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Brazilian Economic Studies

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The growth dynamics of the Brazilian passenger car industry: 1957/78 *

Eduardo Augusto Guimarães **

1 — Introduction

Despite the importance attached by the literature to the role played by the passenger car industry in the recent evolution of the Brazilian economy — and in particular in its cyclical behaviour — there is no comprehensive analysis of the industry's evolution. This work and the broader study which preceded it intend to fill this gap, by examining the growth dynamics of the industry in the 1957/78 period and the changes in its structure.

Although this paper aims at examining the industry's evolution, it focuses also on the factors that conditioned its emergence and initial structure. To be sure, the emergence and of the industry has already been the subject of various studies [Almeida (1972), Martins (1976) and Nascimento (1976)]. However, such works, as well as the literature on the Brazilian economy in general, have basically focused on the government policy designed to promote full manufacture of motor vehicles in the country, and hence

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ignored the factors which determined the response of the foreign manufacturers to such a government policy. This shortcoming is not without consequence. In particular, such an approach does not bring out the factors which account for the initial characteristics of the industry, for the subsequent events in its history and for the changes which occurred in its structure. As a result, the present paper reexamines the emergence of the Brazilian passenger car industry by focusing, however briefly, on the development of the international motor vehicle industry during the years which led up to the start of production in Brazil.

Finally, a word about the period under consideration. Although car production grew throughout the whole 1957/78 period (with the exception of 1977), it is possible to distinguish two growth cycles in the evolution of the industry: a first period of rapid growth, from 1957 to 1962, is followed by another five year period of relatively slow expansion; production growth again accelerates in the 1968/74 period, to decline once again after 1974. Consequently, 1967 was an important year in the evolution of the industry, as it marked the end of its first complete growth cycle. There are, however, further reasons for characterizing the year 1967 as a watershed in the history of the industry: important changes came about in its structure and pattern of competition around this year. In relation to the structural changes, important mergers brought about the disappearance of local manufacturers and the entry of the three big U.S. motor vehicle producers into the industry. As for the changes in the patterns of competition, firms would increasingly engage in product differentiation policies, until then practically non-existent. For such reasons, the subsequent analysis will distinguish and emphasize the specificity of the growth dynamics in the passenger car industry in the 1957/67 and 1968/78 periods.

2 – The emergence of the motor vehicle industry in Brazil

The Brazilian passenger car market up to World War II was supplied mainly by imports coming from the USA. The expansion of American manufacturers in Brazil involved, as far back as

the twenties, the setting up of assembly lines in the country (Ford in 1919, General Motors in 1924 and International Harvester in 1926). This picture would change in the post World War II period with the increase in the imports of European cars and the establishment of new assembly lines. In 1945 a local firm (Vemag) started the assembly of several makes of imported car, as well as commercial vehicles and agricultural machinery. In 1949, a state-owned company (Fabrica Nacional de Motores) started assembly of Isotta Fraschini lorries; activities were soon interrupted due to the bankruptcy of the Italian manufacturer, but resumed in 1952 with the assembly of Alfa Romeo lorries. In this same year, Willys opened a subsidiary in Brazil to assemble jeeps, which began to operate in 1954. Volkswagen began to assemble passenger cars and utility vehicles in 1953. Finally, Mercedes-Benz, which had been planning since 1951 to set up a lorry manufacturing plant, started to build its factory at the end of 1953 [Almeida (1972, p. 23) and Nascimento (1976, pp. 17-44)]. The establishment of these assembly lines would change the market shares of the various foreign manufacturers in Brazil.

As is known, the beginning of motor vehicle manufacturing in Brazil occurred in the second half of the fifties and was associated with the Brazilian government's decision to provide a set of specific incentives. As has been mentioned, the success of this policy can be ascribed to its convergence with the growth strategy of the potentially capital exporting industries. There is no need to focus on the Brazilian government policy, which has already been adequately studied.¹ It is necessary, however, to refer to certain features of the motor vehicle industry on a world scale, particularly those that account for the reaction of the different foreign producers to that policy and, consequently, for the shape of the emerging industry.

The move of national motor vehicle industries towards external markets is an early phenomenon in the history of such industries. In fact, the first move was simultaneous with the

¹ For a detailed analysis of such a policy, see, for example, the works mentioned in note 1.

process of concentration that shaped the oligopolistic structure of these industries, since the process of technical change which brought about mass production implied both the driving of smaller and less efficient producers out of the industry and the need to find new markets for the growing production. Thus, even by the end of the twenties, motor vehicle exports already accounted for 13% of world production. On the other hand, the process of industrial concentration during that decade meant a reduction from 108 to 35 in the number of manufacturers in the USA between 1923 and 1931 and from 88 to 31 in the United Kingdom between 1922 and 1929. As a result, the market share of the three largest producers in the USA, United Kingdom and France increased, at the end of the decade, to 90, 75 and 68% respectively. Furthermore, the two largest American manufacturers were engaged in operating assembly lines abroad: in 1929, GM had assembly lines in 15 countries and Ford in 14; 70% of GM exports were in the form of completely knocked-down (CKD) vehicles. In addition, the two manufacturers had established subsidiaries in Germany, the United Kingdom and France for the full manufacture of vehicles in these countries. In this context, the establishment of GM's and Ford's assembly lines in Brazil during the twenties can be seen as part of their overall growth strategy [Jenkins (1977, p. 17) and Hu (1973, pp. 40-1)].

The post World War II period was characterized by a rapid growth in world motor vehicle production, by new waves of concentration, which consolidated the oligopolistic structure of the different national industries, and by the process of increasing internationalization of the industry. World motor vehicle production increased from 3.9 million units in 1946 to 13.7 million in 1955, 24.3 million in 1965 and 39.1 million in 1973. The higher growth rate of European production during this period and, later, the beginning of manufacturing activities in new countries implied a decline in the U.S. share of world production from 79% in 1946 to 45% in 1958 and 32% in 1973 [See Motor Vehicle Manufacturers Association (1978)]. This tendency reflected, however, rather a decline in the rhythm of expansion of U.S.

domestic production than a poor performance by the U.S. firms, since their production abroad increased significantly.

In the decade after the war, industrial concentration rose considerably, as a result of a new wave of mergers and the withdrawal of smaller firms, completing the shaping of the oligopolistic structure of the different national industries. No significant entry of new firms has occurred at a world level since then, with the entry of new manufacturers in specific countries being restricted in general to the establishment of subsidiaries of already existing firms. This does not mean that the process of concentration reached its limit in the fifties. However the new mergers which have occurred since then are, in a sense, of a different kind from those observed in previous periods. In fact, these more recent mergers, which involved large size firms, were induced by the need to strengthen such firms in the process of competition on a world-wide scale rather than by the dynamics of competition in specific national markets.

This new international dimension of the process of competition between motor vehicle manufacturers is, probably, the most important characteristic of the post-war development of the motor vehicle industry. To some extent, this was the natural outcome of the movement of the North American manufacturers towards external markets in the pre-war period. Nevertheless, by its amplitude, this process implied far-reaching changes in the growth strategies of the firms and in the pattern of competition within and between the different national industries, which were brought together into an international industry. With this new framework, the horizon of the oligopolistic firms became world-wide and their mutual market dependence was extended beyond national boundaries.

The different growth rates of the North American and European markets in the post-war and the emergence of an enlarged and protected market with the formation of the European Economic Community made Europe of growing importance for the U.S. firms. This importance can be shown by comparing the growth rate of domestic production for GM, Ford and Chrysler in the 1955/73 period (56%) and the growth rate of their

European subsidiaries (423%); as a result, the share of these subsidiaries in the overall production of the three firms, rose from 8% in 1955 to 21% in 1973. On the other hand, the increasing importance of the American subsidiaries in the European industry is shown by the rise in their share in EEC and UK production: 29% in 1937, 22% in 1950 and 29% in 1973 [Hu (1973), Bloomfield, (1978) and The Society of Motor Manufacturers and Trades Ltd. (1956)]. It is worth noting that, although not significantly reducing the share of European firms in their own domestic markets, the prospect of the U.S. subsidiaries' growth was particularly threatening to them in the early fifties, for the increasing richer European market was a receptive market to product differentiation policies, in relation to which the American firms had a clear-cut advantage.²

Facing increasing competition in their domestic markets, the European firms reacted by moving towards external markets. This move represented not only an effort to realize their growth potential, but also a step in the process of competition on a world scale, particularly when this involved entry into markets traditionally supplied by U.S. firms. In this respect, it may be suggested that the normal growth pattern of a non-dominant national oligopolistic industry implies that, at a first stage, its exports and direct investments will be directed to areas in which it has to face weaker national industries or no national industry at all; only when it has become strong enough will it face other national oligopolistic industries in their own domestic markets. It is true that, in relation to national markets traditionally supplied by U.S. manufacturers, the entry of European firms brought them into competition with the former; nevertheless, the European firms could expect, in this case, a less fierce reaction from the American firms than if their growth strategy had been directed at the U.S. market itself. Furthermore, the entry of European firms in countries that had no local production might be facilitated by their willingness to increase the locally made content of their vehicles, or even to undertake full manufacture in the

² As to this point, see Sundelson (1973). Sundelson gives special emphasis to the position of Volkswagen.

foreign country, a situation in which they would probably enjoy the protection and favours of the local government.

In this context, European firms' growth abroad included both their expansion into other national European national markets, in relation to which they benefited from the emergence of the E. E. C. market, as well as the entry and/or expansion in the markets of the developing countries.³ One should mention that this movement was particularly significant in the case of the more efficient and dynamic European national industries.

As a result of this process of internationalization, the number of capitalist countries with full manufacturing activities rose from 11 in 1955 to 18 in 1973. In the same way, the number of countries with assembly activities increased from 15 in 1929 to 19 in 1955 and 49 in 1973.⁴

From the point of view of the present article, it is particularly relevant to examine the stage which the process of internationalization of the motor vehicle industry had reached by the mid-fifties. As previously suggested, at that time, while the growth of American firms abroad was directed mainly to the European markets, and in particular to the expansion of their overseas production in that area, the European firms found themselves in the midst of an intense export drive. Among them, the German manufacturers had the most outstanding performance;

³ Although, in the case of the UK and France, exports to their colonies or former colonies predominated, all the European countries were present in Latin American markets by the mid-fifties. It can also be pointed out that, exploiting the characteristics of their products, with distinguished them from the North American ones, the expansion of European firms abroad included also entry into the U.S. market, where they gained a significant share of the small car market. It is worth emphasizing, however, that this movement did not have greater significance, since it involved an extremely restricted market segment. Thus, it cannot be compared with the expansion of North American firms in Europe.

⁴ See The Society of Motor Manufacturers and Traders Ltd. (1956) and Bloomfield (1978), pp. 153-154 and 259-260. Jenkins (1977), pp. 26-27, gives different figures: 42 countries with assembly activities in 1960 and 70 in 1979. He also mentions that the number of assembly contracts rose from 170 to 430 between those years.

resuming their export trade in 1948, they became the leading world exporters in 1956, a position which they held until 1973. In contrast to U.S. exports, which were divided almost equally between cars and commercial vehicles (54 and 46%) in 1955, European exports consisted mainly of passenger cars (70% in the UK; 82% in France, 79% in Germany and 92% in Italy). On the other hand, European motor vehicle exports corresponded to a larger share of domestic production than in the American case. In relation to passenger cars, US exports accounted for only 3% of national production in 1955; this figure was 45% in Germany, 41% in the United Kingdom, 30% in Italy and 24% in France. As for commercial vehicles, export share in U.S. production was higher in this same year (14%), though still lower than the corresponding shares in European countries (46% in the UK; 41% in Germany, 18% in France and 14% in Italy).⁵

The above comments concerning the dynamics of the international motor vehicle industry provide the general background for understanding the reaction of the different foreign manufacturers to the Brazilian government policy aimed at promoting full manufacture of motor vehicle in the country.

Such comments show that this policy was introduced in the midst of the process of internationalization of the motor vehicle industry, when the different national industries were increasingly directed towards external markets. During this period, as Europe became the main expansion frontier of North American firms, the developing countries became the expansion frontier for the European producers.

In this context, the first implication which foreign producers, particularly the European ones, could infer from the declared Brazilian government policy was that to be absent from the emerging industry meant being excluded from the Brazilian market entirely, since effective protection for new national production should be expected. From this point of view, the Brazilian government policy was a decisive stimulus for foreign firms

⁵ See *The Society of Motor Manufactures and Traders Ltd.* (1956).

to take up manufacturing activities in the country. On the other hand, one could argue that, owing to the very growth dynamics of the international motor vehicle industry, sooner or later some foreign manufacturer would be induced to steal a march on its competitors and start producing vehicles in the country, independent of any prior government incentive, but counting on future restriction on CBU and CKD vehicle imports. From this viewpoint, government policy would only have realized, or at the most anticipated, an already existing trend. As to this interpretation however, one should point out the difficulties that an isolated producer faced in starting motor vehicles manufacture in developing countries, due to the lack of a sufficiently developed parts industry upon which it could rely in order to operate within its usual level of vertical integration. Consequently, the existence of a government policy aimed at establishing a motor vehicle sector could be decisive for the effective emergence of the sector, not only because such policy threatened the absent producers with exclusion from the national market, as suggested, but also because it guaranteed potential manufacturers the necessary supply of parts and raw materials, thereby, providing for the realization of potential plans.⁶

The response from the U.S. firms to Brazilian government incentives was less enthusiastic than that of the European, being restricted in general to the production of commercial vehicles. Gordon and Grommers have identified, through interviews with

⁶ Eighteen projects for vehicle production were approved by GEIA, of which only eleven were effectively implemented. Out of these, nine projects were controlled by foreign producers, although in a few cases, associated with local capital; the two firms controlled by local capital were the state enterprise FNM and the import and assembly firm Vemag. Eight of the new producers were already assembling vehicle in the country; on the other hand, all the foreign producers with assembly lines in Brazil in the middle of the decade were included. The projects actually carried out were those of General Motors (commercial vehicles), Ford (commercial vehicles), International Harvester (commercial vehicles), Willys (cars and jeeps), Volkswagen (cars and utility vehicles), Mercedes Benz (commercial vehicles), Simca (cars), Scania-Vabis (commercial vehicles), Toyota (jeeps), Fábrica Nacional de Motores (cars and commercial vehicles) and Vemag (cars). See Latini (1959) and Almeida (1972), pp. 39-40.

the four American producers, that “the knowledge that importation of vehicles, in finished form as well as CKD for local assembly, would henceforth be impossible was a powerful stimulus”, since “the potential market in Brazil was too good to lose”; “prior investments in assembly and distribution facilities (amounting to many millions of dollars in some cases) and the goodwill had to be safeguarded by moving into complete manufacture” [Gordon and Grommers (1962, p. 53)]. Furthermore, the fact that “benefits were only to be offered to a limited number of companies (...) resulted in prompt decisions to go ahead on the part of most firms involved” [Gordon and Grommers (1962, p. 55)].

Nevertheless, the strategy of U.S. firms envisaged a limited engagement, restricted to the manufacture of commercial vehicles, which guaranteed, however, their place in the sector and facilitated a future diversification towards passenger car production. It can be suggested that the expansion of GM and Ford in Europe during that period worked against a major simultaneous expansion in Brazil; not because these firms lacked the necessary financial resources, since the sums involved were not in fact excessive for them, but rather because their managerial resources might be totally absorbed by their expansion in Europe. Their option for lorry production reflected, within the context of a limited involvement, both their more significant positions in the Brazilian lorry market in the previous years, vis-à-vis the passenger car market, and the larger share of commercial vehicle exports in their domestic production.

As for the other two large American producers, Chrysler and American Motors (absent from the emerging industry despite the threat to their exports to Brazil implicit in the appearance of local production), they were both facing difficulties in the domestic market in the mid-fifties, with a decline in their market shares and a sizeable reduction in profits. Furthermore, they had less experience of direct investment abroad than GM and Ford. In any case, as early as 1958, Chrysler came to have an indirect participation in the Brazilian motor vehicle sector, by acquiring a minority interest in the French firm Simca [White (1971)].

The Willys undertaking is a special case. Willys-Overland was a profitable jeep and small lorry producer which reentered the passenger car market in 1952, after a ten year absence, and merged with Kaiser-Frazer in 1953 (after the establishment of its assembly plant in Brazil). In the context of the wave of mergers and growing competition in the U.S. market in the fifties, the new Kaiser-Willys concern would withdraw from the passenger car market in 1955, concentrating on the production of jeeps, which in its turn would be transferred to American Motors in 1969 [White (1971)]. Thus, the expansion of Kaiser-Willys towards external market corresponded rather to a retreat from its domestic market than to a search for new outlets for its growth potential. It is worth noting that Willys was, among the North American producers, the only one with minority control over its Brazilian subsidiary.

As for the European producers, the most positive response to the Brazilian government policy came from the German firms. The largest German producers of passenger cars and of commercial vehicles (Volkswagen and Daimler-Benz, respectively), which had recently set up assembly plants in Brazil, moved into full manufacture in the country and became the leading Brazilian producers of passenger cars and commercial vehicles. Auto Union participated in the emerging industry as a licensor of the local private firm Vemag. Borgward, NSU, BMW and Krupp also submitted investment projects which, however, were not implemented.⁷ Among the French firms, Renault granted a license to Willys and later became a minority shareholder in the company; and Simca undertook passenger car production. Italian producers were absent from the new industry except for the licensing of FNM by Alfa Romeo. Fiat's expansion in South America gave priority to Argentina and it would take nearly twenty years for the firm to enter the Brazilian industry. British producers, whose exports to Brazil had been declining in the previous years, owing to a reduction in their passenger car exports,

⁷ It is worth noting that Borgward and Krupp motor business were later taken over by Daimler Benz, while NSU and Auto-Union were bought out by Volkswagenwerke.

also were absent from the new industry, since the only project by a British manufacturer — that of Rover, for the production of jeeps — was never carried out. It is worth noting that British expansion abroad during this period was directed mainly towards Commonwealth markets. In addition, the new industry also included the Swedish firm Scania-Vabis and the Japanese firm Toyota.

3 — The pre-1967 industry

As previously suggested, the 1957/67 period corresponds to a complete growth cycle of the passenger car industry. Although production grew throughout the period, the growth rates were significantly higher between 1957 and 1962. This higher rates can be partially attributed to the small basis on which they are calculated. Nevertheless, even the absolute increases in production were higher in these first years: the annual average increase was 23.1 thousand units in 1960/62 and 10.5 thousand units in 1963/67 (Table 1).

The faster growth of those early years can be attributed to the existence of an unsatisfied demand, brought about by import controls which had been imposed during the preceding years. As time passed and this demand was met, the production growth would depend on the replacement rate and on new demand brought about by income growth and/or lower income groups being incorporated into the market.

Replacement demand was small, reflecting the limited size of the stock of vehicles in use, the fact that about half this stock was less than four years old in 1962 and, above all, the long period of time during which the vehicles were kept in use. It is true that a long life span does not necessarily imply a small replacement demand. If low income groups are incorporated into the market, old cars may be kept in use through their successive transference to such groups, while higher income groups replace their used vehicles, giving rise to a demand for new cars. The point, however, is that this pattern depends on the vehicle's first owner being induced to replace the vehicle rather

Table I

*Passenger car Production by Size Class and Concentration
Indexes — 1957/78^a*

Years	Small	Medium	Medium-large	Large	Sports	Total	Herfindahl Index ^b	Share of Largest Producer (%) ^c
1957		1.2				1.2	1.000	100.0
1958		3.8				3.8	1.000	100.0
1959	9.0	4.3	1.2	0.0		14.5	0.436	58.3
1960	24.5	7.5	10.3	0.4		42.6	0.301	40.0
1961	36.3	9.3	14.0	0.5		60.2	0.346	51.5
1962	50.2	14.9	16.8	1.0	1.0	83.9	0.323	46.7
1963	53.6	14.1	24.4	0.8	2.0	94.8	0.325	46.7
1964	62.7	12.7	16.3	0.5	2.5	104.7	0.355	51.6
1965	72.9	15.3	22.3	1.3	2.1	113.8	0.378	54.4
1966	87.6	14.8	22.6	1.4	2.5	128.0	0.444	62.1
1967	95.5	11.4	17.9	11.4	3.1	139.3	0.507	68.1
1968	123.9	4.6	20.6	11.0	5.2	165.3	0.624	77.5
1969	126.3	64.2	36.8	13.6	3.7	244.7	0.442	61.3
1970	134.6	105.0	45.4	19.1	3.3	307.5	0.482	66.0
1971	169.7	141.9	56.2	24.0	8.3	440.1	0.488	66.6
1972	203.6	134.6	67.4	25.5	7.6	465.8	0.471	64.8
1973	299.1	137.4	79.8	29.3	6.6	552.2	0.406	58.2
1974	434.7	139.9	84.1	26.7	6.1	601.5	0.415	55.8
1975	430.1	170.9	90.5	18.6	3.7	713.9	0.448	62.1
1976	490.6	164.6	89.8	19.6	1.9	766.4	0.429	60.5
1977	493.8	168.3	56.6	11.3	2.9	733.0	0.395	58.5
1978	559.7	221.2	75.5	13.9	3.4	873.7	0.354	53.4

SOURCES: ANFAVEA, *Industria automobilística brasileira*, São Paulo, 1972, and unpublished data from ANFAVEA.

^a Small Cars: Chrysler — Dodge 1800 and Dodge Polara; Fiat—147; Willys — Dauphine, Gordini, Renault and Teimoso; Ford — Gordini; GM — Chevette; VW — Sedan and Brasília.

Medium-Size Cars: Ford — Corcel and Belina; Vemag — Beloar, Fissore, Vemaguet, Caicara and Pracinha; VW — Sedan, TL, Passat and Variant.

Medium-Large Cars: Simoa — Chambord, Presidente, Rallye, Alvorada, Esplanada, Regente, GTX and Jangada; Chrysler — Esplanada and Regente; FNM — FNM (JK); Willys — Aero-Willys and Itamaraty; Ford — Maverick; GM — Opala, Caravan and Comodoro.

Large Cars: Chrysler — Dodge Dart, Charger, Magnum and Le Baron; Fiat — Alfa Romeo; Ford — Galaxie; GM — Chevrolet and Veraneio.

Sports Cars: Willys — Interlagos; Puma — GTE, GTS and GTB; VW — Karmann-Ghia, SP1 and SP2.

