important or Very Important	83	82	93	100	80
For The Firm:					
Positive	35	n.s.	40	35	60
Facility to Import Equipment					
Sectorially:					
Important or Very Important	73	100	90	100	90
For The Firm:					
Positive	n.s.	n.s.	40	35	60

n.s. - non-significant (less than 33%)

No. of firms: 171 respondents

Source: see text

TABLE 20

DETERMINANTS OF COMPETITIVENESS AS IDENTIFIED BY THE FIRMS
(Intersectorial Relations - Macroeconomic Conditions)

Attributes	Export/Sales (%) Ratio				
	0-5	6-10	11-30	31-50	51-100
(% of firms)					
Labor Cost					
Sectorially:					
Important or Very Important	88	100	97	94	60
For The Firm:					
Negative	48	n.s.	n.s.	n.s.	n.s.
Interest Rate					
Sectorially:					
Important or Very Important	100	100	100	100	90
For The Firm:					
Negative	79	53	82	94	70
Exchange Rate					
Sectorially:					
Important or Very Important	70	100	87	94	90
For The Firm:					
Negative	35	33	44	n.s.	n.s.
Long-Term Credit					
Sectorially:					
Important or Very Important	88	92	97	94	90
For The Firm:					
Negative	47	40	61	94	50
Short-Term Credit					
Sectorially:					
Important or Very Important	78	92	87	94	90
For The Firm:					
Negative	45	40	n.s.	41	n.s.
Export Financing					
Sectorially:					
Important or Very Important	53	100	97	100	90
For The Firm:					
Positive	n.s.	n.s.	n.s.	n.s.	50
Tax over Inputs					
Sectorially:					
Important or Very Important	98	100	93	100	90
For The Firm:					
Negative	82	67	71	77	70
Tax over Products					
Sectorially:					
Important or Very Important	100	100	93	100	90
For The Firm:					
Negative	85	67	73	71	70

(continue)

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Attributes	Export/Sales (%) Ratio (% of firms)				
	0-5	6-10	11-30	31-50	51-100
Fiscal Incentives to Exports					
Sectorially:					
Important or Very Important	63	100	90	94	90
For The Firm:					
Negative	n.s.	40	42	n.s.	n.s.
Fiscal Incentives to Investment					
Sectorially:					
Important or Very Important	75	100	100	88	90
For The Firm:					
Negative	n.s.	60	63	47	40
Import Tariffs on Inputs					
Sectorially:					
Important or Very Important	70	100	93	94	70
For The Firm:					
Negative	36	33	53	59	n.s.
Import Tariffs on Capital Goods					
Sectorially:					
Important or Very Important	55	92	89	94	80
For The Firm:					
Negative	n.s.	n.s.	58	47	n.s.
Import Tariffs on Competing Goods					
Sectorially:					
Important or Very Important	53	92	58	50	n.s.
For The Firm:					
Positive	n.s.	33	n.s.	n.s.	n.s.
Social Security Costs					
Sectorially:					
Important or Very Important	98	92	100	100	90
For The Firm:					
Negative	76	53	87	71	n.s.

n.s. - non-significant (less than 33%)

No. of firms: 175 respondents

Source: see text

TABLE 21

DETERMINANTS OF COMPETITIVENESS AS IDENTIFIED BY THE FIRMS
(Intersectorial Relations - International Conditions)

Attributes	Export/Sales (%) Ratio				
	0-5	6-10	11-30	31-50	51-100
(% of firms)					
Access to New Foreign Technologies					
Sectorially:					
Very Important	n.s.	67	63	81	60
For The Firm:					
Positive	34	47	34	n.s.	40
Technological Links with Foreign Firms Abroad					
Sectorially:					
Very Important	n.s.	50	47	69	n.s.
For The Firm:					
Positive	n.s.	47	33	n.s.	n.s.
Harmonization of Trade Policies					
Sectorially:					
Very Important	n.s.	50	53	44	50
For The Firm:					
Negative	n.s.	n.s.	41	44	n.s.
Mercosur					
Sectorially:					
Very Important	n.s.	n.s.	47	38	n.s.
For The Firm:					
Positive	n.s.	n.s.	34	41	n.s.
Tariff Barriers to International Trade					
Sectorially:					
Very Important	n.s.	33	47	75	100
For The Firm:					
Negative	n.s.	n.s.	n.s.	71	56
Technical Barriers to International Trade					
Sectorially:					
Very Important	n.s.	n.s.	n.s.	63	80
For The Firm:					
Negative	n.s.	n.s.	n.s.	47	60

n.s. - non-significant (less than 33%)

No. of firms: 111 respondents

Source: see text

As far as the attributes of industrial organization are concerned, most firms - independently of their export/sales ratio - consider important or very important a deverticalization of production, market diversification and production in high scale. Only part of the larger exporters have, however, indicated that the present situation brings positive effects for their firms.

Firms of all groups also praise - for the sake of competitiveness - the maintenance of long and stable relations with suppliers and clients, the possibility of having rapid access to raw material

that should also be cheap, technically adequate and corresponding to the firm's specification. Apparently they are less worried¹⁴ about the distribution system for their products, be it exclusive or belonging to third parts.