^b $\sum_{i=1}^n p_i^2$, where p_i is the firm's share in the industry total production and n the number of firms in the industry.

^c Vemag is the largest producer until 1959 and Volkswagen from 1960.

Table 2

Number of Models by Size Class — 1961/78^a

Years	Small	Medium	Medium -Large	Large	Sports	Total
1961	2 (-)	2 (-)	4 (1)	1 (-)	—	9 (1)
1962	3 (1)	2 (-)	5 (1)	1 (-)	3 (3)	14 (5)
1963	3 (-)	2 (-)	8 (4)	1 (-)	2 (-)	16 (4)
1964	4 (1)	4 (2)	10 (2)	1 (1)	2 (-)	21 (6)
1965	7 (3)	5 (1)	8 (2)	1 (1)	2 (-)	23 (6)
1966	5 (1)	5 (-)	10 (8)	2 (1)	3 (1)	25 (11)
1967	4 (3)	6 (2)	10 (4)	3 (1)	2 (-)	25 (10)
1968	2 (1)	1 (1)	6 (-)	3 (-)	2 (-)	14 (2)
1969	1 (-)	7 (6)	15 (11)	6 (3)	2 (-)	31 (20)
1970	2 (1)	11 (5)	8 (1)	7 (1)	4 (3)	32 (11)
1971	2 (-)	11 (1)	14 (7)	11 (7)	4 (1)	42 (16)
1972	2 (-)	11 (-)	13 (2)	13 (3)	7 (4)	46 (9)
1973	5 (3)	12 (3)	14 (4)	11 (-)	7 (-)	49 (10)
1974	8 (3)	13 (4)	17 (2)	13 (3)	6 (1)	47 (13)
1975	12 (4)	17 (5)	19 (13)	13 (-)	5 (-)	66 (22)
1976	12 (4)	19 (6)	19 (-)	11 (1)	3 (-)	64 (11)
1977	14 (3)	19 (7)	21 (6)	13 (2)	3 (-)	70 (18)
1978	14 (1)	17 (1)	23 (2)	13 (3)	3 (-)	70 (7)

SOURCE: Computed from manufacturers' price lists published in *Quatro Rodas*.

^a Left numbers indicate model variety in the market segment during the year (defined as the maximum number of models produced simultaneously in a same month during the year).

Numbers between brackets indicate the number of new models introduced during the year.

quickly. This can be stimulated by product differentiation policies which imply the frequent introduction of new models and the rapid obsolescence of the existing ones. Conditions were not ripe, however, for the passenger car industry to undertake such policies in the mid-sixties. As will be seen later, the industry provided a small range of models (albeit, perhaps, a large range, given the market size) and model changes were not frequent.

In relation to the demand for new cars, it depends, as suggested, on income growth and on the incorporation of lower income groups into the market through price reductions and/or more favourable sales conditions. Despite the high income elasticity of demand for cars in Brazil, the income effect on car production was bound to be limited, as income growth slowed down from 1962 on. As is known, the turning point in the passenger car production growth rate in 1962 was not an isolated phenomenon, since the production of almost all consumer durable goods expanded at a slower pace, or even declined, after that year [Wells (1977)].

In so far as the general economic conditions and, in particular, the wage squeeze imposed in the mid-sixties implied unfavourable conditions on the demand size, the incorporation of lower income groups into the market would depend basically on changes in the supply conditions. In this respect, it is worth observing that, after a rise in 1963, the relative prices of passenger cars declined from then on (Table 3). Such a reduction, however, was not sufficient to speed up the growth in sales, which reflected the low price-elasticity of demand for passenger cars. In the same way, the attempt by Volkswagen, Vemag and Willys to face the decline in the industry's growth rate by producing less expensive versions of their most popular vehicles was a relative failure.⁸

Still from the viewpoint of the supply conditions, the enlargement the market was also hindered by the insufficiency of hire-purchase financing and specially by the lack of the favourable credit conditions required to reach the lower income groups.⁹ The spontaneous emergence and rapid development of the *consorcio* scheme in the mid-sixties can be seen as an attempt to overcome this situation. Financial support seems to have been particularly scarce in the used car market. This represented a direct obstacle to a deepening of the market, since

⁸ For estimates of price-elasticity during the period, see Baumgarten (1972, pp. 203-97) and Milone (1973).

⁹ For a different opinion see, however, Wells (1977).

this would be achieved, as later experience shows, by the successive entry of lower income groups into the used car market.

In this context, faced with unfavourable conditions for market enlargement and a limited replacement demand, the growth of passenger car production was bound to be low. Along this slow growth path, however, sharp short-run fluctuations can be observed. To a great extent, these fluctuations were a result of short-run changes in the anti-inflationary policy during the period,

Table 3

Investments, Exports and Prices in the Motor Vehicle Sector

Years	Investments (US\$ million) ^a			Exports		Passenger Car Relative Price Index ^d
	Projects Submitted to CDI	Projects Submitted to BEFIEIX	Expenditure on Capital Goods ^b	Motor Vehicle Producers (US\$ million)	Passenger Cars (in 1000 units) ^c	
1961						133
1962						122
1963						140
1964						134
1965	59.9					125
1966	30.2					105
1967	128.9					98.6
1968	...					100
1969	83.0			4.1		90.5
1970	308.4		48.2	8.8		90.0
1971	1.4		87.2	11.3	...	84.7
1972	188.9	—	115.0	51.7	7.4 — 6.5	81.2
1973	777.0	211.3	179.2	64.0	15.9 — 12.5	78.1
1974	87.8	647.8	208.8	179.4	49.8 — 44.0	72.3
1975	24.8	79.3	138.8	324.9	54.0 — 40.5	77.0
1976	—	2.188.2	105.8	350.5	64.1 — 57.8	68.5
1977	—	20.7	103.7	403.7	55.2	67.9
1978	—	—	215.3	690.7	76.4	68.0

SOURCES: Columns 1 and 2: CDI, *Relatório de Atividades*; column 3: unpublished data from ANFAVEA; column 4: unpublished data from CACEX; column 5: unpublished data from ANFAVEA; column 6: computed from the manufacturers price lists, published in *Quatro Rodas* and from production data from ANFAVEA.

^a Include commercial vehicle manufacturers.

^b Fiat's expenditure is only computed from 1977.

^c Owing to classification problems, it is only possible to indicate an upper and a lower limit for the passenger car exports during the 1972/76 period.

^d Laspeyres chain price index, deflated by the General Price Index (column 2 of *Conjuntura Econômica*).

introduced in response to sudden worsening in the recessionary conditions, as well as of government policy decisions directed specifically towards the passenger car industry. This was the case with the temporary tax reduction and the financing of car sales by Caixa Economica Federal, introduced in 1965 [Almeida (1972, p. 63)]. Despite causing an immediate upsurge in demand and a consequent increase in sales in the short-run, these incentives did little more than put a temporary halt to the significant decline in sales experienced in the previous months, reducing producers' stocks and anticipating future demand.

This lasting recessionary situation affected the various manufacturers in different ways. In fact, the industry structure remained relatively stable during the first half of the sixties (the Herfindahl production concentration index fluctuated between 0.30 and 0.38 between 1960 and 1965) (Table 1). Among the six manufacturers which supplied the passenger car market, Volkswagen maintained its dominant position, increasing its market share from 47% in 1962/63 to 54% in 1965.¹⁰ It was followed by Willys, Vemag and Simca whose market shares during this period averaged 25%, 15% and 9%, respectively. As for FNM and GM, whose production was concentrated in single models, they accounted for an insignificant market share (less than 1%). This relative stability disappeared, however, in the second half of the decade with Volkswagen encroaching on its competitors market shares, thus raising its own to 62% in 1966, 68% in 1967 and an all-time high of 77.5% in 1968. This evolution reflected the continuous rise in Volkswagen's production throughout the period, associated with the relative stability of Vemag's and Willys' production after 1962 and 1963, respectively, and the sudden decline in Simca's production after 1965. It worth noting that passenger car manufacturers practically concentrated their activities into a single market segment, Willys being the only relevant exception, dividing output equally between small and medium-large cars. Thus, the advance of Volkswagen's market

¹⁰ Figures related to passenger car production by firm and size class are computed from ANFAVEA data. For the classification of the different models by size classes, see Table 1.

position was simultaneous with an increase in the share of small cars in the industry's production. It is difficult to determine whether changes in the demand for the different size classes enhanced Volkswagen's position or whether Volkswagen's competitive advantages induced a more rapid growth in the demand for small cars. Nevertheless, Volkswagen's progress in the small car market segment is in itself significant. Its share rose from 82% in 1964/65 to 89% in 1966 and 96% in 1967.

This evolution put most of the manufacturers in a difficult situation. Data presented in a Congressional Report of 1967, referring to the profit margins (wholesale price minus direct and indirect costs) of various models in the 1963/67 period show sales at loss for Vemag models in 1966 and 1967, for Willys and Simca medium-large models in 1967 and for Willys small models and utility vehicles since 1963. On the other hand, Volkswagen models were profitable throughout the whole period [Congresso Nacional, Câmara dos Deputados (1968)].

In this context, conditions were building up which would call for a major reorganization of the passenger car industry. This reorganization, associated with changes in the supply of hire-purchase financing in the following years would allow the industry to recover before the upswing of the economy as a whole. As it happened, the recovery of the industry would itself induce, or at least consolidate, the economy upswing of the late sixties.

4 — The reorganization of the industry and its second growth cycle

The previous comments about the growth dynamics of the passenger car industry up to 1967, on emphasizing the factors which hindered high growth rates after 1962, suggest the necessary steps for its recovery. As it was unlikely that lower income groups could be brought in, extensively and at once, into the new car market, higher income groups were bound to play a major role in any effort to accelerate the industry's growth. This implied the need to accelerate replacement demand and induce multiple ownership, which required, in its turn, policies of product

differentiation and the development of the used-car market. It was through the latter that the lower income groups were to be drawn into the passenger car market and play a role in the industry's recovery. Furthermore, favourable credit conditions were required, both to facilitate replacement demand and multiple car ownership by higher income groups, and to support the access of lower income groups to the second-hand market.

In these circumstances, two factors became decisive for achieving a higher growth rate in the industry. Firstly, the hire-purchase financing had to be made available to support the strategy just described.¹¹ Secondly, despite the unfavourable conditions, heavy investment leading to product differentiation practices had to be undertaken. The most important implication of this strategy, however, was that the passenger car industry in Brazil was bound to approximate those patterns of operation which are typical of a differentiated oligopoly.

The pre-1967 industry was not ready to undertake such a strategy. On one hand, the recession years, especially 1966 and 1967, were marked by a decline in profits that affected the internal accumulation and capacity to invest of existing producers. This was particularly true in the case of the local producers — Vemag and FNM. Foreign producers always had recourse to the funds of their parent company abroad. However, Willys in Brazil was a subsidiary of a relatively small firm which, facing difficult times at home, was retiring from the motor vehicle sector; Simca, which had already undertaken unsuccessful efforts to enlarge its model variety, had witnessed the takeover of its parent company in France by Chrysler; and Volkswagen, though not short of financial resources, did not have great experience in product differentiation.

¹¹ The increase in hire-purchase financing and changes in consumer credit conditions were, in fact, significant from 1970 onwards, contributing decisively to the high growth rate achieved by the industry. In the same way, the development of *consorcios* played out an important role in the recovery and subsequent expansion in car production. Such questions — which are not discussed in the present article — are examined in Guimarães (1980).

As a matter of fact, besides the short-run scarcity of funds to invest, the main obstacles for the survival of most of the pre-1967 producers were their inability to efficiently engage in the new pattern of operation and, in particular, their inevitable handicap in competing with the large multinational motor vehicle manufacturers, if they decided to enter the Brazilian passenger car market. In fact, the new pattern of competition would not only require the frequent introduction of new models but would also handicap those manufacturers which had to pay the development costs of the new models out of the relatively small Brazilian market. Such difficulties particularly affected Willys, Vemag and FNM. As for Volkswagen, although lacking experience in product differentiation in the mid-sixties, the firm was already engaging in such a policy on a world level.

This situation made a case for a major reorganization of the industry. To start with, the three big U.S. manufacturers entered into the Brazilian passenger car market. For GM and Ford, which were already involved in the commercial vehicle industry, this only meant a diversification of their activities in the country. To be sure, GM already accounted for a negligible share of this market, through the sales of its station-wagon. Nevertheless, its effective entry into the passenger car industry can be associated with the investment carried out in 1967 for the production of medium-large models, which were introduced to the market at the end of 1968. Ford's entry was marked by the production of a large car model from 1967, a project which had been submitted to government agencies in 1965. This was followed, in October 1967, by Ford acquiring control of Willys by buying out Kaiser's majority shareholding. As for Chrysler, it had bought International Harvester's lorry plant in 1966, stopping production, and already had an indirect share in the Brazilian passenger car market through its minority shareholding in the French firm Simca. It took over full responsibility for operations of the Simca subsidiary in 1967, making investments for the introduction of a large car model which came on the market at the end of 1969, when the manufacture of the models previously produced by Simca was discontinued.

The entry of the U.S. producers into the passenger car industry was to be expected. In the case of GM and Ford, their interest in the Brazilian markets was made clear by their engagement in commercial vehicle production. It was only natural that, once established in the country, they came to diversify towards the passenger car market. The point to be examined, therefore, is the timing of such an entry (this question will be discussed later).

As for Chrysler, it had already entered into negotiations aiming at a minority share in Willys in 1957. If such a participation did not in fact come about, this was due to the difficulties Chrysler was facing in its domestic market and to its lack of experience in operating abroad. Instead of entering the Brazilian market, Chrysler managed to get an indirect participation in the more promising E. E. C. market, through its minority shareholding in the French firm Simca. At the beginning of the sixties, however, Chrysler's rate of return reached its highest level since the end of the post-war boom, in 1950, and the firm started an expansive period. This new phase involved not only an unsuccessful attempt to take over a North American lorry manufacturer, but also the undertaking of investment abroad. Hence, Chrysler acquired the British firm Rootes Motors in 1964/65 and International Harvester's facilities in Brazil in 1966, and extended its stake in Simca to 77% in 1967. This latter undertaking brought it closer to the Brazilian passenger car industry through its control over Simca's subsidiary in Brazil [White (1971, Table 15.2 and p. 90)].

As far as the timing of GM and Ford's diversification towards the passenger car market is concerned, it is worth noting that the profitability of these multinational firms, particularly GM's, was very high in the early and mid-sixties. Furthermore, since the growth rate of the E. E. C. market had receded, opportunities to invest in Europe were likely to be smaller than in the previous decade [Bloomfield (1978, p. 143)]. At the same time, it may be suggested that, despite the unfavourable prevailing conditions, the foreign firms saw bright prospects in the Brazilian passenger car market. In this respect, it is interesting to note,

as will be seen later, that Fiat also made an attempt, albeit an unsuccessful one, to enter the Brazilian market at that time. Finally, giving the prevailing conditions, a major reorganization of the industry during the following years was foreseeable. Insofar as this was likely to bring about the emergence of a definite oligopolistic structure, which might hinder later entries, it was convenient for a potential entrant to steal a march on its international competitors and become engaged in the very process of reorganization of the industry.

In addition to the entry of the U.S. producers, the reorganization process of the industry involved the takeover of FNM by Alfa Romeo and Vemag by Volkswagen, both in 1968. The takeover of FNM followed a government decision to sell the state enterprise, a move which had already been recommended in the midfifties. Alfa Romeo, the state company's licensor, was the natural buyer. As for Vemag, its control was held by a banking and importing organization (Novo Mundo), with a small shareholding owned by the German firm Auto-Union, from which the Brazilian company acquired license and technical assistance. In 1966, Volkswagenwerke took over Auto-Union, thereby becoming a minority shareholder of Vemag. In the following months, Volkswagen pressed to get control of the Brazilian firm, which was finally sold in 1967. Vemag's production was discontinued at the end of that year.

It should be mentioned that the acquisition which occurred in 1967 and 1968 were not essential to the entry of the new producers into the industry. It is true that the already established firms transferred to the newcomers a dealer network and, in the case of Ford, well-known models and a project for a new car (the Corcel) which proved very successful. Nevertheless, the entry of these new manufacturers would have been equally viable if such take-overs had not occurred. The main result, therefore, of those acquisitions was the removal of competitors from the industry (this is particularly clear in the case of Vemag). One should emphasize, however, that, in any case, the prospects for the acquired producers were to be forced out of the market or

relegated to a marginal position, once the new pattern of competition came to prevail in the industry.

It was indeed a rather different industry which emerged after the entry of the new firms and the take over of all but one of the existing producers between 1967 and 1968. It was this post-1967 industry – in which Volkswagen, General Motors, Ford, Chrysler and Alfa Romeo substituted for Volkswagen, Willys, Vemag, Simca and FNM – which would be responsible for the upsurge in car production after 1968, giving rise to the second growth cycle in the industry's history.

This new cycle involved not only a considerable expansion in output but also a huge investment program by the industry (Table 3).¹² Although the productive capacity of passenger car manufacturers had not altered between 1963 and 1966, with the exception of Volkswagen, idle capacity was high for all the producers.¹³ Even though this situation certainly did not encourage new investments, the industry's recovery depended on investments leading to the introduction of new models. As it happened, it would fall to the firms which were entering the industry to provide such investments, in anticipation of future demand. From 1973 on, the investment process in the motor vehicle sector, in general, and in the passenger car industry, in particular, would become associated with the undertaking of export programs. This resulted from the introduction of specific export incentives in 1972 and from the elimination of the usual incentives to invest in the case of the passenger car industry in 1974. Such changes and the subsequent development of the sector will be examined later.

The investments carried out during the 1967/73 period brought about a significant increase in the productive capacity of the motor vehicle sector. The level of idle capacity which resulted from these investments suggests that the industry expanded its

¹² As was mentioned before, the rapid expansion phase of this new cycle came to an end in 1974, the average annual production growth rate declining from 26% in the 1967/74 period to 6% in the 1974/78 period.

¹³ The evolution of the productive capacity of the various manufacturers and their degree of utilization is examined in Guimarães (1980).

productive capacity ahead of current demand. This aspect of the industry's strategy brings up two issues. The first refers to the discontinuous nature of the investment process in the industry. In fact, as productive capacity was pushed far beyond current demand, a subsequent decline in investment was only to be expected, so as to allow for the progressive utilization of the industry's expanded capacity. That this did not occur in this case, despite a lower demand growth rate after 1974, was because the motor vehicle sector was induced to engage in a subsidiary expansion path, as will be seen later. The second issue refers to the implication of such an investment strategy on the conditions to enter in the industry. In this respect, it can be suggested that, although such a strategy may be associated with the existence of technical discontinuities, it also reflected the efforts of each one of the producers to prevent the entry of new competitors and to get ahead of the existing competitors, so as to strengthen its own position in the industry.

Nevertheless, despite the investments and the increase in the industry's productive capacity, the rapid expansion of the passenger car market was likely to attract absent multinational producers. To our knowledge, Fiat was the first foreign firm to respond to the industry's boom. Having established a subsidiary in Argentina in 1954, in response to government incentives, Fiat declined to invest in Brazil in the mid-fifties, since it expected a later integration of both national markets. Reversing its initial decision, Fiat started negotiations to take over Vemag in 1965, but was stopped short when Volkswagen bought out Auto Union and later Vemag itself (later on, Fiat took over Auto Union of Argentina, in order to prevent Volkswagen's entry in to that market).¹⁴ At the beginning of the seventies, Fiat made new "démarches" to enter the Brazilian market and started negotiations with the Government of Minas Gerais. Fiat's project was granted significant incentives by such a government which took a 45% partnership in the new undertaking. Furthermore, approved by Federal Government agencies in 1973, the project benefited, in addition to the usual incentives for industrial investments,

¹⁴ *Exame* (July 14, 1976).

from the new incentives to investment projects with export programs. Finally, it should be noted that Fiat's engagement in the Brazilian motor vehicle sector increased in 1974 with its participation in Alfa Romeo's FNM. In 1976, Fiat got full control of FNM, renaming it Fiat-Diesel.

Following Fiat's decision to enter the industry, and probably encouraged by the large incentives that were granted to it, several European and Japanese producers (Renault, Peugeot, Citroen, British Leyland, Volvo and Nissan) made known their interest in investing in Brazil and approached government authorities to this end. As was to be expected, the existing producers reacted against Fiat's entry and, even more so, against the new potential entrants, on the grounds that new entries into the industry would affect the economies of scale and raise costs. [Lessa (1978, pp. 188-90)]. In 1974, in a revision of the Industrial Development Commission's (CDI) policy, the incentives to investment projects aiming at the production of passenger cars were withdrawn on the grounds that the existing productive capacity was sufficient to supply the domestic market. Henceforth, only projects that included an explicit commitment to export were entitled to any sort of incentives. Though not definitively precluding the entry of new multinational producers, CDI's new policy would act as a restraint on any new investments in the industry, by increasing the competitive disadvantages of new producers *vis-à-vis* already established firms. On the other hand, the existing firms were hardly affected by the new policy, since they had already launched large investment programs, which pushed their productive capacity beyond the current domestic demand. In this context, the entry of new competitors in the passenger car industry was effectively prevented. Only Volvo managed to enter the bus and lorry industries. As for the existing firms, their investments in the following years would be mainly directed towards expanding their exports.

As pointed out before, investments during these recovery and boom years aimed not only at expanding productive capacity, but also at introducing new models. In fact, the new growth cycle of the passenger car industry contrasted with the previous one

since it was characterized by an intensification of product differentiation competition. The number of models supplied to the market, which had been always below 25 until then and was reduced to only 14 in 1968, rose to 32 in 1970, 57 in 1974 and 70 in 1978 (Table 2).¹⁵ In the same way, while the pre-1967 producers launched 51 models, the post-1967 industry, which had inherited 12 models from the previous period, introduced 139 new models between 1968 and 1978. The minor importance of product differentiation in the pre-1967 industry is even more apparent if we consider that 21 of the 51 models introduced by the pre-1967 manufacturers came to the market in 1966 and 1967, as if in an unsuccessful rehearsal of the new pattern which would prevail after 1968.

Throughout this period of rapid expansion in the second growth cycle of the industry, it is possible to distinguish two distinct stages in terms of the product differentiation policy and the growth rates of the various market segments.

During the first recovery years, instead of aiming at the lower income groups, the product differentiation policy of the new firms was directed to activate the demand of higher income groups. In fact, medium to large cars predominated among the new models introduced in the late sixties and early seventies: only two out of the 58 models introduced in the 1968/72 period were small cars (Table 2). The predominance of medium to large cars among the new entrant models reflected both their specialization in their home country and an attempt to avoid direct confrontation with Volkswagen in the small car market segment. Nevertheless, this tendency also reflected the most viable strategy to achieve a higher growth rate; this is shown by Volkswagen itself which introduced medium-sized models in 1969.

The strategy adopted by the industry during these recovery years implied that small cars accounted for only 7.5% of the 86% growth rate of car production between 1968 and 1970; on the other hand, medium-sized, medium-large and large cars

¹⁵ The figures for the number of models are taken from the manufacturers' price list, published in the magazine *Quatro Rodas*.

were responsible for 70.5, 17.5 and 5.6%, respectively, of that growth rate (Table 1). This does not mean that lower income groups were not affected by the industry's recovery. In fact, an active second-hand market developed as a result of the increase in the replacement rate of the higher income groups, as well as of the expansion of hirepurchase financing and more favourable credit conditions.

The point to stress, however, is that, in its early stage, the upturn in the car production growth rate depended on the demand from the higher income groups and was concentrated on the medium to large car market segments.

These characteristics would change in the seventies; small cars accounted for 78% of the 125% increase in passenger car production in the 1970/74 period, while medium and medium-large models accounted for 9 and 10%, respectively. This new phase in the evolution of the industry called for changes in the producer's strategy, bringing GM and Chrysler, until then restricted to the medium-large and large car market segments, to undertake small car production in 1973.

These results seem to suggest that, in the first years of the second growth cycle, small car owners were moving towards medium-sized cars at a faster rate than non-owners were entering the small car market. In fact, during this period, low income non-owners were instead being brought into the passenger car market through the acquisition of second-hand vehicles. In the early seventies, however, as a result of the continuous good performance of the Brazilian economy and the more favourable conditions of hire-purchase financing, lower income groups were increasingly brought into the new car market, accelerating the small car production growth rate.

Data on passenger car ownership is clear regarding the market enlargement in the seventies, though it does not allow one to estimate the relative importance of new and second hand car ownership for the different income groups. In this respect, the existing information shows only that 49% of car owners in 1972 had bought their vehicles in the used car market. The percentage of households owning passenger car rose from 9.1%

in 1970 to 11.7% in 1972 and 17.7% in 1976; this increase was common both to the urban population (13.7, 17.2 and 24%) and to the rural population (2.6, 2.9 and 6%).

A more definite account of the extent of the market enlargement emerges when information about car ownership is approximated to a decile distribution of household income. The percentage of households owning passenger car rises, between 1972 and 1976, from 1.7 to 3.9% in the six bottom deciles, from 16.0% to 27.4% in the seventh to ninth deciles and from 59.5% to 72.4% in the top decile.¹⁶

The high concentration of car ownership suggested by these figures appears explicitly in the frequency distribution of the passenger car stock according to income class: the upper decile accounts for 55% of that stock in 1972 while the six lowest deciles account for only 4%. This concentration reflects not only the greater percentage of owners among higher income households, but also the importance of multiple car ownership in such groups. On this point, the available information shows an average of 1.12 cars per household in 1972. One should note, however, that multiple ownership was inferior or equal to this average figure for 97% of the households, being considerably higher for the top 3% and reaching 1.69 cars per household for those whose income was above 60 minimum wages. Thus, while multiple car ownership accounted for 10.5% of the passenger car stock, multiple ownership in the top 10.3% and the top 3% alone accounted for 8.7 and 5.9% of that stock, respectively.

5 — The evolution of the passenger car industry after 1974 — The external market

The year 1974 marked the end of the second fast growth period in the history of the passenger car industry, with production growth declining to an annual average rate of 6% during the 1974/78 period. The end of the boom phase was only to be expected as the initial impact of the new patterns of operation and

¹⁶ The figures for car ownership are taken from *Pesquisa Nacional por Amostra de Domicílios* (1972 and 1976).

growth reached its limits. From then on, further expansion of passenger car sales came to depend on the growth in national income and on changes in income distribution.

The timing of the actual deceleration of the industry's growth rate, however, seems to reflect causes which were exogenous to the industry: firstly, a decline in the growth rate of the Brazilian economy as a whole along with an acceleration in the inflationary process and the introduction of government policies designed to curb inflation; secondly, the world oil crisis and the resulting rise in oil price which induced the Brazilian government to pursue policies designed to hold down petrol consumption. Among these policies, the reduction in the growth rate of the passenger car industry and the faster expansion of commercial vehicles production was emphasized by government authorities as early as 1974 [Lessa (1978, pp. 191-3)].

As is known, government policy designed to contain petrol consumption consisted basically in increasing petrol price and limiting the working hours of petrol stations. Government measures designed to curb passenger car sales mainly involved changes in hire-purchase financing conditions and in the *consorcio* regulation. These measures only began to have a major effect on the industry's performance in 1977, when production declined. Nevertheless, production picked up again the following year, prompting the introduction of new restrictive measures in 1979, which included an increase in taxes on passenger car sales and ownership.

Despite the success of the passenger car industry in maintaining a satisfactory growth rate in the context of the oil crisis, the new situation, in a sense, has deeply affected it. In fact, while the expansion of the industry before 1974 was a reason for rejoicing, the modest performance after 1974 was seen, especially by government authorities, as "better than it ought to be". As a result, an atmosphere of culpability has pervaded the industry's activities. This greatly accounts for its recent, but definitive, engagement in the research and development of alcohol engines. Such engines seem to be the way out of the actual and, above all, potential restrictions to the industry's further expansion.

It is interesting to note that, contrary to the slow growth years of the mid-sixties, during which the expansion of productive capacity was practically halted, investment in the industry continued after 1974, despite the decline in the production growth rate (Table 3). Such investments reflected the engagement of motor vehicle manufacturers in export activities, as a response to specific government policies introduced in 1972.

This is not the place to describe the incentives defined in the ambit of BEFIEX [Suzigan *et al.* (1974, pp. 34-44)]. It should be noted, however, that specific legislation was introduced in 1972 aiming at stimulating mineral, motor vehicle and tractor exports. In relation to motor vehicles, the new fiscal incentives for the import of parts and components were contingent upon the producer exporting annually at least US\$ 40 million worth of CBU or CKD vehicles and components during a ten year period, as well as on the value added in the country being at least three times the FOB value of imports. The exemption of imports and value added taxes would only be allowed to producers who reached a specified percentage value of local content: 85% for cars, 82% for utility vehicles, 95% for jeeps, 82% for buses and 80 or 78% for lorries according to their size. Parts imported from ALALC within the limit of 5% of the value of the vehicle were not considered as imports in determining the local content. Furthermore the required percentage of local content could be reduced by 5%, at most, if the production of the local parts industry was insufficient. On the other hand, firms that did not commit themselves to export programs have to present a 95% rate for local components and would not be exempt from import and value added taxes on their imports.¹⁷ In addition, as has been previously mentioned, in the case of the passenger car industry, all the other incentives traditionally granted to investment projects, which did not depend on any commitment to export, were suspended two years later.

It is worth mentioning that, besides the specific legislation explicitly associated with the motor-vehicle sector, the overall

¹⁷ Decree n.º 70.983, August 15, 1972, and Resolution n.º 20 of the Industrial Development Commission, August 29, 1972.

export policy of BEFIEX itself was mainly directed towards inducing vehicle exports. In this context, repeating the mid-fifties experience, a specific policy was introduced in order to induce foreign firm investment in the motor vehicle sector. As already suggested, the success of the previous policy resulted from its convergence with the natural evolution of the world industry and with the strategy of the foreign manufacturers. In the case of the export programs, the government policy was explicitly formulated with a view at benefiting from what was seen as the natural trend in the internationalization process of the world motor-vehicle sector. Two aspects of this trend justified the Brazilian government's policy. The first was the expected increase in the international division of labour in the motor vehicle production, implying that the manufacturing of some components and parts would become spatially separated from assembly activities, in order to allow larger production scales and/or to benefit from lower labour costs. The second was the decentralization of exports by the multinational firms and the division of the world market among their different subsidiaries, which would become responsible for supplying certain national markets within specific geographical areas. In this context, the Brazilian subsidiaries were seen as potential suppliers of parts and components to the domestic market of the parent companies and as supplier of vehicles to Third World countries, particularly to Latin America and Africa.¹⁸

The new export policy also affected the performance of motor vehicle manufacturers in the Brazilian domestic market. Once incentives were abolished for investment projects which did not include export programs, not only did the entry of new producers into the industry become more difficult, but it also meant that the non-commitment to export activities placed a

18 One should emphasize that this was the outlook of the Brazilian government. It seems too early yet to evaluate if the international oligopolistic industries are effectivelly changing from a market-oriented locational tradition to location criteria which emphasize the reduction in production costs. Despite the considerable increase in exports by motor vehicle manufacturers, the Brazilian government' expectations were not justified in many other cases.

producer at competitive disadvantage, due to the higher costs both of production and of expansion of productive capacity.

The motor vehicle producers responded to the new government policy: only Toyota and Puma did not submit projects to BEFIEEX. The export commitment of motor vehicle producers up to 1978 totalled US\$ 5,569 million, accounting for 41% of the total export commitment by all the projects submitted to BEFIEEX up to that date.¹⁹ These projects (which called for investments in the order of US\$ 3,150 million — higher than the US\$ 1,700 million proposed by projects approved by CDI between 1966 and 1975, with no specific export commitment) explain the high level of investment in the industry in recent years. (Table 3).

The actual exports by motor vehicle manufacturers increased from US\$ 11 million in 1971 to US\$ 691 million in 1978, corresponding to average annual growth rates of 80% in the 1971/78 period and of 66% in the 1973/78 period (Table 3).²⁰ Until 1976, however, only part of the increase in exports can be ascribed to the incentives introduced by the BEFIEEX legislation (57% of the exports in the 1972/74 period, 86% in 1975, but practically 100% from 1976 onwards).

The composition of exports in 1977 shows that, in responding to the government export incentives, motor vehicle manufacturers followed two distinct strategies. While Ford, Chrysler and Fiat concentrated basically on exporting parts and components, in particular motors and motor parts, vehicle exports predominated in the case of Volkswagen, GM, Saab-Scania, Mercedes Benz and FNM (though parts and components exports were also significant for the first three companies — between 32 and 42% of their total exports). As far as passenger car exports are concerned, these only became significant from 1974 on; its share in total production rose from about 2.5% in 1973 to about 7% in that year, continuing to increase after that and reaching

¹⁹ The information on projects approved by BEFIEEX are taken from CDI *Relatórios de Atividades*.

²⁰ Informations related to exports were computed from unpublished statistics from CACEX and ANFAVEA. Information about exports in BEFIEEX's ambit is taken from CDI, *Relatório de Atividades*, several issues.

8.7% in 1978. As to the destination of passenger car exports, while Fiat and GM's subsidiaries supplied only the Latin American markets in 1978 (only 1.5% of foreign sales of the latter went to Africa), Volkswagen exported to the Middle East and North Africa (32% of the firm's exports), Black Africa (32%), Latin America (26%), the Phillipines (8%) and Portugal (2%).

The evolution of the structure of the passenger car industry during the 1968/78 period remains to be examined. Production concentration, according to the Herfindahl index, shows a declining trend, decreasing from an all time peak of 0.624 in 1968 to 0.354 in 1978 (Table 1). This evolution reflects, to a great extent, the performance of Volkswagen, whose market share declined from a peak of 77.5% in 1968 to 53.4% in 1978. Volkswagen's position in 1968 can be attributed to the process of reorganization of the industry, in which the previous producers were being taken over and the new ones were just making their entry into the market. Insofar as the new producers began to consolidate their positions and as the growth strategy of the industry implied a slower growth rate for small car production, Volkswagen's market share declined and became relatively stable around 66% in the 1970/72 period. With GM and Chrysler's entry into the small car market segment in 1973, its share declined further to 58% in 1973 and 1974. The oil crisis, in reducing the demand for larger cars, favoured Volkswagen, whose market share rose again to 62% in 1975. Fiat's entry into the small car market segment at the end of 1976, however, once more cut into Volkswagen's market share (53.4% of production and 51.1% of domestic sales in 1978).

Second place in the market during the post-1967 period was held either by GM or by Ford, which together accounted for about a third of passenger car production. Their market shares were almost equal from 1970 to 1973. After this year, however, the faster growth in GM's production consolidated its position as the second largest producer in the industry, accounting for 18.8% of production and 19.4% of domestic sales in 1978, against Ford's shares of 14.2% and 15.6%. Chrysler held the

fourth position in the industry until 1977. Its market share fluctuated around 3.5% from 1969 to 1974, but fell from then on as a result of the decline in the demand for large cars and its poor performance in the small car market segment. Fiat replaced Chrysler as the fourth largest car producer. Having entered the market at the end of 1976, it accounted for 9.6 and 11.5% of total production in the industry in 1977 and 1978, respectively. The output of FNM/Alfa Romeo and Puma was negligible.

Finally, mention has to be made of the recent change in the industry structure brought about by Volkswagen's takeover of Chrysler's Brazilian subsidiary in 1979. This came about not only because of the latter's poor performance over the last few years, but also because of the difficulties Chrysler was facing on a world scale. From Volkswagen's point of view, the main reason for the new association seems to have been the resulting opportunity to enter the commercial vehicle market.

6 — Conclusions

The emergence of the motor vehicle sector in Brazil has been traditionally seen as the result of Brazilian government policies direct to this aim. It may be posited, however, that the success of this policy can be ascribed to its convergence with the growth dynamics in the potential capital export industries during the period. Furthermore, the nature of the growth process of the various foreign manufacturers accounts also for the structure of the emerging industry in Brazil. This industry was dominated by European producers but also included the presence of local manufacturers and a marginal American producer. The three big U. S. manufacturers were absent; their activities in the country were restricted to producing commercial vehicles. These characteristics reflect the fact that the motor vehicle industry emerged in Brazil at a particular moment in the history of the world motor vehicle industry when Europe became the main expansion frontier for U.S. producers, taking up the greater part of their growth efforts abroad and inducing European producers, threatened by the growing competition within their

home markets, to move towards external markets (particularly towards developing countries markets).

Repeating the experience of the mid-fifties, a specific government policy was introduced in the early seventies in order to induce investment by foreign firms in the motor vehicle sector. This time, however, government incentives aimed at inducing motor vehicle producers to invest in order to export. If the success of the previous policy can be ascribed to its convergence with the natural evolution of the world industry, this new government export policy was explicitly designed with a view at benefiting from what was seen as the natural trend in the internationalization process of the world motor vehicle sector, guaranteeing a place for local production in the new international division of labour that was to emerge. Once again, the response from the foreign manufacturers towards government policy was clear: practically all the producers undertook investments within the new export program and their sales abroad showed impressive increases.

Two growth cycles have characterized the history of the passenger car industry in Brazil. The year 1967 not only marks the end of the first of these cycles, but also corresponds to an important process of reorganization of the industry, which gave rise to a new pattern of competition. Thus, the post-1967 industry is quite different from the pre-1967 one, by its membership but above all by its pattern of operation.

It is not by chance that such changes were simultaneous with the beginning of the second growth cycle. If the industry's recovery were not to wait for a recovery of the economy as a whole, it was necessary — besides changes in the availability and conditions of hire-purchase financing, which did not depend on the industry decisions — that the manufacturers come to engage in a growth strategy which emphasized product differentiation practices. The pre-1967 industry was not prepared to undertake such a strategy. In this respect, the entry of new producers was decisive for changing the pattern of operation of the industry and, hence, for its recovery. On the other hand, insofar as this entry occurred and the new competitive framework came to prevail, the long-run survival of most of the pre-1967 producers became unlikely.

Thus, it may be suggested that the take-over of the pre-1967 producers only anticipated their eventual withdrawal from the industry. In fact, their survival was possible during the initial period because the existence of an unsatisfied demand implied loose competition and dispensed with product differentiation practices. There was no place for them, however, after the late sixties, when the industry would come to behave like a typical differentiated oligopoly.

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Changes in production, income and consumption structures, and economic growth in Brazil from 1970 to 1975 *

Regis Bonelli **

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1 — Introduction

In a previous article we presented a growth decomposition exercise for the period from 1970 to 1975, using multisectorial model for the Brazilian economy. [Bonelli and Vieira da Cunha (1981)]. In the present one we return to the same theme with an alternative approach in which personal consumption is treated endogenously. The results here are somewhat different from the previous ones, and these differences will be explored below. The method adopted consists in decomposing the growth of output, by sectors, into four components:

- a) growth in the levels of final demand;
- b) the effect of changes in the consumption pattern, understood as changes in the personal consumption matrix by sectors and income classes;
- c) the effect of changes in the income distribution and in the

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aggregate consumption structure of households and d) the effect of changes in the structure of production.

Our previous study was limited to experiments with item "b" and "c" above. Results showed that, for all sectors, the predominant effect was due to what we then already called "changes in the pattern of consumption". Because of its residual nature this effect — as measured in that exercise — included not only changes in consumption choices per se but also those that had taken place in the structure of productions. It included errors in observation and measurement, as defined in the 1970 Input-Output (I/o) matrix. In addition, in estimating the changes in the consumption pattern, the Engel elasticity chart for the first year was maintained constant, with variation only in the level and distribution of consumption among the income classes. And, finally, the procedure used kept the baseyear relative price structure constant. In this article we attempt to overcome these limitations by presenting the decomposition according to the four components mentioned above. The results obtained with this new model differ from the previous ones in stressing the relatively greater importance of the changes in income distribution and in the production structure.

— The organization of this text is as follows: in Section 2 the decomposition model is developed; in Section 3 the data used and the methodology employed in obtaining them are presented; the results are analysed in Section 4. Section 5 concludes the text and attempts to reconcile the results here given with those previously obtained, stressing the role of the changes in relative prices; and finally the Appendix contains some tables with the basic information used in the text.

2 — A decomposition model with endogenous consumption

In simple input-output models there is an implicit order of causation among the variables, by which output responds to the stimulus originating in the level and distribution of personal consumption (and other exogenous variables) through Leontief's intersectoral multiplier matrix. Yet personal consumption has

its origin in the productive process. It varies according to the distribution of income thus generated among the different receiving agents and according to the ways in which these agents spend it — whether in consumption (and on what type of product) or in investment.¹ Our attention here is concentrated on analysing the inter-relationships between the various income-receiving classes (groups) and the income formation process that occurs as a result of productive activity in the various sectors of the economy.

The model is based on the assumption that each income class (from the generation standpoint) corresponds to a consumption class (from the spending standpoint). For those classes of income in which the economic agents do not save, (which is what is expected to happen among the poorer segments of the population), the total income of a given class (up to monthly minimum wages, for example) is equal to its consumption. In the case of classes in which saving does occur, only a fraction of the income constitutes the total consumption of the class concerned. Whatever the case, however, the consumption of goods and services by a given income class results from the total, in all sectors, of consumer spending by the income receiving families in that class. Though trivial this point is not self-evident in the input-output matrices usually available. The common procedure is to itemize the sectoral value added according to the categories in the functional distribution of income: wages, profits, interest, rents. This, if the information on value added was available according to the distribution of personal income, the above-mentioned connection between income generated consumption could be easily established. It is this line of approach that we shall now turn our attention to.

The gross output value (GOV) of a sector can be written:

$$X_i = \sum_j a_{ij} X_j + C_i F_i \quad (1)$$

¹ In line with current use in applications of the input-output method, it is supposed that all savings are invested during the same period, although total investment may be greater than the total of household savings.

where: a_{ij} is the input-output technical coefficient; C_i is the personal consumption of goods of sector i ; and F_i denotes the other exogenous elements of demand for the product of sector i .

The aggregate personal consumption can be written as:

$$C = \sum_j v_j V_j$$

where v_j represents income propensity to consume and V_j is the value added. Adopting the usual hypothesis in input-output models of a constant relationship between value added and the value of production, the expression above may be written as:

$$C = \sum_j s_j X_j$$

where s_j represents the fraction of sector's j production intended for consumption.

Defining c_i as C_i/C (i.e., the proportion of the amount consumed spent on sector i goods in the aggregate consumption), expression (1) may be rewritten as:

$$X_i = \sum_j a_{ij} X_j + c_i \sum_j s_j X_j + F_i \quad (2)$$

or:

$$X_i = \sum_j (a_{ij} + c_i s_j) X_j + F_i \quad (2a)$$

or also:

$$X_i = \sum_j (a_{ij} + c_i s_j) X_j = F_i \quad (2b)$$

In matrix form, for all sectors, the equation system of type (2b) is:

$$X - (A + CS)X = F \quad (3)$$

Where C is a vector ($n \times 1$) whose elements c_i indicate the relative share of sector i in total consumption and S is a

vector $(1 \times n)$ whose elements s_j indicate the amount of production (income) spent on consumption. This system may be easily generalized for k income and consumption classes. One only has to redefine vectors C and S as matrices $C (n \times k)$ and $S (k \times n)$, in which case the characteristic element of C is c_i^k , denoting the relative share of the total consumption of class k , spent on product i .² s_j^k is the characteristic element of the S matrix. It denotes the relative share of the product (GOV) of sector j which is spent on consumption by families in the income class k .

The product of matrices C and S may be written as a $CS (n \times n)$ matrix whose characteristic element $(cs)_{ij} = \sum_k c_i^k \cdot s_j^k$ represents the proportion of sector's j output which is intended for the consumption of goods and services of sector i .

Total output of the various sectors may be defined as:

$$X = [I - A - CS]^{-1}F \quad (4)$$

Given this formulation, consumption and income are, in the aggregate, closely linked. If as a result of output growth there is change in the level of income, the share of income earmarked for consumption will, in each income class, equal the aggregate consumption of that class.