From these, entrepreneurs have in general indicated positive effects for their firms stemming from the present status of their relations with suppliers and clients and the rapid access to raw material.

A very high proportion (almost unanimity) of the firms in all groups consider (not surprisingly) very important for competitiveness the rapid access to cheap, durable, technically sophisticated equipment with efficient technical assistance and in conformity to the technical specifications. It is also very important to have facilities to import equipment as well as raw material and components.

No significant proportion of firms have manifested conformity with the present situation with regard to the price or delivery time for acquiring new equipments. A good share (about 40% or more) of the entrepreneurs consider positive for their firms the present level of technical sophistication and durability of the equipments¹⁵, but apparently only the exporters seem satisfied with the present facilities to import equipment and raw material¹⁶.

In their appraisal of the macroeconomic determinants of competitiveness there is an almost unanimous position of all firms to point at the level of domestic interest rates, the level of taxation of production and social security costs as very important items. Other relevant variables are (as expected) the exchange rate, labour cost, the availability of short- and long-term credit and fiscal incentives to exports and to investment in general.

It is particularly remarkable that import tariffs on competing goods would apparently rank last in importance, if one were to consider the percentage of firms that have classified it as important. Notice that there is even a group of firms indicating a positive effect of this attribute¹⁷.

Figures on Table 20 reflect more explicitly the dissatisfaction of entrepreneurs with some of the most obvious effects of an inflationary situation with fiscal deficit: a high number of firms have indicated the negative impacts of the high interest rates, the limited availability of long-term

14 Although they consider it also important or very important for competing in the market.

15 In accordance with the evidence provided by Table 10, suggesting a relative technological updating of the most important equipment in most firms.

16 This is consistent with the indications - Table 1 - that only these firms have imported significantly in recent years.

17 This is consistent with the previous indication that import competing is not relevant for the definition of production and market strategies.

credit, the relatively high tax on inputs and products and (except the largest exporters) the level of import tariff on inputs and social security costs.

The first and the last sets of indicators of Table 20 taken together would indicate that labour costs seem relevant mainly for domestic-market-oriented firms, whilst social security costs affect most groups of firms. The corresponding (non-significant) indicators for the group of largest exporters might be interpreted as a suggestion that the relatively higher intensity of adjustment that took place in this group (Table 1) has made these firms less sensitive to factor costs.

A last set of determinants of competitiveness external to the firm stress some key factors in international relations. It is worth noting, first of all, that not only a smaller number of firms have answered this part of the questionnaire, but also that the percentages in each row of Table 21 are smaller than in Table 20. This certainly reflects the obvious fact that firms are on the whole more concerned with the domestic constraints; only exporters care about these international determinants¹⁸.

According to Table 21 firms would consider as very important for competing in their markets the access to new foreign technologies - either directly or via links with foreign firms - and the mechanisms to avoid barriers that actually affect their exports.

At the firm level, there are indications that the groups of medium-to-large exporters are at present negatively affected by tariff and technical barriers to trade, and by the present situation of the harmonization of trade policies.

Notice that this dissatisfaction with the present harmonization of trade policies does not refer to the consolidation of Mercosur. In fact, Mercosur is considered as important by small and medium exporters (firms with an export/sales ratio up to 50%) -as consistent with the figures shown in Table 4 - and these firms have indicated positive effects.

¹⁸ Figures in the first column of Table 21 apparently confirm the lower interest of domestic-market-oriented firms.

4. GENERAL EVALUATION

This study is a first tentative to identify - from a partial processing of the data obtained from a survey of industrial firms in Brazil in 1992 - the basic action recently undertaken by those firms to improve their competitiveness and to relate the differences among the firms to their involvement with the exporting activity.

It should be clear that the results obtained here have to be carefully considered in relation to the specific (peculiar) period when firms were surveyed. That was a moment when the domestic economy presented recessive conditions, coupled to record inflationary rates and fiscal imbalance. Furthermore, a period when the export sector was starting to recover from the effects of the highest exchange-rate overvaluation since the adoption of the crawling-peg mechanism, in 1968.

From the perspective of the participation of domestic products in the international market, the cost paid for these adverse conditions was a significant fall - in the second half of the 80s - in the market-share of the Brazilian exports for most geographic areas¹⁹. In addition to that, some structural constraints have become of increasing concern of analysts of the Brazilian trade sector. Not only the export bill still has an overwhelming participation of natural resources-intensive products with low processing. A large part of the non-traditional products exported from Brazil have relatively less dynamic markets; at least in terms of the demand from OECD countries, the perspectives stemming from the structure of specialization seems to compare poorly with that of competitors²⁰.

In such a context - and given the peculiarities of the questionnaire - it should not be expected to find here a comprehensive test of the role of exports. Instead, what this first approximation (not controlling for firm size or sectoral peculiarities) aims at is a picturing of what efforts have been made by the firms surveyed in order to foster competitiveness, and - whenever possible - try to identify indications that the involvement with the external market might lead to a differentiated approach.