The model thus seeks to integrate the generation and spending of income, differentiating this spending according to income class. It is therefore possible to examine the sequence of effects which income generation has on the structure of consumption, and how the structure of consumption itself, as a final demand element, further influences the differentiated growth of the sectors. The most important underlying hypotheses, besides the usual input-output formulations, are that: a) the whole of the wages is consumed (during the same period); b) the portion of sectoral income (VA) which is consumed remains constant; c) family income originating from wages comes from only one sector; and d) if family income comes from more than

² It will be noticed that, irrespective of the sector of activity, what determines the structure of consumption is the income class of the family.

one worker, the sum of the individual incomes does not exceed the upper limit of the income interval corresponding to the total income of the individual with the largest family earnings.³

In the model described by equation system (4), family consumption is endogenous. The combined effect of the CS matrix is analogous to the Keynesian multiplier, [Myazawa (1976)]; where the output level is determined by the amplified effects of (exogenous) investment. Disregarding for the moment the adjustments due to uncontrolled elements in the final demand vector (the effect of the so called "errors and omissions" in the IBGE 1970 I/o matrix), it would be possible to write the production levels for the base year (1970) as:

$$X(70) = [I - A(70) - C(70)S(70)]^{-1} F(70) \quad (4a)$$

where $F(70)$ contains the exogenous elements of the final demand (investment, exports, government spending). In this expression the $A(70)$ matrix represents the production structure, the $C(70)$ matrix the consumption structure, and the $S(70)$ matrix the income distribution structure (seen from the generation angle). This model therefore indicates the desired articulation of the three structures.

It remains to be examined how the evolution of these structures contributed to generating the observed 1975 levels of production. To simplify the procedure let us suppose to begin with, that the three structures were constant over the relevant period. Then the sectoral production levels for that year can be estimated taking into account only the new levels of final demand (the sum of government consumption, investments and exports). Denoting those levels by $F(75)$ we obtain:

$$X_1(75) = [I - A(70) - C(70) \cdot S(70)]^{-1} F(75) \quad (4b)$$

³ The first part of this hypothesis is admittedly false. We adopted it only because of limitations in the data available). On the other hand, a recent study of the 1970 census data indicates that there is a close parallelism between the distribution of family income and of earnings of the head of the family. See Lluch (1982).

Of course, there were changes in the structure consumption, in production methods and in income generation. Thus, for example, if only the *consumption structure* had varied, the production level of the final year could be estimated by:

$$X_2(75) = [I - A(70) - C(75) \cdot S(70)]^{-1} F(75) \quad (4c)$$

Similarly, if there had been changes in the *income generation structure*, the level of production in the final year would be given by:

$$X_3(75) = [I - A(70) - C(70) \cdot S(75)]^{-1} F(75) \quad (4d)$$

In the case of *changes in both of these last two structures*, we should have:

$$X_4(75) = [I - A(70) - C(75) \cdot S(75)]^{-1} F(75) \quad (4e)$$

And, in the hypothesis of a change also in the *production structure*:

$$X_5(75) = [I - A(75) - C(75) \cdot S(75)]^{-1} F(75) \quad (4f)$$

And there are still three other possibilities, as follows:

$$X_6(75) = [I - A(75) - C(70) \cdot S(70)]^{-1} F(75) \quad (4g)$$

$$X_7(75) = [I - A(75) - C(75) \cdot S(70)]^{-1} F(75) \quad (4h)$$

$$X_8(75) = [I - A(75) - C(70) \cdot S(75)]^{-1} F(75) \quad (4i)$$

The matrix equation (4g) corresponds to the hypothesis that there were changes only in the production structure, the equation (4h) corresponds to the hypothesis of changes in all the structures except that of income generation, and equation (4i) presupposes that only the consumption structure does not change.

Considering these nine equation systems (4a – 4i), the variation in production between the base-year and the final year – that is, in our interpretation, the difference between (4f),

representing the level of production in 1975, and (4a), can be decomposed into four components.⁴ The first, which is by far the most important, is the *scale effect*. It consists in the increase in output necessary to satisfy the variation in final demand during the period, supposing that the production, consumption and distribution structures remain constant. This effect is represented by the difference between the values resulting from equations (4b) and (4a). A second effect, the *consumption effect* (with reference to changes in the consumption pattern), can, like those listed below, be represented in more than one way — depending on the order in which decomposition is effected. A third effect is due to alterations in the income distribution (generation), here named *income effect*. Finally, given the variations in the production structure (variations in the input-output technical coefficients between the base-year and the final year), we have the fourth and last effect: that due to changes in the *production structure*.

Since the *order* in which the decomposition is done alters the results (and considering that in our interpretation this problem does not affect the scale effect), we opted to work with all the possible combinations — in this case six. These combinations are seen in the following table. There are shown the various possible ways of decomposing the difference between (4f) and (4a). Note that the difference (4b) — (4a), which represents the “scale effect”, appears first in all of them.

⁴ It is supposed here that (4f) *adequately* reproduces the production observed in the final year, while (4a) gives the estimate for the base year. Actually any differences between the level of production *actually* observed in 1975 and that estimated by equation (4f) would show a residue, which would represent the sum of the errors contained in the estimates of the three matrices (*A*, *C* and *S*) in 1975. Preliminary calculations using available production indexes indicate that the results estimated by system (4f) are generally somewhat higher than those estimated from real production indexes for the period. Actually, this may indicate an underestimation of these indexes for the period.

Table 1

*Decompositions of the Difference Between 1970 and 1975
Production, by Effects*

$|X_n(75) - X(70)|$ According to the Different Decomposition
Ordinations

($n = 1, 2, \dots, 8$)

Decomposition	Effects			
	Final Demand	Consumption	Income	Production Structure
I	$X_1(75) - X(70)$	$X_2(75) - X_1(75)$	$X_4(75) - X_2(75)$	$X_8(75) - X_4(75)$
II	$X_1(75) - X(70)$	$X_4(75) - X_3(75)$	$X_3(75) - X_1(75)$	$X_8(75) - X_4(75)$
III	$X_1(75) - X(70)$	$X_7(75) - X_6(75)$	$X_8(75) - X_7(75)$	$X_8(75) - X_1(75)$
IV	$X_1(75) - X(70)$	$X_6(75) - X_8(75)$	$X_8(75) - X_6(75)$	$X_8(75) - X_1(75)$
V	$X_1(75) - X(70)$	$X_2(75) - X_1(75)$	$X_8(75) - X_7(75)$	$X_7(75) - X_2(75)$
VI	$X_1(75) - X(70)$	$X_5(75) - X_8(75)$	$X_3(75) - X_1(75)$	$X_8(75) - X_3(75)$

SOURCE: Equations (4a) to (4i). See text.

3 — Data used: sources and methodology

The basic data source for this paper is the intersectoral relations matrix evolved by IBGE for the year 1970, aggregated into 20 sectors according to the methodology described in Bonelli and Vieira da Cunha (1981). To implement the decomposition model presented of the last section above, a body of data is needed that is up to now inexistent, in addition to the estimates already available. ⁵ Examination of the model shows that its implementation depends, essentially, on six matrices, three for each year (1970 and 1975): those for the input/output technical coefficients, those for the relative proportion of sectoral consumption in the total consumption by income class, and those for the relative

⁵ See Bonelli and Vieira da Cunha (1981). In this paper the A (70) and C (70) matrices are called Table 11 and Table 13, respectively.

proportion of sectoral income intended for consumption (by income class) in the value of sectoral production. This section will briefly outline the methodology and data sources for these matrices, shown in greater detail in the Appendix: a) Share consumption (by income class) in total product (by sector), 1970. The wage distribution (by income class) presented in the 1970 report of the Law of 2/3 presently RAIS) was applied to the total wage bill in the 1970 Input/Output matrix, by sectors. Since consumption by income class exceeds the corresponding total of wages (except for the poorest class, where they are equal by hypothesis), a part of the gross surplus was subsequently distributed among the sectors to cover this gap. The resulting matrix (S70) is shown in Table A.2, while the (C70) . (S70) matrix appears in Table A.3 (see Appendix).

b) Input-output technical coefficients for 1975. Estimation of this matrix involved prior construction of an intersectoral relations matrix for 1975 (see Appendix). Essentially, we started from the totals of 1975 sectoral production and of the sectoral purchases of raw materials according to the economic censuses of that year. Available information on the total of the final demand enabled us to estimate the difference between the value of sales of intermediate products by sectors. With the totals of purchases and sales (totals of columns and lines), we simulated with the aid of the RAS method [Bacharach (1970) and Bidard (1981)] and using the 1970 structures as our starting point, a new intersectoral transactions structure compatible with the new totals of purchases and sales of intermediate goods in 1975. This gave us the estimate of the technical coefficients matrix for 1975 used in this text (see Tables A.4, A.5 and A.6 in the Appendix).

c) Relative proportion of sectoral consumption in total consumption income classes, 1975. This matrix (C75) is, in fact, a by product of the estimates of the 1975 transactions matrix, (being one of the elements of the final demand). The RAS method was applied to the totals of the columns and lines

referring to personal consumption by income classes and by sectors.⁶

d) Share of consumption (by income class) in total product (by sectors, 1975). To construct matrix *S75* we adopted identical criteria to those used in the construction of *S70* (see item "a"), with the difference that the wage distribution (by income class) was obtained from the statistics available in the RAIS — 1976. The 1975 Economic Consuses were used as primary sources for data on the total wages bill and on the aggregate gross surplus generated in the year. The sectoral distribution of consumption in total consumption was obtained from the estimates presented in the *C75* matrix, (see above).⁷

4 — Analysis of the results

The vectors of production simulated for 1975 by equations (4b) to (4i) are given in Table 2, which also shows the vector for the base-year (1970) derived from equation (4a). Tables 3 to 5 show the estimates for the consumption, income and production effects as defined in Section 2. Each table also presents the increase in production during the period, as estimated by the difference between the results of equations (4f) and (4a).

In Table 3 the sum contribution of changes in consumption patterns among the income classes is predictable small — in fact it is, as it should be, negligible.⁸ It can also be seen that the contribution of this effect for each sector's volume of output is relatively constant across the different forms of estimation. With rare exceptions, this also characterizes the results for the income effects (Table 4) and for the estimated changes in output due to changes in the production structure (Table 5).

⁶ See Appendix at the end of this paper.

⁷ Ibid.

⁸ Actually, the total of the sectors should have been equal to zero, whatever the form of decomposition used, because the sum of the mean and marginal propensities to consume (compared with total consumption) should be equal to 1. The results differing from zero can be attributed to approximation errors and/or of measurement.

The suggests that the mean (across alternatives in each Table) is a representative value of each constitution. Table 6 presents these mean results. It also quantifies the contribution of changes in final demand (ie.: the scale effect) on the increase in production during the period.

In this last table it can clearly be seen that the most important effect on the increase in sectoral production is the scale, or final demand effect. Recall that this result is obtained from the growth in final demand, supposing that there is no change in the structure of consumption, in the structure for the generation/distribution of income, and in the structure of production (expressed in the input-output technical coefficients matrix). Note that for some sectors the increase in production due to the expansion in final demand exceeds the total increase in production. This is particularly the case with: Agriculture; Rubber; Leather and Plastics; Perfumery and Pharmaceuticals; Food, Drinks and Tobacco; Electrical Energy; Transportation; and Trade.⁹ For these sectors the combined net force of the consumption, income and production effects had a depressive impact on output growth – acting against the drive generated by the increase in final demand. The opposite conclusion holds for the following sectors: Non-Metallic Minerals; Metals; Machinery; Electrical and Communications Equipment; Transport Equipment; Wood and Furniture; Paper; Chemicals; Textiles and Clothing; Editorial and Miscellaneous; and Services. Here the net effects of changes in the consumption, income and production structures raised output above the level that would have been possible as a result of the increase in final demand alone. Yet, in conclusion and despite the previous sectoral results, for the aggregate of all sectors, the effect of the increase in final demand is nearly equal to the estimated increase in production; indeed, 97% of the increase in aggregate production can be credited to the rise in the final demand.

⁹ The case of Mineral Extraction will be dealt with later, separately.

Table 2

Production in 1970 * and Estimated Production in 1975 According to Sectors and Simulation Hypothesis

(In Cr\$ millions of 1970)

Sectors	Production (1970)	Production (1975) Simulated According to Equations							
		(4b)	(4c)	(4d)	(4e)	(4f)	(4g)	(4h)	(4i)
1 — Agriculture	29,109	50,551	42,942	44,323	37,392	45,103	60,234	52,260	52,402
2 — Mineral Extraction	1,770	3,549	3,728	3,416	3,561	2,279	2,277	2,371	2,203
3 — Non-Metallic Minerals	4,771	8,537	8,492	8,376	8,327	10,250	10,477	10,507	10,239
4 — Metals	14,870	27,006	27,587	26,965	26,628	32,664	33,756	34,188	32,313
5 — Machines	7,850	15,955	17,004	15,515	16,429	21,246	20,627	22,254	19,866
6 — Electrical Equipment	5,348	8,409	9,887	8,182	9,517	10,086	8,812	10,586	8,517
7 — Transportation Equipment	9,976	19,114	23,207	18,366	21,997	24,603	21,267	26,259	20,271
8 — Wood and Furniture	5,044	8,708	7,901	8,248	7,400	10,023	11,422	10,644	10,766
9 — Paper	2,878	5,559	5,518	5,170	5,101	5,834	6,382	6,390	5,874
10 — Rubber, Leather and Plastics	3,518	6,770	8,139	6,386	7,571	6,423	5,459	6,999	5,109
11 — Chemicals	12,347	24,131	27,452	22,363	25,104	34,213	33,451	37,794	30,723
12 — Perfumery and Pharmaceuticals	4,008	8,735	9,760	7,632	7,810	7,954	8,930	9,403	7,689
13 — Textile and Clothing	9,053	16,300	18,777	14,826	16,836	16,698	16,088	18,891	14,463
14 — Food, Drinks and Tobacco	34,591	63,356	52,137	54,887	44,671	53,177	75,300	62,748	64,602
15 — Editorial and Miscellaneous	4,727	8,675	9,465	8,289	8,047	8,939	8,663	9,553	8,214
16 — Electrical Energy	4,218	7,498	7,210	6,804	6,499	6,546	7,581	7,355	6,805
17 — Construction	27,448	48,977	48,900	48,927	48,857	48,906	49,038	48,959	48,979
18 — Services	24,664	41,666	44,857	40,421	43,145	44,420	42,945	46,581	41,387
19 — Transportation and Communications	8,827	15,346	13,450	14,133	12,399	13,894	17,233	15,230	15,726
20 — Trade	45,256	82,513	82,365	74,100	73,248	76,342	86,467	87,164	76,732
Total	261,171	472,317	468,094	437,419	421,529	479,600	526,409	526,136	482,880

SOURCE: See text.

* Estimate according to equation (4a).

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Table 3

*Increase in Production (1970/75) and Contributions of the Effects
due to Change in the Consumption Pattern*

(In Cr\$ millions of 1970)

Sectors	Increase in Production*	The Effect of the Consumption Pattern According to Differences in the Equations									
		%	(4c) — (4b)	%	(4e) — (4d)	%	(4h) — (4g)	%	(4f) — (4i)	%	
1 — Agriculture	15,994	(100)	-7,609	(-48)	-6,931	(-43)	-7,974	(-50)	-7,290	(-46)	
2 — Mineral Extraction	509	(100)	-179	(35)	145	(28)	94	(18)	76	(15)	
3 — Non-Metallic Minerals	5,479	(100)	-45	(-1)	-49	(-1)	30	(1)	11	(. .)	
4 — Metals	17,794	(100)	-379	(-2)	-337	(-2)	432	(2)	351	(2)	
5 — Machinery	13,396	(100)	1,049	(8)	914	(7)	1,624	(12)	1,380	(10)	
6 — Electrical Equipment	4,738	(100)	1,478	(31)	1,335	(28)	1,774	(37)	1,569	(33)	
7 — Transportation Equipment	14,627	(100)	4,023	(28)	3,631	(25)	4,992	(34)	4,332	(30)	
8 — Wood and Furniture	4,979	(100)	-807	(-16)	-758	(-15)	-778	(-16)	-743	(-15)	
9 — Paper	2,956	(100)	-41	(-1)	-69	(-2)	8	(. .)	-40	(-1)	
10 — Rubber, Leather and Plastics	2,905	(100)	1,369	(47)	1,185	(41)	1,540	(53)	1,314	(45)	
11 — Chemicals	21,866	(100)	3,321	(15)	2,801	(13)	4,343	(20)	3,490	(16)	
12 — Perfumery and Pharmaceutics	3,048	(100)	341	(11)	178	(6)	473	(16)	265	(9)	
13 — Textile and Clothing	7,615	(100)	2,477	(32)	2,010	(26)	2,803	(37)	2,345	(29)	
14 — Food, Drinks and Tobacco	18,586	(100)	-11,169	(-60)	-10,216	(-55)	-12,552	(-68)	11,425	(-61)	
15 — Editorial and Miscellaneous	4,212	(100)	790	(19)	658	(16)	890	(21)	725	(17)	
16 — Electrical Energy	2,328	(100)	-288	(-12)	-305	(-13)	-226	(-10)	-259	(-11)	
17 — Construction	21,458	(100)	-77	(. .)	-70	(. .)	-79	(. .)	-73	(. .)	
18 — Services	19,756	(100)	3,191	(16)	2,724	(14)	3,636	(18)	3,023	(15)	
19 — Transportation and Communications	5,067	(100)	-1,896	(-37)	-1,374	(-27)	-2,003	(-40)	-1,832	(-36)	
20 — Trade	31,086	(100)	-148	(. .)	-942	(-3)	697	(-2)	-390	(-1)	
Total	218,429	(100)	-4,171	(-1.9)	5,890	(-2.7)	276	(-0.1)	-3,280	(-1.5)	

SOURCE: Table 2.

*Resulting from the difference (4f)—(4a). See text.

Table 4

*Production Increase (1970/75) and the Contribution of the Effects due to Change in the
Income Distribution (Four Alternatives)*

Sectors	Increase in Production*	Effects of the Income Distribution According to Differences in the Equations								
		(%)	(4e) — (4c)	(%)	(4d) — (4b)	(%)	(4f) — (4g)	(%)	(4i) — (4h)	(%)
1 — Agriculture	16,995	(100)	—5,560	(—35)	—6,228	(—39)	—7,157	(—45)	—7,832	(—49)
2 — Mineral Extraction	509	(100)	—187	(—33)	—133	(—26)	—92	(—18)	—74	(—15)
3 — Non-Metallic Minerals	5,479	(100)	—165	(—3)	—161	(—3)	—257	(—5)	—238	(—4)
4 — Metals	17,794	(100)	—959	(—5)	—1,001	(—6)	—1,524	(—9)	—1,443	(—8)
5 — Machines	13,396	(100)	—571	(—4)	—440	(—3)	—1,008	(—8)	—761	(—6)
6 — Electrical Equipment	4,738	(100)	—370	(—8)	—277	(—6)	—500	(—11)	—295	(—6)
7 — Transportation Equipment	14,627	(100)	—1,210	(—8)	—748	(—5)	—1,656	(—11)	—996	(—7)
8 — Wood and Furniture	4,979	(100)	—44	(—1)	—460	(—9)	—621	(—12)	—656	(—13)
9 — Paper	2,956	(100)	—417	(—14)	—389	(—13)	—556	(—19)	—508	(—17)
10 — Rubber, Leather and Plastics	2,905	(100)	—568	(—20)	—384	(—13)	—576	(—20)	—350	(—12)
11 — Chemicals	21,866	(100)	—2,348	(—11)	—1,768	(—8)	—3,581	(—16)	—2,728	(—12)
12 — Perfumery and Pharmaceutica	3,048	(100)	—1,266	(—42)	—1,103	(—36)	—1,449	(—48)	—1,241	(—41)
13 — Textile and Clothing	7,645	(100)	—1,041	(—14)	—1,474	(—19)	—2,193	(—29)	—1,625	(—21)
14 — Food, Drinks and Tobacco	18,586	(100)	—7,466	(—40)	—8,469	(—46)	—9,571	(—51)	—10,698	(—58)
15 — Editorial and Miscellaneous	4,212	(100)	—518	(—12)	—386	(—9)	—614	(—15)	449	(—11)
16 — Electrical Energy	2,328	(100)	—711	(—31)	—694	(—30)	—809	(—35)	—776	(—33)
17 — Construction	21,458	(100)	—43	(—0)	—50	(—0)	—53	(—0)	59	(—0)
18 — Services	19,756	(100)	—1,712	(—9)	—1,245	(—6)	—2,161	(—11)	—1,558	(—8)
19 — Transportation and Communications	5,067	(100)	—1,051	(—21)	—1,213	(—24)	—1,336	(—26)	—1,507	(—30)
20 — Trade	31,086	(100)	—9,117	(—29)	—8,323	(—27)	—10,822	(—35)	—9,735	(—31)
Total	218,429	(100)	—36,561	(—16.7)	—34,946	(—16.0)	—46,536	(21.3)	—43,529	(—19.9)

SOURCE: Table 2.

*Resulting from the difference of (4f) — (4a). See text.

Table 5

Production Increase (1970/75) and the Contribution of the Effects due to Changes in the Production Structure (Four Alternatives)

(In Cr\$ millions of 1970)

Sectors	Increase in Production* (%)		Effect of the Changes in the Production Structure According to Differences in the Equations							
			(4)-(4b)	(%)	(4b)-(4c)	(%)	(4c)-(4d)	(%)	(4d)-(4e)	(%)
1 — Agriculture	15,094	(100)	0,683	(61)	9,318	(58)	7,711	(48)	8,079	(51)
2 — Mineral Extraction	509	(100)	-1,272	(-250)	-1,357	(-267)	-1,262	(-252)	-1,213	(-238)
3 — Non-Metallic Minerals	5,470	(100)	1,040	(35)	2,015	(37)	1,923	(35)	1,863	(34)
4 — Metals	17,704	(100)	5,790	(33)	6,601	(37)	6,036	(34)	5,348	(30)
5 — Machines	13,396	(100)	4,672	(35)	5,260	(39)	4,817	(36)	4,351	(32)
6 — Electrical Equipment	4,738	(100)	403	(9)	609	(16)	569	(15)	335	(7)
7 — Transportation Equipment	14,627	(100)	2,153	(15)	3,052	(21)	3,052	(21)	2,606	(13)
8 — Wood and Furniture	4,070	(100)	2,714	(55)	2,743	(55)	2,522	(51)	2,518	(51)
9 — Paper	2,956	(100)	823	(22)	872	(29)	733	(25)	704	(24)
10 — Rubber, Leather and Plastics	2,005	(100)	-1,311	(-5)	-1,140	(-39)	-1,148	(-40)	-1,272	(-44)
11 — Chemicals	21,866	(100)	9,320	(43)	10,312	(47)	9,109	(42)	8,360	(38)
12 — Perfumery and Pharmaceutics	3,048	(100)	105	(6)	327	(11)	144	(5)	57	(2)
13 — Textile and Clothing	7,645	(100)	-212	(-3)	144	(2)	-138	(-2)	-363	(-5)
14 — Food, Drinks and Tobacco	18,586	(100)	11,044	(64)	10,611	(57)	8,506	(46)	9,715	(52)
15 — Editorial and Miscellaneous	4,212	(100)	-12	(-)	88	(2)	-8	(-)	-75	(-2)
16 — Electrical Energy	2,328	(100)	83	(4)	145	(6)	47	(2)	1	(-)
17 — Construction	21,458	(100)	61	(-)	59	(-)	40	(-)	52	(-)
18 — Services	19,756	(100)	1,279	(6)	1,724	(9)	1,275	(6)	966	(5)
19 — Transportation and Communications	5,067	(100)	1,887	(37)	1,760	(35)	1,405	(30)	1,593	(31)
20 — Trade	31,086	(100)	3,954	(13)	4,789	(15)	3,094	(10)	2,542	(8)
Total	218,429	(100)	54,094	(24.8)	58,022	(26.6)	48,071	(22.0)	45,461	(20.8)

SOURCE: Table 2

* Resulting from the difference of (4f)-(4a). See text.