The analysis has shown an overall movement of most producers towards productive efficiency, an intensification of the use of quality criteria in the purchase of inputs, in the utilization of raw materials and in managing the production process, a clear concern with product quality, the provision of technical assistance and preoccupation with meeting client determined specifications, in specific market segments.

¹⁹ For basic data see BNDES (1993)

²⁰ See in this regard Fichet (1993)

The results also show that the sampled firms have as a rule gone through an adjustment process clearly motivated by the recent recessive inflationary conditions of the domestic market, and among other consequences this has led to lower labour/output ratios.

Evidence surveyed here also tended to confirm in broad terms the results obtained elsewhere with regard to exporters being more concerned with formally (i.e., by means of market-mediated contracts) acquiring technology and adapting themselves to more strict market conditions than domestic-market-oriented firms.

In the external side, the data indicate that the larger exporters are being affected by the barriers importing countries impose on their products. Additionally, there is evidence that Mercosur has become a factor taken into consideration by some firms when they define their strategies, although the latter does not seem to include the largest exporters.

The inferences one might derive from these indicators for suggesting policy measures should take into account, first, that they refer to a fairly representative set of firms, corresponding to 23% of the exports of industrial products in 1992. Also, one should keep in mind the fact that firms with the highest export/sales ratios are large in size, belong to economic groups and have diversified lines of production. This might be indicative of the importance of the inter-industrial relations for the export sector²¹.

This seems to be confirmed by the concern expressed by the respondents with maintaining stable commercial relations with suppliers and clients, as well as the preoccupation with meeting client specifications and providing technical assistance in specific market segments.

An optimistic view of these indicators would suggest that this approach of "specialization-leading-to competitiveness" might have deeper roots in the productive structure than the simple analysis of the export bill would suggest. If true, this would also mean a stronger capacity of disseminating the benefits of the exporting activity into the productive sector and lead to more systemic competitiveness.

A pessimistic view would stress the fact that the external market actually served as a "cushion" against the domestic recession during the period of analysis, and hence export performance might be vulnerable to an upturn in the economic activity. This could be confirmed by the indications that firms care most about the domestic market.

Probably truth lies in between. As emphasized earlier, the period of analysis is peculiar in that domestic recession has influenced most of the outcomes, as reflected in the cost-cutting policies that led to reducing expenditures in engineering, sales, manpower training and others. But

21 As indicated also in BNDES (1993)

at the same time the figures presented here point to an increasing concern with the number of operations by microelectronic devices, with implementing the ISO 9000 regulations and others, all of which would indicate a more systematic and careful approach to more exigent markets (firms do not seem to worry much about import competition), where firms feel as technologically updated as their competitors.

One might add perhaps that this animal spirits of the export sector might be reinforced by previous experience: in 1986 the domestic boom induced several exporters to redirect their sales, only to learn very soon the costs of losing stable relations with foreign clients, a characteristic specifically praised in the answers to the present survey.

It is hard to derive more affirmative conclusions from such a broad analysis, without going into details about the role of size of the firms and sectoral specificities. The sample comprises as diverse sectors as the production of power generating machinery, furniture and apparel and clothing, among others, but shortage of time for analysis does not allow for more detailed treatment of the information.

The policy implications that follow from these sets of data are numerous. To start with, there is an overall confidence shown by the firms surveyed with regard to their competitive conditions to face imports. This would indicate that (except possibly for some specific sectoral exceptions) there seems to be in general no reason to reverse the policy of low import barriers. The evidence reviewed seems to recommend instead that international negotiators intensify efforts aiming at a reduction of the trade barriers affecting exports.

The indications of concern with structural competitiveness might look inconsistent with the reduction of expenditure in related measures like manpower training, if one does not take into account the conjunctural peculiarities of the period. It seems, however, that this inconsistency is unsustainable over time, and firms will sooner or later be forced into resuming these activities if the level of competitiveness is to be maintained or improved. But it is also an indicator that there is a case for complementary policy measures to help firms overcome the difficulties that led to that reduction. The importance of such initiatives becomes even bigger in a period of systematic and generalized reduction of the employment/sales ratios.

The surveyed firms by and large point to the levels of domestic interest rates and the taxation on inputs and products as two major constraints they have to face. Needless to say, this affects all the firms, but it is interesting to note that the exporters have been able to have access to cheaper foreign financing. When considered together with the indications that these firms belong to economic groups, these differentiated conditions might lead to considerations about the likely consequences for the domestic market structure. Measures to ensure fair competition might become even more necessary than before.

The results presented here would also suggest other types of policies more directly related to the search of systemic competitiveness, such as a better divulgation of the importance of adopting some mechanisms like those prescribed by the ISO 9000 by a broader spectrum of firms, provision of credit and other incentives to help (mainly smaller) firms improve managerial, technological and productive capability, and several others.

The spectrum of possibilities for policy suggestions is as varied as the topics covered by this report. One hopes that this broad picturing proves helpful in identifying the main issues. More specific affirmatives would require the analysis in greater detail of the enormous amount of information available, at the sectoral level.

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