Table 6

*Decomposition of the Increase of Production Among Factors: Final Demand, Consumption
Effect, Income Effect, Production Effect*

(In Cr\$ millions of 1970)

Sectors	Increase in Production*	(%)	Increase in Final Demand**	(%)	Average of Contributions					
					Consumption	(%)	Income	(%)	Production	(%)
1 — Agriculture	15,994	(100)	21,442	(134)	-7,453	(-46)	-6,692	(-42)	8,692	(+54)
2 — Mineral Extraction	509	(100)	1,779	(349)	124	(+25)	-115	(-22)	-1,281	(-252)
3 — Non-Metallic Minerals	5,479	(100)	3,766	(69)	-13	(...)	-205	(-4)	1,935	(+45)
4 — Metals	17,794	(100)	13,096	(74)	-17	(...)	-1,232	(-7)	5,943	(+33)
5 — Machinery	13,396	(100)	8,105	(61)	1,242	(+9)	-695	(-5)	4,772	(+35)
6 — Electrical Equipment	4,738	(100)	3,061	(65)	1,539	(+32)	-360	(-8)	502	(+11)
7 — Transportation Equipment	14,627	(100)	9,138	(62)	4,245	(+29)	-1,153	(-8)	2,429	(+17)
8 — Wood and Furniture	4,979	(100)	3,664	(74)	-772	(-15)	-537	(-12)	2,627	(+53)
9 — Paper	2,956	(100)	2,681	(91)	-35	(-1)	-468	(-16)	783	(+26)
10 — Rubber, Leather and Plastics	2,905	(100)	3,252	(112)	1,352	(+46)	-470	(-16)	-1,219	(-42)
11 — Chemicals	21,866	(100)	11,784	(54)	3,489	(+16)	-2,600	(-12)	9,282	(+42)
12 — Perfumery and Pharmaceutics	3,048	(100)	3,829	(126)	314	(+10)	-1,265	(-42)	+181	(+6)
13 — Textile and Clothing	7,645	(100)	7,247	(95)	2,381	(+31)	-1,808	(-24)	-150	(-2)
14 — Food, Drinks and Tobacco	18,586	(100)	28,765	(155)	-11,340	(-61)	-9,051	(-49)	10,194	(+55)
15 — Editorial and Miscellaneous	4,212	(100)	3,948	(94)	766	(+18)	-492	(-12)	-7	(...)
16 — Electrical Energy	2,328	(100)	3,280	(141)	-270	(-12)	-748	(-32)	69	(+3)
17 — Construction	21,458	(100)	21,529	(100)	-75	(...)	-51	(...)	55	(...)
18 — Services	19,756	(100)	17,002	(86)	3,146	(+16)	-1,669	(-8)	1,311	(+6)
19 — Transportation and Communications	5,067	(100)	6,519	(129)	-1,866	(-37)	-1,276	(-25)	1,664	(+33)
20 — Trade	31,086	(100)	37,257	(120)	-195	(-1)	-9,474	(-30)	3,567	(+11)
Total	218,429	(100)	211,144	(96.7)	-3,404	(-1.6)	-40,393	(-18.5)	51,412	(23.4)

SOURCES: Tables 1, 2, 3 and 5.

* Estimated from the difference between equations (4f) — (4a).

** *Idem* (4g) — (4a).

Changes in the structure of consumption had important effects on the aggregate and specially on select sectoral rates of growth of output. Among the sectors in which the effect was negative – *i.e.*, where there was a tendency to reduce the growth of production – the following stand out in order of importance: Food, Drinks and Tobacco; Agriculture; Transportation and Communications; Wood and Furniture; and Electrical Energy. In patterns of consumption (*i.e.*, they had a positive influence expansion in final demand *exceeded* the actually observed increase in production. The remaining sectors gained from the changes in patterns of consumption (*i.e.*, they had a positive influence on the growth of production), or, in a few cases, the changes did not have any significant result in terms of influence on the levels of production. Among the former the following sectors are noted: Rubber; Leather and Plastics; Electrical Equipment; Transport Equipment; Textiles and Clothing; Chemicals; Perfumery and Pharmaceuticals; Editorial and Miscellaneous; Machinery; and Services. For the economy as a whole, as has already been mentioned, the effect of the method adopted is to neutralize the impact of variations in the consumption structure. The small impact observed is due to errors in the calculations of the effects and, possibly, to changes in the aggregate ratio between consumption and value added in the period from 1970 to 1975.¹⁰

As to the effects of changes in the structure of income generation/distribution,¹¹ it can be seen from Table 6 that the net results are negative for all sectors. Although in most the impact is of small consequence, in some select sectors the contribution of this effect to total growth has been substantial. The following sectors are noted: Food, Drinks and Tobacco; Agriculture; Perfumery and Pharmaceuticals; Electrical Energy; Textiles and Clothing; Transportation and Communications; and Trade. (This last, in a certain way, may be seen as the mean impact, of the other sectors). The sectors with relatively small or negligible effects are: Non-Metallic Minerals; Metals; Machinery;

↳

¹⁰ The ratio stood at 50.7% in 1970, falling to 49.9% in 1975.

¹¹ Strictly speaking, it is, as can easily be seen, dealing the whole time only with the income intended for consumption.

Electrical and Communications Equipment; Transport Equipment; Services; Wood and Furniture; Chemicals; Editorial and Miscellaneous; Paper; Rubber; Leather and Plastics. Note that with the exception of Wood and Furniture, all these sectors are instances where the effect of changes in the structure of consumption was either small or, in most cases, amply positive — *i.e.*, tended to raise the level of production in the final year. Taking the total of the sectors into account, this factor had the effect of reducing the level of production in the final year by almost 20%!

The measured variations in the structure of production (admittedly, imperfectly gaged by changes in the input-output technical coefficients between 1970 and 1975) had the effect of raising the production level in the final year, in most cases.¹² See the last column of Table 6). The following sectors are noted: Food, Drinks and Tobacco; Agriculture; Wood and Furniture; Chemicals; Non-Metallic Minerals; Metal; Transport and Communications; and Paper. All these are sectors where changes in the structure of production were responsible for at least 25% of the increase in production levels. Taking all sectors into account, the contribution of this effect amounted to 23.4% of the estimated change in output, thus exceeding by five percentage points the (negative) contribution of the income generation/distribution effect.

The Mineral Extraction industry was remarkable for some frankly absurd results. The problem seems to be due to the coefficients in the 1975 Input-Output Matrix. Observe in Table 2 (columns (4f) to (4i)) that in all simulations using the 1975 technical coefficients matrix the 1975 estimated production level is significantly below the one actually observed. Total output of the sector has been estimated at Cr\$ 3,761 million for 1975 — see Bonelli and Vieira da Cunha (1981) Table 27. Using this value and estimating residually the contribution of

¹² The only important exceptions are two sectors — Rubber, Leather, and Plastics, and Mineral Extraction — the latter being discussed separately.

the changes in the production structure, the following results are obtained:

Table 7

Mineral Extraction Sector: Increase in Production and its Decomposition According to Components — 1970/75

(in Cr\$ millions, 1970 value)

Increase in Production	Total = Cr\$ 1,991 Million	%
Increase in Final Demand	1,779	90
Pattern/Consumption Effect	124	6
Distribution/Income Effect	—115	—6
Structure/Production Effect	203	10

These figure seem reasonable considering that Mineral Extraction (like Civil Construction) does not involve the production of consumer goods. Therefore, its growth is technically independent of changes, on consumption patterns or in the distribution of income. A positive (though small) expansion in output caused by intertemporal changes in the structures production is consistent with the other results reached in this study. It also reflects the observed performance of a sector which in part did not benefit from productivity augmenting technological changes during the period analysed.¹³

¹³ The "absurdity" of the initial results (Table 2) is probably related to the inconsistency between the production value and the value of exports. This, according to foreign trade data, would have been approximately of the same magnitude as the volume of production. In our 1975 matrix that is reflected in the fact that since the intermediate sales were estimated as the difference between production and final demand, the value of those sales is probably underestimated, with resulting biases in the input-output coefficients of the sector in 1975.

These results differ in certain aspects from those presented in an earlier study by the authors — see Bonelli and Vieira da Cunha (1981). Despite the difference of approach in the two studies, it has to be recognized that in more than one case the respective decompositions reveal contradictory interpretations. Thus we find here that the changes in the consumption pattern tended to reduce the production level in the final year in Agriculture; Food, Drinks and Tobacco; Electrical Energy; Wood and Furniture; and Transport and Communications. In the other paper we concluded that this only occurred in the first two sectors, Textiles, Services, Paper and Cardboard and Trade.¹⁴

The inconsistencies are even more apparent in a comparison of the results of the effects of changes in the income distribution. The data in Table 6 indicate negative results for all sectors, (though in some the magnitudes involved are small). Our previous study concluded that the contribution of observed changes in the income distribution had a negative impact in 1975 output levels only for the following sectors: Agriculture; Food; and Electrical Energy. Though negligible in some cases, a significant *positive* effect was observed in the following sectors: *Transportation Equipment; Wood and Furniture; Paper and Cardboard; Rubber, Leather and Plastics; Perfumery and Pharmaceuticals; Editorial and Miscellaneous; Services; and Transport and Communications.* In the five underlined sectors the present analysis suggests a markedly different conclusion. We now explore possible reasons for the divergence.

5 — Reconciling evidences: the role of relative prices

At the beginning of this paper we noted several differences between our present and cartierefforts in the specification of decomposition models for the growth of sectoral production. In particular, it was pointed out that, in contrast with the previous attempt, the present study incorporates variations in relative

¹⁴ As for the sectors in which the changes in the consumption pattern tended to raise the level of production in the final year, there is, however, coincidence between the two results.

prices (of the products of the different sectors, of raw materials as compared with final products and of wages vis-à-vis other incomes). This probably explains most of the differences noted before.

Let us briefly recapitulate the meaning and the results of the four effects into which the production increase between 1970 and 1975 may be broken down according to the current methodology.

The first, namely the scale effect, has a very a clear interpretation: it represents the increase in production due to the increase in the exogenous elements of the final demand (fixed gross investment, government consumption and exports). It is based on the assumption that the production and income structures observed in the base-year remain constant throughout. Taking into account the very rapid pace of economic growth in Brazil during the period from 1970 to 1975, and the very shortness of the period, this effect, besides being positive for all sectors, is not surprisingly, the most important one. For the economy as a whole, the increase in the final demand would have been responsible for about 97% of the production increase observed during the period.

The second effect mentioned — associated with changes in the pattern of consumption — results from variations measured *at current prices* in the matrix of average propensities to consume (by income class and sector) — and in the Engel elasticities associated with it. What was found was expected: for the economy as a whole the effect was null — except for the extraneous impact of the small decrease in the (aggregate) propensity to consume out of total income. There were, some important alterations at the sectoral level. As is well known, during the period analysed there were large fluctuations in relative price. Together with (in fact, as a part of) changes in consumer behaviour due to the diffusion of a group of “modern” goods, these fluctuations in prices are reflected our measurement of the “consumption pattern” effect.¹⁵ It should furthermore be noted

¹⁵ The differences, sometimes substantial, in the average propensities to consume in 1970 and 1975 can be seen by comparing Tables 13 in Bonelli and Vieira da Cunha (1981) and A.8 in the Appendix to this study.

that this effect, though similarly named, is not comparable across the two studies are here referred to: First, because in the previous one we obtained the effect residually; consequently it lumped together alterations in consumption with changes in the technical structure of production and with changes in the technical structure of production and with known errors in observation and/or estimate of the 1970 I/O matrix. Secondly, in the earlier study this effect was quantified *at constant 1970 prices*.

The third effect, capturing the impact of changes in the generation/distribution of income has a more complex interpretation. Essentially it results from the observation that for a given sector *and income class* the share of final consumption in total output varies over a period of time. This effect, which is also measured at each year's prices, results from the aggregation of these shares (more precisely, the ratios of consumption to value added for each sector and income class) in each of the four income classes. Since these proportions decreased in many sectors, it is not surprising that the effect on the increase in production over the period from 1970 to 1975 has been negative; (see Tables A.1 and A.10 of the Appendix). This reduction is due to the movement in the functional distribution of income.¹⁶ It is also an outcome of the petroleum and raw materials crises of 1973 and 1974. For as a result of the large and sustained increase in prices the share of these intermediate goods in total output (measured at current prices) grew significantly from 1970 to 1975.¹⁷

It is clear from the results given in the following table, (which repeats the last line of Tables A.2 and A.11 in the Appendix), that the share of consumption in total value added fell between 1970 and 1975. The trend is specially noticeable at the extremes of the distribution and is strongest for the lower income class (up to minimum wages). For this segment the share of fell from 8.1% of gross output value in 1970 to 4.6%

¹⁶ The share of wages in value added, which stood at 31.5% in 1970, fell to 29.7% in 1975.

¹⁷ The raw materials/GOV ratio, fell from 48.8% in 1970 to 45.2% in 1975.

in 1975. It is, therefore, not surprising to note that, in 1975, the seven sectors with negative income effects, and which are quantitatively more significant, are those responsible for 87% of the consumption of the poorest class and for 62% of the consumption of the wealthiest class. Though the "middle" classes showed some relative gains (altogether, from 17 to 18.5% of the GOV), these were not sufficient to compensate for the losses suffered by the other classes.

In part, the losses suffered by the poorest class can be attributed to variations in the limit of the class. It should be remembered that in our exercise the classes are defined by the value of the highest minimum wage paid in the country (MSMP), but the variation of the MSMP during the period was below the variations of the prices as measured by the implicit deflator of the GDP.¹⁸ Thus, the 1975 "poor", according to our definition, were relatively poorer than those in 1970.

Table 8

*Share of Consumption in Total Value Added, by Income Class:
1970 and 1975 (All Sectors)*

Years	<i>k</i> = 1 (up to 2 MSMP)	<i>k</i> = 2 (2 to 5 MSMP)	<i>k</i> = 3 (5 to 10 MSMP)	<i>k</i> = 4 (10 and + MSMP)	Total
1970	8.1	9.5	7.5	10.8	35.9
1975	4.6	9.8	8.7	9.7	32.8

SOURCES: Tables A.2 and A.11 in the Appendix.

The difference, however, is small (3%) and as far as the limit of the "wealthy" class it concerned, it would tend to increase proportionally the number of "wealthy" families. The most significant aspect of this result is to demonstrate that despite

¹⁸ The ratio between the mean annual indexes of the MSMP and the implicit deflator of the GDP fell from 1 in 1970 to 0.966 in 1975.

the probable upward mobility of some lower class families and, therefore, the reduction in the number of families in an acute situation of poverty, the growth of the "middle" sectors did not suffice to compensate for the loss of purchasing power in the extremes of the distribution. Moreover, it is important to note that during the period, while the value of production (in nominal terms) increased at an average annual rate of 42%, total personal consumption expanded at 39%.¹⁰ These elements had a preponderant weight on the of the distribution effect in the decomposition of the sectorial increase of production.

The fourth effect, due to changes in the structure of production, measures the impact of variations in the input-output technical coefficients between 1970 and 1975. As these are estimated at current prices, it is difficult to separate the fraction that is due to technical change (including changes in the composition and scale of production, besides "pure" technical progress) from that due to changes in relative prices. Though the separation is feasible it cannot be resolved without access to much more detailed information than that currently available to us. It is known that the period was characterized not only by intense "structural" change, but also by violent changes in relative prices. These resulted from: a) the increase in petroleum crises; b) the raw materials crisis associated with a simultaneous boom of the world economy, which reaches its highest point in 1973; c) the profile of growth based on the rapid expansion of sectors producing durable goods and in the concomitant reduction of their relative prices; d) the stymules for agricultural production for the external versus internal market, and associated with it the increase in the relative price of products destined to domestic consumption, be it for final on intermediate demand. In terms of our exercise, the result, whatever the origin, is to increase the weight of intermediate transactions in the final production. It is this greater internal integration of the economy, measured in value, that we call "changes in the production structure". The fact

¹⁰ These figures result from a comparison of the National Accounts with the intersectoral relations matrices of 1970 and 1975.

that its contribution is positive agrees with international experience [see Carter (1970)].

In conclusion, the results of the decompositions are decisively influenced by changes in relative prices. As calculated, the scale effect is not directly affected by the evolution of relative prices; this because the effect presupposes constant structures of consumption. Changes in relative prices should influence the *composition* of consumption by income classes. And it is this change that has a significant impact — via what we have termed the consumption effect — on the growth of certain sectors. Changes in relative prices may influence the income effect in two quite different ways: on the one hand, by a change in relative factor prices (specifically, in the period in question the price of labor decreased); and, on the other, by a change in the price of raw materials and other intermediate goods in relation to final production (in the period in question this relative price increased). The joint effect was, therefore, doubly conducive to depression of aggregate consumption and of consumption by classes. In closing, it should be noted that movements in the prices of raw materials also act to alter the structure of technical relations (measured in value). For the reasons already discussed, in the specific circumstances. The change was in the direction of enlarging the weigh of intermediate transactions.

Appendix

A.1 — Obtaining of matrices (S70), (C70) and (C70).(S70)

A brief description of the procedures adopted in constructing the matrix (S70) has already been presented in the text. The wage bill of each sector is that recorded in the Intersectoral Relations Matrix for 1970. The 1970 wage *distribution* by income class was obtained from data in the reports of the Law of 2/3 for that year, aggregated according to the sectors of the (20 × 20) matrix, except Agriculture. The resulting distributions are shown in columns (11) to (12) of Table A.1). These distributions, were then applied to the wage bills in the 1970 matrix, initially

presupposing that for the poorest class all of wages is consumed. The volume of agricultural wages in this class was calculated as the difference between total of consumption for the class and the corresponding sum of non-agricultural wages. The remainder of the agricultural wages were allocated to the next highest income class.

For the other classes ($k = 2, k = 3, k = 4$), the difference between total consumption and the respective wage bill was covered by a transference from the surplus. Thus it is assumed that a fraction of gross surplus is consumed. For each sector this fraction was estimated by the sector's share in the total surplus. The results are shown in columns (3), (6) and (9) in Table A.1. The sum of these consumed shares of the surplus together with the respective wage bills for each income class yields the total volume of consumption in each sector's output — columns (4), (7) and (10). The sum of these totals is, by definition, equal to the aggregate consumption by income classes.

The matrix ($S70$) (shown in Table A.2) is obtained from the values of output by sectors: its elements are, for each sector, the quotient of consumed income, by classes, and the value of production. Table A.3 shows matrix ($C70$) . ($S70$), referred to in the text, obtained by premultiplying ($S70$) by ($C70$).

The use of data from the Law of 2/3 calls for some additional comments. It is important to recognise, first, that the wage concept necessarily refers to individual gains, while the income class concept (consumption) refers to family units that may, or not, include more than one wage-earning worker. It is thus probable that in our estimates some families have been shifted to a *lower* income class than they really occupied in 1970. However, it should be noted that something more than adequate data about family earnings would be necessary to correct this bias, while respecting the basic relationship that unites the consuming units to specific sectoral income sources. After all, the income from wages in a family with more than one wage-earning worker does not necessarily originate in one and the same sector of the matrix.

Table A.1

Distribution of Wages and Consumed Surplus According to Sectors and Income Classes — 1970

Sectors	Income Classes										Wage distribution				Total Consumed Surplus (15)	Relative Proportion of (15) to Total Consumed Surplus (16)	Relative Proportion of (15) to Total Sectoral Surplus (17)
	k=1		k=2		k=3			k=4			k=1	k=2	k=3	k=4			
	Wages	Wages	Consumed Surplus	Consumed Income	Wages	Consumed Surplus	Consumed Income	Wages	Consumed Surplus	Consumed Income	(11)	(12)	(13)	(14)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)							
1 — Agriculture	2,731	1,891	1,668	3,560	—	2,177	2,177	—	3,707	3,707	65.6	34.4	—	—	7,553	17.17	46.00
2 — Mineral Extraction	155	116	103	218	106	134	240	44	228	272	36.7	27.5	25.1	10.5	465	1.06	46.08
3 — Non-Metallic Minerals	440	200	205	405	76	267	343	76	455	631	55.6	25.3	8.6	8.6	827	2.11	45.86
4 — Metals	600	658	422	1,080	180	551	741	135	837	1,072	33.7	44.4	12.8	8.1	1,910	4.34	46.00
5 — Machinery	454	453	226	678	178	284	472	183	501	684	35.8	35.7	14.0	14.4	1,021	2.32	45.88
6 — Electrical Equipment	265	264	192	456	104	251	355	107	428	535	35.8	35.7	14.0	14.5	871	1.88	45.88
7 — Transportation Equipment	204	544	288	842	247	389	636	200	662	862	17.1	45.6	20.7	16.7	1,348	3.06	46.03
8 — Wood and Furniture	526	162	151	313	37	187	234	24	336	360	70.2	21.6	5.0	3.2	681	1.56	45.87
9 — Paper	179	101	86	187	34	112	146	34	181	225	61.3	29.0	9.9	8.9	389	0.88	46.04
10 — Rubber, Leather and Plastics	235	153	178	331	54	233	287	42	386	438	48.8	31.6	11.1	8.7	807	1.83	45.88
11 — Chemicals	186	261	430	681	251	551	812	208	955	1,163	20.5	28.8	27.7	22.9	1,946	4.42	46.03
12 — Perfumery and Pharmaceuticals	73	103	218	322	98	286	385	81	487	568	20.5	28.8	27.7	22.8	882	2.25	45.89
13 — Textile and Clothing	1,200	449	445	924	117	580	687	127	989	1,115	63.4	23.7	6.2	6.7	2,013	4.57	46.00
14 — Food, Drinks and Tobacco	1,509	577	703	1,280	234	917	1,151	145	1,562	1,707	61.2	23.4	9.5	5.9	3,182	7.23	45.89
15 — Editorial and Miscellaneous	401	307	179	486	136	233	368	127	397	524	41.3	31.6	14.0	13.1	809	1.84	45.87
16 — Electrical Energy	161	288	275	563	137	358	495	93	610	683	24.1	43.1	20.5	12.4	1,243	2.83	45.89
17 — Civil Construction	3,865	1,339	430	1,768	384	560	954	460	954	1,414	63.8	22.1	6.5	17.6	1,944	4.42	45.89
18 — Services	2,990	3,313	784	4,077	2,332	997	3,328	1,821	1,698	3,518	28.6	33.6	22.3	17.4	3,458	7.86	46.00
19 — Transportation	1,254	1,185	207	1,382	383	270	653	288	460	748	40.6	38.1	12.3	8.3	837	2.13	46.00
20 — Trade	3,323	2,164	2,540	4,704	1,443	3,315	4,758	1,657	5,644	7,301	38.6	25.2	16.8	18.3	11,489	26.13	45.89
Total	20,651	14,528	9,722	24,250	8,552	12,682	18,234	5,843	21,596	27,438	41.7	28.3	17.3	11.8	44,000	100.00	100.00

SOURCE: The Law of 2/3 (1970) and the 1970 Matrix. See Bonelli and Vieira da Cunha (1981, Tables 9 and 10, pp. 739-40).

* The consumed surplus corresponds to the difference between the total consumption for each class (see Bonelli and Vieira da Cunha, Table 10, p. 740) and the income from work, apportioned proportionally to the surplus generated by sector — see Column (15) of this Table. This class is responsible for 22.1% of the total consumed excess.

b See note "a". This class is responsible for 28.8% of the total consumed surplus.

c See note "a". This class is responsible for 49.1% of the total consumed surplus.

d The total of excess = 95.658; The total of the consumed surplus = 44.007 (46%).

* It should be noted that, according to the procedure adopted for calculating the "consumed surplus" by income class, $EC_k/E_j = (EC_1^k + EC_2^k + EC_3^k)/E_j = 1 (E_j/E) (C_2 - W_2) + (E_j/E) (C_3 - W_3) + (E_j/E) (C_4 - W_4) + (E_j/E) (C_2 - W_2) + (C_3 - W_3) + C_4 - W_4$ where C subscripted j refers to the sectors and superscripted refer to the k income classes. EC is the total of the consumed surplus, E is the total surplus (including the non-consumed, C is total consumption and W is total wages. Thus the amount (EC_k/E_j) except for approximation errors, is the same for all sections.

Furthermore, deficiencies of the coverage of the Law of 2/3 are notorious.²⁰ In particular, the group of small firms are under-represented and, together with them, the group of workers with the lowest wages. It is probable therefore that our estimates of the interclass distribution of the wage bill of each sector indicate a *smaller* fraction in the lower class ($k = 1$) than that

Table A.2

Matrix (S70) of Relative Proportion of the Income Intended for Consumption in Total Output (GOV), by Income Class - 1970

Sectors	Income Classes				Total
	$k = 1$ (up to two MSMP)	$k = 2$ (two to five MSMP)	$k = 3$ (five to 10 MSMP)	$k = 4$ (10 and + MSMP)	
1 — Agriculture	0.0961	0.1253	0.0766	0.1305	0.4285
2 — Mineral Extraction	0.0806	0.1138	0.1247	0.1414	0.4605
3 — Non-Metallic Minerals	0.0904	0.0832	0.0705	0.1091	0.3532
4 — Metals	0.0342	0.0739	0.0507	0.0734	0.2322
5 — Machinery	0.0681	0.1018	0.0708	0.1025	0.3432
6 — Electrical Equipment	0.0485	0.0835	0.0650	0.0979	0.2949
7 — Transportation Equipment	0.0541	0.0865	0.0654	0.0886	0.2946
8 — Wood and Furniture	0.1108	0.0660	0.0493	0.0758	0.3019
9 — Paper	0.0641	0.0670	0.0523	0.0806	0.2640
10 — Rubber, Leather and Plastics	0.0502	0.0707	0.0613	0.0930	0.2758
11 — Chemicals	0.0143	0.0531	0.0624	0.0893	0.2191
12 — Perfumery and Pharmaceuticals	0.0177	0.0780	0.0932	0.1375	0.3264
13 — Textile and Clothing	0.0831	0.0619	0.0482	0.0772	0.2704
14 — Food, Drinks and Tobacco	0.0495	0.0420	0.0378	0.0580	0.1853
15 — Editorial and Miscellaneous	0.0851	0.1031	0.0783	0.1112	0.3777
16 — Electrical Energy	0.0416	0.1454	0.1279	0.1790	0.4939
17 — Civil Construction	0.1408	0.0644	0.0348	0.0515	0.2915
18 — Services	0.1257	0.1714	0.1390	0.1479	0.5849
19 — Transportation	0.1394	0.1647	0.0726	0.0833	0.4500
20 — Trade	0.0832	0.1178	0.1191	0.1828	0.5029
Ratio consumed income GOV	0.081	0.095	0.075	0.108	0.359

SOURCE: Table A.1. See text.

²⁰ The RAIS questionnaire to be used in our 1975 estimates has, in this and other respects, better statistical qualities.

Table A.3

Matrix (G70).(S70)

Sectors	1	2	3	4	5	6	7	8	9	10
1 — Agriculture	0.031027	0.032178	0.025622	0.010213	0.024000	0.020500	0.020934	0.023391	0.019124	0.019180
2 — Mineral Extraction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 — Non-Metallic Minerals	0.000790	0.000875	0.009002	0.000440	0.000638	0.000566	0.000561	0.000533	0.000493	0.000533
4 — Metals	0.004080	0.001360	0.003363	0.002206	0.003250	0.002808	0.002795	0.002800	0.002412	0.002020
5 — Machinery	0.002014	0.003310	0.002420	0.001080	0.002393	0.002104	0.002083	0.001821	0.001812	0.002024
6 — Electrical Equipment	0.001116	0.001747	0.003344	0.002397	0.003392	0.003018	0.002001	0.002540	0.002521	0.002794
7 — Transportation Equipment	0.012517	0.014567	0.010496	0.007248	0.010164	0.009402	0.008887	0.007604	0.007803	0.008060
8 — Wood and Furniture	0.008748	0.009871	0.007212	0.001981	0.007093	0.000386	0.000103	0.005513	0.005394	0.005982
9 — Paper	0.001010	0.001094	0.000828	0.000553	0.000814	0.000098	0.000700	0.000703	0.000620	0.000650
10 — Rubber, Leather and Plastics	0.001477	0.001673	0.001225	0.000838	0.001190	0.001070	0.001040	0.000938	0.000914	0.001014
11 — Chemicals	0.009080	0.010672	0.008018	0.005338	0.007800	0.000813	0.000731	0.000610	0.005087	0.005082
12 — Perfumery and Pharmaceutics	0.018153	0.019373	0.014920	0.009826	0.014613	0.012472	0.012446	0.012744	0.011158	0.011657
13 — Textile and Clothing	0.021441	0.022655	0.017006	0.011930	0.017337	0.015132	0.014970	0.014412	0.013101	0.014114
14 — Food, Drinks and Tobaceo	0.115033	0.119765	0.094683	0.060544	0.091409	0.076440	0.077880	0.085027	0.070762	0.071411
15 — Editorial and Miscellaneous	0.006834	0.007620	0.005647	0.003850	0.005548	0.004011	0.004801	0.004492	0.004226	0.004592
16 — Electrical Energy	0.007653	0.007954	0.006270	0.004043	0.006088	0.005090	0.005188	0.005053	0.004603	0.004743
17 — Civil Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18 — Services	0.020338	0.033594	0.024226	0.016743	0.023960	0.021330	0.020863	0.018900	0.018143	0.019923
19 — Transportation	0.020399	0.021740	0.016774	0.011019	0.016301	0.013983	0.013976	0.014392	0.012543	0.013070
20 — Trade	0.133285	0.143446	0.109914	0.072356	0.106721	0.092057	0.091048	0.093328	0.082144	0.080100

Sectora	11	12	13	14	15	16	17	18	19	20
1 — Agriculture	0.013961	0.020556	0.020219	0.013516	0.027328	0.032694	0.024270	0.042812	0.035480	0.031255
2 — Mineral Extraction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 — Non-Metallic Minerals	0.000453	0.000882	0.000404	0.000346	0.000700	0.000980	0.000475	0.001053	0.000747	0.000094
4 — Metals	0.002095	0.003125	0.002573	0.001763	0.003586	0.004703	0.002754	0.005514	0.004232	0.004803
5 — Machinery	0.001822	0.002756	0.001753	0.001257	0.002593	0.003894	0.001476	0.003917	0.002587	0.003818
6 — Electrical Equipment	0.002478	0.003726	0.002428	0.001740	0.003659	0.005434	0.002135	0.005740	0.003928	0.005202
7 — Transportation Equipment	0.008439	0.012861	0.007454	0.005438	0.011037	0.017382	0.005489	0.016102	0.009584	0.017239
8 — Wood and Furniture	0.005317	0.008036	0.005261	0.003751	0.007706	0.011397	0.004575	0.011627	0.007811	0.011253
9 — Paper and Cardboard	0.000519	0.000773	0.000631	0.000434	0.000892	0.001178	0.000676	0.001397	0.001073	0.001183
10 — Rubber, Leather and Plastics	0.000904	0.001366	0.000894	0.000638	0.001303	0.001925	0.000777	0.001958	0.001304	0.001913
11 — Chemicals	0.005295	0.007929	0.006040	0.004199	0.008561	0.011691	0.006108	0.013178	0.009657	0.011788
12 — Perfumery and Pharmaceutics	0.009248	0.013783	0.011424	0.007821	0.015956	0.020873	0.012300	0.024633	0.019017	0.021244
13 — Textile and Clothing	0.011752	0.017590	0.013213	0.009208	0.018946	0.026097	0.013227	0.029358	0.021546	0.025993
14 — Food, Drinks and Tobacco	0.052592	0.077541	0.074383	0.049894	0.101280	0.122883	0.088089	0.158771	0.130582	0.127679
15 — Editorial and Miscellaneous	0.003935	0.005918	0.004188	0.002945	0.000049	0.008590	0.003958	0.009237	0.006539	0.008540
16 — Electrical Energy	0.003499	0.005158	0.004919	0.003301	0.006730	0.008205	0.005806	0.010572	0.008706	0.008409
17 — Civil Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18 — Services	0.017450	0.026249	0.017787	0.012644	0.026091	0.037873	0.016221	0.040338	0.037705	0.037214
19 — Transportation	0.010316	0.015363	0.012869	0.008797	0.017938	0.023335	0.013964	0.027731	0.021505	0.023789
20 — Trade	0.069022	0.102979	0.082928	0.057640	0.117304	0.154773	0.089314	0.181032	0.138090	0.157564

which would actually have been observed in 1970. This underestimate will be greater, the larger the proportion of small firms in total employment.²¹

A.2 — Estimate of an intersectoral relations matrix for 1975

The intermediate transactions matrix — from which technical coefficients and impact matrices are derived — was obtained from the sectoral totals of intermediate purchases and sales in 1975, as in Section 3 of the text, applying the RAS method to the 1970 matrix [see IBGE (1970)].

Table A.4, below, shows the intermediate demand matrix estimated for 1975. The line referring to total consumption was obtained by adding to the sum of the intermediate purchases an estimate of other expenditure of intermediate consumption with data from the 1970 matrix and independent estimates of raw materials by sector. The value added represents the difference between the production value and total intermediate consumption. The total of wages comes from census data, while the social security (et alii) contributions were estimated proportionally to 1970. The surplus is residual.

Table A.5 distributes the final demand in 1975 among its several components,²² while Table A.6 shows the input-output technical coefficients matrix estimated for 1975. Table A.7 shows the impacts matrix $(I - A)^{-1}$.

²¹ On this point, see the Appendix in Vieira da Cunha and Bonelli (1978).

²² For this disaggregation we used: a) for the total, the nominal growth of personal consumption, government consumption, fixed investment and exports of the National Accounts, applied to the values of the 1970 matrix; b) the sectoral distribution in 1975; c) fixed investment distribution in 1975; according to the authors' estimates; d) government consumption distribution in 1970, applied to 1975 values; and e) personal consumption, residually obtained.

Table A.4

Intersectoral Relations Matrix, 1975: Intermediary Demand

(In Cr\$ millions)

Sectors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Addition
1 — Agriculture and Cattle Raising	22,051	40	279	1,555	32	0	50	4,358	568	972	11,764	134	9,635	51,124	130	0	1,245	1,007	7	13	104,864
2 — Mineral Extraction	29	144	273	486	17	20	15	3	7	2	2,561	3	1	36	17	0	228	0	4	0	3,846
3 — Non-Metallic Minerals	140	71	2,983	326	760	771	1,006	155	54	40	676	525	12	644	48	0	19,007	34	14	253	27,536
4 — Metals	2	104	562	40,240	8,408	5,562	13,600	1,181	132	306	428	256	359	1,508	654	14	12,481	171	239	1,494	87,793
5 — Machinery	535	1,050	1,126	3,947	11,143	1,293	5,587	523	634	530	2,437	230	1,613	1,747	384	89	1,206	676	217	146	35,138
6 — Electrical Equipment	0	31	35	313	1,958	5,396	2,656	21	20	18	85	8	54	54	72	356	2,600	382	222	213	14,511
7 — Transportation Equipment	4	3	5	123	684	169	16,895	32	4	34	11	5	15	8	11	3	301	582	1,876	919	21,647
8 — Wood and Furniture	0	30	47	251	525	566	456	4,459	212	61	189	7	191	157	1,580	0	7,764	109	51	796	17,458
9 — Paper and Cardboard	0	0	552	148	44	184	47	42	5,232	335	511	462	586	1,166	2,080	0	216	306	1	2,366	14,278
10 — Rubber, Leather and Plastics	250	0	7	291	943	722	2,657	629	30	1,953	225	116	2,124	191	163	0	1,201	137	435	1,556	13,637
11 — Chemicals	8,915	859	2,816	6,636	946	937	2,057	892	1,518	7,690	18,830	1,961	9,194	4,824	1,125	632	5,797	730	3,144	3,003	82,497
12 — Perfumery and Pharmaceuticals	813	2	3	13	3	1	4	1	3	17	147	372	32	50	1	0	7	502	1	1	2,071
13 — Textile and Clothing	454	0	46	3	21	9	322	298	47	771	194	6	17,203	675	120	0	7	249	10	352	20,776
14 — Food, Drinks and Tobacco	4,158	3	20	31	6	4	22	32	108	32	2,916	1,418	115	28,026	16	0	9	6,114	127	491	43,600
15 — Editorial and Miscellaneous	2	0	23	105	37	57	136	6	101	46	64	55	313	129	712	9	152	1,936	5	423	4,309
16 — Electrical Energy	292	943	575	1,548	312	241	495	221	470	369	1,104	53	920	719	154	227	186	884	28	967	10,211
17 — Civil Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,742	0	1,743
18 — Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370	3,781	1,889	2,428	8,468
19 — Transportation and Communications	309	231	543	917	23	13	45	253	65	75	2,197	0	77	663	41	36	887	253	1,360	0	7,989
20 — Trade	1,424	346	1,703	5,901	2,091	1,807	2,169	1,141	874	1,449	5,659	344	5,457	5,648	825	62	10,351	3,366	812	4,999	56,438
Total	39,449	3,256	11,601	62,978	27,974	17,766	48,267	14,237	10,081	14,700	44,985	5,952	47,885	97,293	8,136	1,428	64,050	21,160	12,186	20,425	578,810
Others*	—	120	685	566	—	154	—	—	415	34	—	57	—	—	663	280 ^b	16,342 ^b	2,971 ^b	6,256 ^b	5,013 ^b	92,081
Imports + Indirect Taxes — Subsidies	2,765	1771	745	2,635	2,063	3,868	2,563	297	543	2,318	33,200	2,181	1,166	2,175	1,863	—	—	—	—	—	—
Total Consumption	42,214	3,557	13,031	66,169	30,037	21,789	50,830	14,534	11,039	17,052	83,185	8,190	44,051	99,450	10,652	1,708	—	—	—	—	—
Wages (W)	22,914	988	3,446	8,029	8,487	3,460	4,876	3,518	1,453	2,410	2,889	1,138	6,866	9,783	3,724	3,400	28,904	66,188	15,171	41,999	240,646
Social Security Contributions	818	242	927	2,361	2,511	982	1,436	874	409	682	759	320	1,862	1,878	844	889	3,326	11,527	3,184	6,921	42,811
Surplus	92,348	6,160	14,104	27,878	19,546	13,064	13,211	10,685	5,469	10,512	33,309	10,077	21,707	31,729	11,928	13,680	18,374	40,114	11,138	127,501	532,534
Subsidies for Activities	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,062	—	4,062
Value Added	116,081	7,390	18,477	38,268	31,644	17,506	19,523	15,077	7,331	13,604	36,957	11,535	30,435	43,390	16,546	17,969	50,804	117,829	25,431	176,421	811,749
Production Value	158,295	10,947	31,509	104,437	61,681	39,295	70,353	29,611	18,370	30,656	120,142	19,725	79,486	142,840	27,198	19,677	130,996	141,960	43,873	201,859	1,482,640
(VA/PP) × 100	75.33	67.51	58.64	36.64	51.30	44.55	27.75	50.92	39.91	44.38	30.76	58.48	38.29	30.38	60.83	91.32	38.63	83.00	57.97	87.40	54.75
(W/A) × 100	19.74	13.37	18.65	20.98	30.01	19.76	24.98	23.33	19.82	17.72	7.82	9.87	22.56	22.55	22.51	18.92	57.12	56.17	58.66	23.81	29.65

* Miscellaneous expenditure of the Transformation and Mineral Extraction Industry according to the Industrial Census. Corresponds to the difference between ITV and VA.

^b The relation (imports + indirect taxes — subsidies/GDP) of 1970 was used, applied to the 1975 GDP.

Table A.5

Intersectoral Relations Matrix — 1975: Final Demand

(In Cr\$ millions)

Sectors	Sum of Intermediate Utilities	Personal Consumption up to Two Minimum Wages	Personal Consumption Two to Five Minimum Wages	Personal Consumption Five to 10 Minimum Wages	Personal Consumption over 10 Minimum Wages	Personal Consumption Total (subtotal)	Government Total	Capital Formation	Exports	Final Demand (subtotal)	Dummy Financing	Firms	Errors and Omissions	Final Demand Including Errors Dummy and Firms	GOV
1 — Agriculture	104,864	4,952	8,014	5,220	3,555	21,471	202	3,472	12,495	37,910	—	—	15,521	53,431	158,285
2 — Mineral Extraction	3,846	—	—	—	—	—	—	—	7,101	7,101	—	—	—	7,101	10,947
3 — Non-Metallic Mineral	27,536	70	141	148	256	615	15	—	262	892	—	—	3,080	3,972	31,508
4 — Metals	87,793	240	473	361	435	1,509	45	4,976	1,698	8,228	—	93 ^a	8,323	16,644	104,437
5 — Machines	35,138	219	1,100	1,349	2,110	4,778	141	24,677	1,962	31,558	—	—	5,015	26,543	61,681
6 — Electrical Equipment	14,511	323	2,236	2,493	2,130	7,181	233	7,628	1,022	16,064	—	—	8,720	24,784	39,295
7 — Transportation Equipment	21,647	307	2,034	5,593	12,579	20,511	525	23,114	2,615	46,765	—	—	1,941	48,706	70,353
8 — Wood and Furniture	17,458	409	1,561	1,840	2,953	6,763	—	2,976	939	10,677	—	—	1,476	12,153	29,611
9 — Paper	14,278	122	291	234	191	838	394	—	360	1,592	—	1,316 ^b	1,184	4,092	18,370
10 — Rubber, Leather and Plastics	13,637	258	811	1,100	1,800	3,968	222	—	792	4,982	—	517 ^c	11,520	17,019	30,656

11 — Chemicals	82,497	2,198	4,704	4,869	5,360	17,130	828	—	6,342	24,300	—	—	13,345	37,645	120,142
12 — Perfumery and Pharmaceuticals	2,071	2,859	5,919	4,348	4,873	17,996	687	—	102	18,785	—	—	1,131	17,654	19,725
13 — Textile and Clothing	20,776	2,929	7,839	7,327	7,450	25,541	230	—	4,163	29,934	—	—	28,776	58,710	79,486
14 — Food, Drinks and Tobacco	43,600	18,056	31,450	20,351	14,177	84,029	389	—	11,684	96,102	—	—	3,138	99,240	142,840
15 — Editorial and Miscellaneous	4,309	776	2,271	2,261	3,049	8,355	2,353	1,498	493	12,699	—	8,575 ^d	1,615	22,889	27,198
16 — Electrical Energy	10,211	1,320	2,479	1,513	1,032	6,343	1,581	—	—	7,924	—	1,367 ^e	175	9,466	19,677
17 — Civil Construction	1,743	—	—	—	—	—	—	129,253	—	129,253	—	—	—	129,253	120,986
18 — Services	8,468	2,740	9,528	12,421	12,601	37,278	17,516	1,388	—	56,182	51,960 ^f	23,494 ^g	1,586	133,222	141,690
19 — Transportation	7,989	2,417	4,905	3,604	3,886	14,810	1,727	—	9,510	28,047	—	6,466 ^h	3,371	35,884	43,873
28 — Trade	56,438	19,374	39,054	31,946	35,431	125,801 ⁱ	1,707	28,138	4,800	160,432	—	2,562 ^j	17,577	145,421	201,859
Total	578,810	59,569	124,812	106,982	113,871	405,234	28,829	227,119	66,340	727,522	51,960	44,390	79,958 ^k	903,830	1,482,640
Total Consumption (including imports and indirect taxes — subsidies) ^m	666,311	68,500	144,773	128,255	144,287	485,815	34,753	261,326	66,658	848,522	56,313	48,579			

^a 0.00089 of the PV (see the 1970 Matrix)

^b 0.0717 of the PV (idem)

^c 0.01879 of the PV (idem)

^d 0.03153 of the PV (idem)

^e 0.06947 of the PV (idem)

^f 0.3667 of the PV (idem)

^g 0.1553 of the PV (idem)

^h 0.1474 of the PV (idem)

ⁱ 0.3184 of the total C (idem)

^j 0.0127 of the PV (idem)

^k 0.05393 of the total PV (idem)

^m from the relation observed in 1970

Table A.6

Tecnical Coefficients Matrix — 1795 (A — 75)
(20 Sectors)

Sectors	1	2	3	4	5	6	7	8	9	10
1 — Agriculture	0.13930	0.00362	0.00887	0.01480	0.00051	0.00000	0.00072	0.14717	0.03094	0.03170
2 — Mineral Extraction	0.00010	0.01319	0.00866	0.00405	0.00028	0.00051	0.00022	0.00000	0.00036	0.00000
3 — Non-Metallic Minerals	0.00088	0.00646	0.09467	0.00312	0.01233	0.01061	0.01430	0.00523	0.00296	0.00130
4 — Metals	0.00001	0.00017	0.01784	0.38530	0.13031	0.14164	0.19332	0.03080	0.00716	0.00090
5 — Machinery	0.00338	0.09592	0.03573	0.03770	0.18066	0.03201	0.07942	0.01765	0.03451	0.01730
6 — Electrical Equipment	0.00000	0.00281	0.00111	0.00300	0.03175	0.13731	0.03776	0.00072	0.00100	0.00060
7 — Transportation Equipment	0.00002	0.00030	0.00015	0.00118	0.01108	0.000431	0.24015	0.00073	0.00023	0.00110
8 — Wood and Furniture	0.00000	0.00270	0.00150	0.00240	0.00851	0.01440	0.00640	0.15058	0.01152	0.00190
9 — Paper and Cardboard	0.00000	0.00000	0.01752	0.00141	0.00072	0.00469	0.00067	0.00142	0.28481	0.01090
10 — Rubber, Leather and Plastics	0.00158	0.00000	0.00022	0.00279	0.01529	0.01830	0.03776	0.02124	0.00164	0.06380
11 — Chemicals	0.05632	0.08746	0.08936	0.06354	0.01534	0.02384	0.02924	0.03013	0.08261	0.25080
12 — Perfumery and Pharmaceutics	0.00577	0.00017	0.00010	0.00012	0.00005	0.00004	0.00005	0.00005	0.00017	0.00050
13 — Textile and Clothing	0.00286	0.00000	0.00146	0.00003	0.00034	0.00023	0.00458	0.01007	0.00258	0.02510
14 — Food, Drinks and Tobacco	0.02625	0.00025	0.00064	0.00030	0.00010	0.00010	0.00031	0.00107	0.00589	0.00100
15 — Editorial and Miscellaneous	0.00001	0.00000	0.00072	0.00100	0.00050	0.00145	0.00193	0.00019	0.00552	0.00150
16 — Electrical Energy	0.00184	0.03130	0.01825	0.01578	0.00500	0.00613	0.00703	0.00746	0.02561	0.01200
17 — Civil Construction	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
18 — Services	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
19 — Transportation and Communications	0.00105	0.02111	0.01723	0.00878	0.00037	0.00033	0.00064	0.00854	0.00356	0.00240
20 — Trade	0.00890	0.03160	0.05404	0.05051	0.03389	0.04598	0.03083	0.03854	0.04750	0.04720

Sectors	11	12	13	14	15	16	17	18	19	20
1 — Agriculture	0.09792	0.00677	0.12122	0.35791	0.00476	0.00000	0.00950	0.00709	0.00017	0.00006
2 — Mineral Extraction	0.02131	0.00016	0.00001	0.00025	0.00064	0.00000	0.00174	0.00000	0.00008	0.00002
3 — Non-Metallic Minerals	0.000562	0.02659	0.00015	0.00451	0.00175	0.00000	0.14509	0.00024	0.00031	0.00125
4 — Metals	0.00356	0.01298	0.00452	0.01056	0.02405	0.00073	0.09528	0.00121	0.00545	0.00740
5 — Machinery	0.02020	0.01167	0.02029	0.01223	0.01413	0.00451	0.00921	0.00476	0.00495	0.00072
6 — Electrical Equipment	0.00071	0.00040	0.00068	0.00007	0.00265	0.01803	0.01935	0.00269	0.00507	0.00105
7 — Transportation Equipment	0.00009	0.00023	0.00019	0.00006	0.00041	0.00014	0.00229	0.00372	0.04275	0.00455
8 — Wood and Furniture	0.00157	0.00036	0.00239	0.00110	0.05809	0.00000	0.05927	0.00077	0.00116	0.00394
9 — Paper and Cardboard	0.00425	0.02344	0.00737	0.00816	0.07617	0.00000	0.00165	0.00215	0.00002	0.01172
10 — Rubber, Leather and Plastics	0.00187	0.00589	0.02672	0.00134	0.00600	0.00000	0.00917	0.00096	0.00991	0.00771
11 — Chemicals	0.15673	0.00039	0.11567	0.03377	0.01138	0.03212	0.01425	0.00514	0.07166	0.01488
12 — Perfumery and Pharmaceutics	0.00122	0.01885	0.00041	0.00035	0.00005	0.00000	0.00005	0.00354	0.00001	0.00000
13 — Textile and Clothing	0.00162	0.00029	0.21643	0.00472	0.00439	0.00000	0.00005	0.00175	0.00023	0.00175
14 — Food, Drinks and Tobacco	0.02427	0.07188	0.00145	0.19621	0.00059	0.00000	0.00006	0.04307	0.00288	0.00243
15 — Editorial and Miscellaneous	0.00053	0.00277	0.00393	0.00091	0.02619	0.00044	0.00116	0.01364	0.00012	0.00209
16 — Electrical Energy	0.00919	0.00267	0.01157	0.00503	0.00566	0.01155	0.00142	0.00623	0.00065	0.00479
17 — Civil Construction	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00300	0.00000	0.03971	0.00000
18 — Services	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00282	0.02664	0.04306	0.01203
19 — Transportation and Communications	0.01879	0.00000	0.00096	0.00464	0.00150	0.00185	0.00677	0.00178	0.03098	0.00000
20 — Trade	0.04710	0.01744	0.06865	0.03954	0.03034	0.00314	0.07901	0.02371	0.01850	0.02477

SOURCE: Table A.4.

Table A.7

Impacts Matrix — 1975 $([I - A75]^{-1})$

Sectors	1	2	3	4	5	6	7	8	9	10
1 — Agriculture	1.19026	0.02107	0.03287	0.04073	0.01835	0.02088	0.03196	0.22107	0.08141	0.09195
2 — Mineral Extraction	0.00213	1.01611	0.01291	0.01095	0.00329	0.00385	0.00536	0.00241	0.00420	0.00707
3 — Non-Metallic Minerals	0.00235	0.01043	1.10709	0.00855	0.02001	0.02816	0.02732	0.00879	0.00734	0.00494
4 — Metals	0.00417	0.04956	0.05021	1.05324	0.29019	0.29008	0.47121	0.08809	0.03811	0.03190
5 — Machinery	0.00872	0.12808	0.05804	0.08373	1.24219	0.00040	0.15082	0.03519	0.06780	0.03888
6 — Electrical Equipment	0.00059	0.00939	0.00484	0.01016	0.04814	1.16304	0.00018	0.00330	0.00573	0.00330
7 — Transportation Equipment	0.00055	0.00412	0.00300	0.00500	0.01903	0.00892	1.32065	0.00303	0.00201	0.00328
8 — Wood and Furniture	0.00050	0.00545	0.00405	0.00690	0.01499	0.02229	0.01542	1.17873	0.02130	0.00467
9 — Paper and Cardboard	0.00172	0.00218	0.02971	0.00070	0.00480	0.01157	0.00710	0.00521	1.40226	0.02081
10 — Rubber, Leather and Plastics	0.00283	0.00365	0.00304	0.00843	0.02412	0.02070	0.00041	0.02961	0.00590	1.07170
11 — Chemicals	0.08555	0.10975	0.13489	0.14057	0.06151	0.07399	0.11594	0.08072	0.15679	0.34052
12 — Perfumery and Pharmaceuticals	0.00713	0.00046	0.00050	0.00000	0.00031	0.00033	0.00052	0.00151	0.00095	0.00160
13 — Textile and Clothing	0.00494	0.00075	0.00299	0.00131	0.00208	0.00212	0.01060	0.01736	0.00012	0.03589
14 — Food, Drinks and Tobacco	0.04222	0.00476	0.00676	0.00716	0.00316	0.00373	0.00589	0.01183	0.01821	0.01541
15 — Editorial and Miscellaneous	0.00021	0.00039	0.00139	0.00221	0.00147	0.00248	0.00379	0.00073	0.00841	0.00239
16 — Electrical Energy	0.00371	0.03539	0.02463	0.01354	—	0.01489	0.02163	0.01303	0.04010	0.01894
17 — Civil Construction	0.00017	0.00100	0.00093	0.00073	0.00020	0.00022	0.00034	0.00054	0.00037	0.00040
18 — Services	0.00042	0.00171	0.00198	0.00217	0.00109	0.00127	0.00150	0.00139	0.00140	0.00141
19 — Transportation and Communications	0.00437	0.02511	0.02331	0.01837	0.00507	0.00544	0.00849	0.01359	0.00926	0.01016
20 — Trade	0.01845	0.04830	0.07677	0.10947	0.07005	0.09304	0.09001	0.06351	0.08510	0.07793

Sectors	11	12	13	14	15	16	17	18	19	20
1 -- Agriculture	0.15771	0.06850	0.21481	0.54091	0.03502	0.00571	0.04353	0.03503	0.02017	0.00796
2 -- Mineral Extraction	0.02639	0.00377	0.00180	0.00279	0.00273	0.00096	0.00620	0.00045	0.00276	0.00071
3 -- Non-Metallic Minerals	0.00914	0.03219	0.00304	0.00836	0.00422	0.00004	0.16351	0.00128	0.00942	0.00201
4 -- Metals	0.00992	0.03295	0.02492	0.03121	0.05637	0.00875	0.18274	0.00933	0.04339	0.01711
5 -- Machinery	0.03707	0.02541	0.04235	0.02731	0.03023	0.00824	0.03459	0.00946	0.01943	0.00463
6 -- Electrical Equipment	0.00322	0.00206	0.00361	0.00179	0.00519	0.02165	0.02605	0.00413	0.01090	0.00202
7 -- Transportation Equipment	0.00256	0.00129	0.00214	0.00156	0.00183	0.00066	0.00562	0.00558	0.05928	0.00642
8 -- Wood and Furniture	0.00353	0.00225	0.00588	0.00298	0.07285	0.00066	0.07254	0.00253	0.00584	0.00548
9 -- Paper and Cardboard	0.00943	0.02743	0.01793	0.01691	0.11194	0.00066	0.01006	0.00821	0.00240	0.01771
10 -- Rubber, Leather and Plastics	0.00463	0.00813	0.03943	0.00464	0.01020	0.00083	0.01482	0.00228	0.01523	0.00927
11 -- Chemicals	1.21102	0.14348	0.21157	0.09540	0.07828	0.04142	0.10105	0.01639	0.10557	0.02640
12 -- Perfumery and Pharmaceutics	0.00247	1.01985	0.00211	0.00378	0.00041	0.00009	0.00051	0.00397	0.00045	0.00014
13 -- Textile and Clothing	0.00378	0.00211	0.27925	0.01025	0.00787	0.00019	0.00255	0.00312	0.00180	0.00292
14 -- Food, Drinks and Tobacco	0.04245	0.09927	0.01056	1.26556	0.00552	0.00151	0.00566	0.05727	0.01030	0.00504
15 -- Editorial and Miscellaneous	0.00103	0.00348	0.00590	0.00163	1.02786	0.00056	0.00206	0.01463	0.00122	0.00258
16 -- Electrical Energy	0.01406	0.00742	0.01986	0.01026	0.01190	1.01253	0.01062	0.00778	0.00415	0.00644
17 -- Civil Construction	0.00097	0.00018	0.00026	0.00038	0.00020	0.00011	1.00059	0.00011	0.04111	0.00004
18 -- Services	0.00192	0.00066	0.00164	0.00125	0.00085	0.00022	0.00495	1.02788	0.04638	0.01278
19 -- Transportation and Communications	0.02443	0.00448	0.00644	0.00965	0.00494	0.00287	0.01449	0.00276	1.03521	0.00093
20 -- Trade	0.06760	0.03733	0.10988	0.06678	0.05082	0.00749	0.11379	0.03110	0.03726	1.03071

SOURCE: Table A.6.

A.3 – Obtaining matrices (C75) and (S75)

The matrix of the average propensities to consume in 1975 (C75), is presented in Table A.8. It simply shows the relative shares of personal consumption by sectors and income classes obtained directly from Table A.5.

The matrix of the relative shares of consumption in total value, added, by sector and income class (S75), was derived from a similar procedure to that applied in obtaining (S70) and described in Section A.1. We started from the non-agricultural wage distribution provided by special tabulations of RAIS-1976. The agricultural wage distribution is from PNAD-1976. This information, shown below in Table A.9, served as the basis for distributing wages on the 1975 matrix (Table A.4), by the respective income classes. Unfortunately, there is no equivalent date for 1975.

Our interest is in obtaining estimates of the consumed income by sectors and income classes. Yet, as we have already noted, part of income is not derived from wages and must be estimated independently. The hypotheses are essentially those already adopted: for the lowest income class it is assumed that all of consumption originates in wages; for the other classes, the excess of consumption over salaries is met by a part of the surplus. Since the total of consumed income by class has to be equal to personal (family) consumption in the respective income classes, it only needs to be determined how the surplus is distributed in each income class according to sectors, and this has been done by maintaining each sector's proportion of the surplus in relation of the total surplus. The resulting values are given in Table A.10.

Matrix (S75), here shown in Table A.11, is obtained directly from Table A.10 and from the sectoral production vector for 1975.

Table A.8

*Matrix of the Relative Share in the Final Consumption by Sectors
and Income Classes — 1975*

(C75)

Sectors	Personal Consumption Structure 1975 (C75)			
	Up to Two MS	Two to Five MS	Five to 10 MS	10 and + MS
1 — Agriculture	0.0831	0.642	0.0488	0.0312
2 — Mineral Extraction	—	—	—	—
3 — Non-Metallic Minerals	0.0012	0.0011	0.0014	0.0022
4 — Metals	0.0040	0.0038	0.0034	0.0038
5 — Machinery	0.0037	0.0088	0.0126	0.0185
6 — Electrical Equipment	0.0054	0.0179	0.0233	0.0187
7 — Transportation Equipment	0.0052	0.0163	0.0523	0.1104
8 — Wood and Furniture	0.0059	0.0125	0.0172	0.0259
9 — Paper and Cardboard	0.0021	0.0023	0.0022	0.0017
10 — Rubber, Leather and Plastics	0.0043	0.0065	0.0103	0.0158
11 — Chemicals	0.0369	0.0377	0.0455	0.0470
12 — Perfumery and Pharmaceutics	0.0480	0.0474	0.0406	0.0428
13 — Textile and Clothing	0.0492	0.0628	0.0685	0.0654
14 — Food, Drinks and Tobacco	0.3031	0.2520	0.1902	0.1244
15 — Editorial and Miscellaneous	0.0130	0.0182	0.0211	0.0268
16 — Electrical Energy	0.0222	0.0199	0.0141	0.0001
17 — Civil Construction	—	—	—	—
18 — Services	0.0460	0.0763	0.1161	0.1106
19 — Transportation and Communications	0.0406	0.0393	0.0337	0.0341
20 — Trade	0.3253	0.3129	0.2986	0.3109
Total	1.0000	1.0000	1.0000	1.0000

SOURCE: Table A.5.

Table A.9

Distribution of the Wage Mass by Classes of MSMP — 31 December 1976

(In 1000 unit of MSMP)

Sectors	Wage Classes									
	Up to two MSMP		Two to five MSMP		Five to 10 MSMP		10 and + MSMP		Total	
	IP	%	IV	%	IP	%	IV	%	IV	%
1 — Agriculture*	2,054.1	76.74	646.1	10.80	127.0	3.30	121.0	3.10	3,840.5	100.00
2 — Mineral Extraction	66.3	31.01	50.0	21.08	28.3	13.02	63.2	30.41	207.8	100.00
3 — Non-Metallic Minerals	204.7	34.78	171.3	29.10	85.1	14.46	127.5	21.68	588.6	100.00
4 — Metals	324.5	16.88	706.1	34.74	306.1	20.01	405.3	25.77	1,922.0	100.00
5 — Machinery	150.3	11.73	408.0	31.80	328.4	25.63	303.8	30.74	1,281.1	100.00
6 — Electrical Equipment	140.6	16.03	241.3	25.80	190.2	21.35	343.1	36.77	933.2	100.00
7 — Transportation Equipment	121.3	8.38	461.4	31.88	300.4	27.00	405.2	32.14	1,447.3	100.00
8 — Wood and Furniture	252.0	30.84	419.7	51.18	63.1	7.70	84.3	10.28	820.0	100.00
9 — Paper and Cardboard	64.7	20.35	95.3	20.97	58.4	18.36	90.0	31.22	318.0	100.00
10 — Rubber, Leather and Plastics	164.5	32.68	138.8	27.57	85.4	16.96	114.7	22.70	503.4	100.00
11 — Chemicals	75.8	12.63	160.9	28.30	83.5	13.01	271.1	45.16	600.3	100.00
12 — Perfumery and Pharmaceuticals	23.1	6.36	77.6	21.34	93.6	25.77	109.0	40.53	303.2	100.00
13 — Textile and Clothing	611.3	42.72	390.5	27.20	160.7	11.05	202.6	18.35	1,431.1	100.00
14 — Food Drinks and Tobacco	302.4	20.51	323.3	31.55	158.0	15.42	240.9	23.51	1,024.0	100.00
15 — Editorial and Miscellaneous	170.1	17.80	261.2	27.64	226.3	23.68	205.2	30.80	955.8	100.00
16 — Electrical Energy	23.1	4.99	129.2	27.92	100.3	21.03	210.1	46.41	402.7	100.00
17 — Civil Construction	650.4	27.68	733.2	31.20	331.7	14.11	634.8	27.01	2,350.1	100.00
18 — Services	1,300.0	10.25	1,804.5	21.87	1,582.0	21.81	2,471.4	34.07	7,254.5	100.00
19 — Transportation and Communications	412.7	21.64	710.5	37.20	351.5	18.43	432.0	22.06	1,906.7	100.00
20 — Trade	1,241.2	30.09	848.1	26.71	489.3	15.41	590.0	18.79	3,175.2	100.00
Total (MSMP)	9,359.8	23.40	8,790.1	29.64	5,353.3	10.01	7,802.0	28.26	31,395.1	100.00
Total (C\$ 1,000.00)	7,188,326.4		6,750,790.8		4,111,334.4		6,001,050.0		24,111,430.8	

SOURCE: Special RAIS tabulations — 1976 (The 4.0 to 6.0 MSMP class was divided into two equal parts: from 4.0 to 5.0 and from 5.0 to 6.0 MSMP); MSMP = 788/month.

OBS.: The given December wage does not include additional payments referring to the 13th monthly wage.

*Data estimated from the PNAD — 1976, referring to total monetary income of agricultural workers in November of that year.

Table A.10

Wages and Consumed Surplus Distribution According to Sectors and Income Classes — 1975

(In Cr\$ millions)

Sectors	Income Classes										Wage distribution				Total Consumed Surplus (15)	Relative Proportion of (15) in Total Consumed Surplus (16)	Relative Proportion of (15) in Total Sectorial Surplus (17)
	k=1		k=2		k=3			k=4			k=1	k=2	k=3	k=4			
	Wages (1)	Wages (2)	Consumed Surplus (3)	Consumed Income (4)	Wages (5)	Consumed Surplus (6)	Consumed Income (7)	Wages (8)	Consumed Surplus (9)	Consumed Income (10)	(11)	(12)	(13)	(14)			
1 — Agriculture	13,855	9,058	12,624	21,683	—	15,277	15,277	—	14,605	14,605	60.5	39.5	—	—	42,506	17.34	46
2 — Mineral Extraction	315	238	845	1,883	135	1,022	1,157	300	977	2,878	31.9	24.1	13.7	30.4	2,844	1.16	46
3 — Non-Metallic Minerals	1,189	1,003	1,928	2,932	488	2,335	2,883	746	2,232	2,975	34.8	29.1	14.5	21.6	6,496	2.65	46
4 — Metals	1,355	2,950	3,808	7,758	1,655	4,608	6,263	2,069	4,405	6,474	16.9	36.7	20.6	25.8	12,820	5.23	46
5 — Machinery	1,113	3,026	2,672	5,698	2,432	3,233	5,665	2,916	3,091	6,007	11.7	31.9	25.6	30.7	8,996	3.67	46
6 — Electrical Equipment	554	895	1,784	2,679	739	2,158	2,897	1,272	2,064	3,336	16.0	25.8	21.4	36.8	6,006	2.45	46
7 — Transportation	409	1,554	1,806	3,360	1,346	2,185	3,531	1,567	2,089	3,656	8.4	31.9	27.6	32.1	6,079	2.48	46
8 — Wood and Furniture	1,085	1,800	1,463	3,263	271	1,771	2,042	362	1,693	2,055	30.8	51.2	7.7	10.3	4,927	2.01	46
8 — Paper	296	435	750	1,185	267	907	1,174	455	868	1,323	20.4	29.8	18.4	31.3	2,525	1.03	46
10 — Rubber, Leather and Plastics	788	664	1,434	2,098	409	1,736	2,145	549	1,659	2,208	32.7	27.6	17.0	22.8	4,829	1.97	46
11 — Chemicals	365	817	4,550	5,367	402	5,506	5,908	1,305	5,264	6,569	12.6	28.3	13.9	45.2	15,321	6.25	46
12 — Perfumery and Pharmaceuticals	72	243	1,376	1,619	283	1,665	1,050	530	1,592	2,122	6.3	21.4	25.7	46.6	4,633	1.89	46
13 — Textile and Clothing	2,933	1,674	2,870	4,844	789	3,585	4,394	1,260	3,436	4,696	42.7	27.3	11.6	18.4	10,001	4.08	46
14 — Food, Drinks and Tobacco	2,886	3,082	4,339	7,421	1,506	5,251	6,757	2,299	5,020	7,319	29.5	31.5	15.4	23.5	14,610	5.96	46
16 — Editorial and Miscellaneous	663	1,029	1,631	2,660	882	1,973	2,865	1,150	1,887	3,037	17.8	27.6	23.7	30.9	5,491	2.24	46
18 — Electrical Energy	170	040	1,871	2,820	737	2,264	3,001	1,594	2,165	3,759	4.9	27.5	21.4	46.2	6,300	2.57	46
17 — Civil Construction	8,001	9,018	2,612	11,530	4,078	3,040	7,118	7,807	2,906	10,713	27.7	31.2	14.1	27.0	8,457	3.45	46
18 — Services	12,741	16,461	5,482	21,943	14,436	6,634	21,070	22,550	6,342	28,882	19.2	24.9	21.8	34.1	18,458	7.53	46
19 — Transportation	3,283	5,654	1,522	7,176	2,796	1,841	4,637	3,438	1,760	5,198	21.6	37.3	18.4	22.7	6,123	2.09	46
20 — Trade	16,417	11,218	17,430	28,648	6,472	21,082	27,564	7,892	20,164	28,056	39.1	26.7	15.4	18.8	58,685	23.94	46
Total	68,500	71,969	72,805	144,774	40,572	88,102	128,255	60,061	84,226	144,287	16.7	25.0	16.7	25.0	245,133	100.00	46.03

SOURCES: Tables A.4, A.5 and A.9.

Table A.11

Matrix (S75) of the Relative Proportion of the Income Intended for Consumption in the Total of Production (GOV), by Income Class — 1975

Sectors	Income Classes				Total
	k = 1 (up to two MSMP)	k = 2 (two to five MSMP)	k = 3 (five to 10 MSMP)	k = 4 (10 and + MSMP)	
1 — Agriculture	0.0875	0.1370	0.0965	0.0923	0.4133
2 — Mineral Extraction	0.0288	0.0989	0.1057	0.1167	0.3501
3 — Non-Metallic Minerals	0.0381	0.0931	0.0899	0.0945	0.3156
4 — Metals	0.0130	0.0647	0.0600	0.0620	0.1997
5 — Machinery	0.0180	0.0924	0.0018	0.0974	0.2996
6 — Electrical Equipment	0.0141	0.0682	0.0737	0.0849	0.2409
7 — Transportation Equipment	0.0058	0.0478	0.0502	0.0520	0.1558
8 — Wood and Furniture	0.0366	0.1102	0.0690	0.0694	0.2852
9 — Paper and Cardboard	0.0161	0.0645	0.0630	0.0720	0.2165
10 — Rubber, Leather and Plastics	0.0257	0.0684	0.0700	0.0702	0.2343
11 — Chemicals	0.0030	0.0447	0.0492	0.0547	0.1516
12 — Perfumery and Pharmaceuticals	0.0037	0.0820	0.0903	0.1076	0.2926
13 — Textile and Clothing	0.0369	0.0600	0.0553	0.0591	0.2122
14 — Food, Drinks and Tobacco	0.0202	0.0520	0.0473	0.0512	0.1707
15 — Editorial and Miscellaneous	0.0244	0.0978	0.1050	0.1117	0.3389
16 — Electrical Energy	0.0086	0.1423	0.1525	0.1910	0.4954
17 — Civil Construction	0.0611	0.0880	0.0543	0.0818	0.2852
18 — Services	0.0898	0.1546	0.1484	0.2035	0.5963
19 — Transportation	0.0748	0.1638	0.1057	0.1185	0.4626
20 — Trade	0.0813	0.1419	0.1366	0.1390	0.4988
Ratio consumed income GVP	0.046	0.098	0.087	0.007	0.328

SOURCES: Tables A.9 and A.10.

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The dynamics of wages and prices in the Brazilian economy: 1966/81 *

Eduardo M. Modiano **

1 — Introduction

Until recently, Brazilian inflation was usually analyzed through the model of the Phillips curve, which postulated a direct relation between inflation and the level of economic activity. The apparently favorable results of Lemgruber (1973 and 1974) and of Contador (1977) for the Phillips curve model, where idle capacity appeared as the predominant factor in the determination of the rate of inflation, in the short-run justified the necessity of recessive policies for success in the fight against inflation.

The loss of credibility in the traditional estimates of the Phillips curve for the explanation of Brazilian inflation may be attributed to the deficient predictions obtained with these models for the most recent period, characterized by the inflationary acceleration of 1979/80 and by the persistent inflation of 1981/82. In this same period, there appears an alternative line of analysis

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of inflation in the literature. Through a model which explicitly focuses on the possible effects of wage policy and of external shocks, Lara Resende and Lopes (1981) contested the time-honored trade-off of the Phillips curve. Camargo and Landau (1983), in an alternative model incorporating some of the structural and institutional characteristics of the formation of wages and prices in the economy, suggested even the possibility of the existence of an inverse relation between inflation and the level of activity.

This article hopes to reconcile these two visions through the use of a model, composed of a block of equations, which distinguishes the determination of wages from the determination of industrial and agricultural prices in the Brazilian economy. In this manner, the question of the relation between inflation and the level of activity reappears in its original form, that is, through the determination of nominal wages. It becomes possible, therefore, to analyze separately the effects of a recession on wage increases and on the transmission of costs to prices. These questions have usually been examined together in the discussions about the Phillips curve for Brazil. In addition, the possible effects of structural and/or institutional shocks, which characterize the more recent specifications of the formation of prices through costs, are incorporated in the analysis of inflation.

The renewed interest in the existence of a direct relation between inflation and the level of activity in the Brazilian economy has its origins in the recent experience with changes in the wage policy, simultaneously with the political liberalization and the sharpening of conflicts. The ineffectiveness of the instruments of pure and simple wage repression justifies a more detailed investigation of the effects of a recession on inflation.

Following this introduction, in Section 2, a theoretical model for the determination of wages and prices in an economy with institutional and structural characteristics like the Brazilian one is developed. The theoretical model is then estimated econometrically in Section 3, with annual data referring to the period 1966/81, where the results obtained are then compared both with the Phillips curve and with the more recent estimates in the literature about the formation of industrial prices. In Section 4

alternative specifications of the theoretical model are considered for the purpose of evaluating both the robustness of the results obtained and the usefulness of some of the basic hypotheses. Finally, in Section 5 the work is concluded.

2 — The model for determination of wages and prices

The dynamics of the inflationary process in the Brazilian economy are analyzed by means of a model of simultaneous determination of nominal wages, industrial prices and an aggregate price index. The interdependence of the determination of wages and prices in the economy comes from the hypothesis that the nominal salaries prevailing in the economy result as much from a process of bargaining between employees and employers as from the application of wage policies. Thus, the compulsory rules of wage policies, in existence since 1964, partially link the readjustments of wages to the present and past variations in the price levels. Since the remuneration of labor is an element of variable cost for the industrial sector with oligopolistic characteristics, the variations in nominal wages are reflected in variations in industrial prices. Given that industrial products represent a significant part of the basket of consumption of workers, increases in industrial prices result in the elevation of the aggregate level of prices. The increase in the level of prevailing prices is then partially passed on to wages through wage readjustments, completing, in this manner, the cycle of simultaneous determination of wages and prices in the economy.

It is initially supposed that the process of wage indexing may be adequately represented by the formula of Lopes and Bacha (1983), which establishes that:

$$W = v P^{\alpha_1} P_{-1}^{\alpha_2} \quad (1)$$

$$\alpha_1 + \alpha_2 = 1$$

where W is the average nominal wage, P an aggregate index of nominal prices, P_{-1} the index of prices from the previous period, and v the real wage desired by the workers. The parameters α_1 and α_2 denote the degree of transmission to wages of the

inflation of prices past and present, respectively.¹ The hypothesis that the desired wage, which corresponds to the peak real wage at the time of readjustment, would coincide with the average real wage effectively received by the workers in the case of the stabilization of prices requires that $\alpha_1 + \alpha_2 = 1$.

Supposing that the degree of transmission to wages of the variations in the aggregate index of prices remains constant, equation (1) may be expressed in terms of rates of change thus:

$$\begin{aligned}\hat{W} &= \hat{v} + \alpha_1 \hat{P} + \alpha_2 \hat{P}_{-1} \\ \alpha_1 + \alpha_2 &= 1\end{aligned}\quad (2)$$

The real wage desired by the workers is determined through wage negotiations. The result of the bargaining between employers and employees is represented in simplified form, in terms of rate of change, by:

$$\begin{aligned}\hat{v} &= \alpha_0 + \alpha_3 (\gamma^p - \gamma) \\ \alpha_3 &< 0\end{aligned}\quad (3)$$

where $(\gamma^p - \gamma)$ denotes the idle capacity, measured by the difference between the natural logarithms of the potential output γ^p and the effective output γ .

Equation (3) may be deduced by way of the two basic equations:

$$\begin{aligned}u - \bar{u} &= b_1 (\gamma^p - \gamma) \\ b_1 &> 0\end{aligned}\quad (4)$$

and:

$$\begin{aligned}\hat{v} &= a_0 + a_1 (u - \bar{u}) \\ a_1 &< 0\end{aligned}\quad (5)$$

¹ In the model of Lopes and Bacha (1988) the parameters α_1 and α_2 are determined institutionally in function merely of the periodicity of the readjustments. The econometric estimates obtained with a relatively short annual series of wages, presented in Subsection 4.3, do not support this hypothesis in the case of the transition from annual to semestral readjustments, which occurred in 1979.

The first equation is Okun's Law, which associates the deviations in the rate of unemployment u , in relation to the natural rate of unemployment \bar{u} to the unused capacity. The second relations shows that the desired wage grows with the bargaining power of the workers, which is greater the lower is the level of unemployment in the economy ($a_1 < 0$). The parameter a_0 corresponds to the rate of wage drift, which way be attributed as much to economic factors, such as the tendency for productivity growth, as to non-economic factors, such as the growth in Power of the unions and to the political liberalization. Substituting (4) into (5), one obtains, with $\alpha_0 = a_0$ and $\alpha_3 = a_1 b_1$ equation (3).

The rate of growth of the average nominal wage of the economy is then given by the combination of (2) and (3), that is:

$$\begin{aligned} \hat{W} &= \alpha_0 + \alpha_1 \hat{P} + \alpha_2 \hat{P}_{-1} + \alpha_3 (y^p - y) & (6) \\ \alpha_1 + \alpha_2 &= 1 \quad \text{e} \quad \alpha_3 < 0 \end{aligned}$$

Consider now that industrial prices are formed by a mark-up over variable costs according to:

$$P_I = z \left[\frac{W}{q_L} + \frac{P_M}{q_M} \right] \quad (7)$$

where P_I denotes the industrial price, z the mark-up factor, q_L the productivity of labor, P_M the price of the raw material and q_M the equivalent of the productivity of the raw material, that is, the inverse of the coefficient of utilization of the raw material per unit of final product.

Supposing z and q_M to be constants,² then equation (7) may be expressed in terms of rates of change as:

$$\begin{aligned} \hat{P}_I &= \beta_1 [\hat{W} - \hat{q}_L] + \beta_2 \hat{P}_M & (8) \\ \beta_1 + \beta_2 &= 1 \end{aligned}$$

² The hypothesis of a factor of constant mark-up is relaxed in Subsection 4.2.

The parameters β_1 and β_2 denote, respectively, the shares belonging to labor and to raw materials in the variable cost of the industrial sector. Given that the remunerations to labor and to raw materials exhaust the variable sectoral cost, it must be that $\beta_1 + \beta_2 = 1$.

Suppose further, for the stylized economy of only two sectors, that the aggregate price index which serve as a basis for wage readjustments, is given by:

$$P = P_I^{\lambda_1} P_A^{\lambda_2} \quad (9)$$

$$\lambda_1 + \lambda_2 = 1$$

where P_A denotes the price of the agricultural product. Then equation (9), expressed in terms of rate of change, is equivalent to:

$$\dot{P} = \lambda_1 \dot{P}_I + \lambda_2 \dot{P}_A \quad (10)$$

$$\lambda_1 + \lambda_2 = 1$$

where λ_1 and λ_2 represent the shares of income devoted to the consumption of industrial and agricultural products, respectively. Supposing that the consumption of industrial and agricultural products exhausts income, it must be that $\lambda_1 = \lambda_2 = 1$.

Equations (6), (8) and (10) constitute the basic model of determination of wages and prices in the economy. In this formulation it is supposed that the prices of raw materials and of agricultural prices are predetermined variables or are exogenous. The justification for such a supposition is based on the observation that these prices were, in the decade of the 70, subject to violent supply shocks, both exogenous and endogenous, and were the object of specific controls and subsidies.

Estimates of the structural parameters of the model may be obtained through the simultaneous estimation of the three equations. In order to isolate the effect of the exogenous variables on the average wage, industrial prices, and the aggregate index

of prices, the system of structural equations may be solved for three variables, thus obtaining the reduced form:

$$\begin{aligned} \hat{W} = & \frac{\alpha_0}{\Delta} + \frac{\alpha_2}{\Delta} \hat{P}_{-1} + \frac{\alpha_3}{\Delta} (y^p - y) - \\ & - \frac{\alpha_1 \beta_1 \lambda_1}{\Delta} \hat{q}_L + \frac{\alpha_1 \beta_2 \lambda_1}{\Delta} \hat{P}_M + \frac{\alpha_1 \lambda_2}{\Delta} \hat{P}_A \end{aligned} \quad (11)$$

$$\begin{aligned} \hat{P}_I = & \frac{\alpha_0 \beta_1}{\Delta} + \frac{\alpha_2 \beta_1}{\Delta} \hat{P}_{-1} + \frac{\alpha_3 \beta_1}{\Delta} (y^p - y) - \\ & - \frac{\beta_1}{\Delta} \hat{q}_L + \frac{\beta_2}{\Delta} \hat{P}_M + \frac{\alpha_1 \beta_1 \lambda_2}{\Delta} \hat{P}_A \end{aligned} \quad (12)$$

$$\begin{aligned} \hat{P} = & \frac{\alpha_0 \beta_1 \lambda_1}{\Delta} + \frac{\alpha_2 \beta_1 \lambda_1}{\Delta} \hat{P}_{-1} + \frac{\alpha_3 \beta_1 \lambda_1}{\Delta} (y^p - y) - \\ & - \frac{\beta_1 \lambda_1}{\Delta} \hat{q}_L + \frac{\beta_2 \lambda_1}{\Delta} \hat{P}_M + \frac{\lambda_2}{\Delta} \hat{P}_A \end{aligned} \quad (13)$$

Since $\Delta = 1 - \alpha_1 \beta_1 \lambda_1$ is a positive parameter, given that α_1 , β_1 and λ_1 are less than unity, the expected signs for the coefficients of the reduced form have the pattern of Table 1.

Table 1

Signs of the Reduced Form Coefficients

Endogenous	Variables				
	Predetermined				
	\hat{P}_{-1}	$(y^p - y)$	\hat{q}_L	\hat{P}_M	\hat{P}_A
\hat{W}	+	-	-	+	+
\hat{P}_I	+	-	-	+	+
\hat{P}	+	-	-	+	+

3 — The econometrics of the inflationary process

The results of the econometric estimation of the model for determination of wages and prices in the Brazilian economy, from Section 2, composed of equations (6), (8) and (10), are presented in Table 2. The series of annual data utilized and their respective source are listed in the Appendix.³ The period 1966/81, which includes only 16 observations, was selected due to the limited availability of compatible annual data for the indices of the average annual wage and of the personnel employed in the industry of transformation.⁴

Two methods were utilized in the estimation of structural parameters for the model in order to compare the results:

- a) ordinary least squares, which must be considered inadequate, due to the simultaneous nature of the model; and
- b) two-stages least squares, which corresponds to a special case of estimation by instrumental variables.

Although, according to Table 2, the estimates for the parameters generated by the two methods do not show significant differences, we will concentrate our analysis on the results obtained by the method of two-stages, least squares due to the property of consistency of these estimators. The principal restriction on the utilization of this second method refers to the inefficiency of the estimates of the structural parameters in superidentified equations, which is the case in Equations (6), (8)

³ The index of wholesale prices according to the concept of domestic supply (IPA-DI) is employed as a proxy for the National Index of Consumer Prices (INPC), whose structure of the destiny of income is like the definition of the aggregate index of prices (9), due to the reduced number of annual observations of the INPC.

⁴ Gross errors have been committed in the linking of annual series of salaries and industrial employment, due to the combination of observations resulting from research with different census coverages. Musalem (1982), for example, utilized a series in which the index of personnel employed in the industry of transformation increases at the absurd rates of 1.0, 28.7, -15.5, 29.6 and 12.9% in the years 1969, 1970, 1971, 1973 and 1976, respectively. Similar distortions are found for the evolution of the series of average wages.

and (10), which compose the simultaneous model ⁵ of determination of wages and prices.

With respect to Table 2, it may be observed that all of the explaining variables have the expected signs and the coefficients are statistically significant to the level of 5%. For the wages, the results with respect to equation (6.2), in Part a of the table, allow the conclusion that the inflation of prices, measured by the IPA-DI, is integrally passed on to the wages in two periods, given that the values for the coefficients α_1 and α_2 add up to unity. Approximately half of the current inflation ($\alpha_1 = 0.535$) is passed on to the wages of the industrial sector in the same period. Note that the estimated coefficient for transmission coincide with the theoretical values obtained by Lopes and Bacha (1983) for a policy of wage readjustments with annual periodicity, which predominates in the period of the example.

The coefficient of unused capacity is significant, though relatively small. Thus, *ceteris paribus*, a rise of 10 percent in the idle capacity of the industry reduces the rate of growth of the average wage of the industrial sector by 3.36 percent per year.

The cost of labor, according to the results obtained with equation (8.2), in Part b of the table, corresponds approximately to 43% of the variable costs of the industrial sector ($\beta_1 = 0.433$). Raw material is, according to the same table, the element of cost greatest weight in the rise of industrial prices observed in the period ($\beta_2 = 0.588$). The industrial prices, for their turn, are responsible for approximately 75% of the rise in the aggregate price index ($\lambda_1 = 0.750$), in accordance with the results presented in Part c of the table for equation (10.2). ⁶ A reduced share

⁵ It may be observed that the necessary condition for the identification of the structural parameters is more than satisfied for three equations of the model.

⁶ It may be observed that the share of 75% of the industrial price in the aggregate index of prices corresponds to the direct participation of the industrial sector plus the share of the service sector characterized by rigidity of prices. The comparison of this value with the share of the agricultural, industrial and services sectors in the composition of the GNP reinforces the degree of rigidity of the rate of inflation demand controls.

Table 2
Econometric Estimates — 1966/81

a — average salary: \hat{W}

	Endogenous \hat{P}	Predetermined		
		Constant	\hat{P}_{-1}	$(y^p - y)$
Equation (6.1)				
$R^2 = 0.99$	0.526	0.111	0.464	-0.373
$DW = 2.04$	(10.012)	(7.567)	(6.845)	(-3.700)
$SE = 0.026$				
Equation (6.2)				
$R^2 = 0.99$	0.535	0.110	0.453	-0.363
$DW = 2.07$	(10.057)	(7.498)	(6.613)	(-3.583)
$SE = 0.027$				

b — industrial prices: \hat{P}_I

	Endogenous $\hat{W} - \hat{q}_L$	Predetermined \hat{P}_M
Equation (8.1)		
$R^2 = 0.99$	0.441	0.579
$DW = 1.82$	(6.299)	(7.877)
$SE = 0.029$		
Equation (8.2)		
$R^2 = 0.99$	0.433	0.588
$DW = 1.83$	(6.050)	(7.830)
$SE = 0.029$		

c — aggregate index of prices: \hat{P}

	Endogenous \hat{P}_I	Predetermined \hat{P}_A
Equation (10.1)		
$R^2 = 0.99$	0.731	0.291
$DW = 1.09$	(9.467)	(4.050)
$SE = 0.025$		
Equation (10.2)		
$R^2 = 0.99$	0.750	0.273
$DW = 1.13$	(9.253)	(3.624)
$SE = 0.025$		

NOTE: The values between parentheses are the *t*-statistics; equations (6.1), (8.1) and (10.1) were estimated by the method of ordinary least squares and equations (6.2), (8.2) and (10.2) by the method of instrumental variables, using as instruments all the predetermined variables of the model.

of the rise in prices ($\lambda_2 = 0.273$), may be attributed (directly and indirectly) to the rise in agricultural prices, also according to Part *c* of Table 2.

Solving the system of Equations (6), (8) and (10) with the values for the structural parameters of Table 2, one obtains the coefficients of the reduced form of the model, presented in Table 3.

Table 3
Coefficients of the Reduced Form

Endogenous	Variables					
	Predetermined					
	Constant	\hat{P}_{-1}	$(y^p - y)$	\hat{q}_L	\hat{P}_M	\hat{P}_A
\hat{W}	0.133	0.548	-0.439	-0.211	0.286	0.177
\hat{P}_I	0.058	0.237	-0.190	-0.524	0.712	0.076
\hat{P}	0.044	0.178	-0.143	-0.393	0.534	0.331

It may be observed that the direct and indirect effect of the idle capacity upon salaries is slightly superior to the estimate of α_3 obtained in Part *a* of Table 2. This occurs because a rise in idle capacity, upon reducing the average sectoral wage, provokes a fall in the cost of labor in the industry. The reduction of the variable cost, when reflected in industrial prices, tends to soften the current inflation, which is partially passed on to the salaries. To the direct impact of the idle capacity, estimated as -0.363 , is added the indirect effect of -0.076 , which results in a coefficient in the reduced form of -0.439 .

The impact of a variation in the idle capacity of the economy on prices in the reduced form is inferior to its effect on wages. This result may be attributed to the specification of the model, in which wages are responsible for only a share of the variable

cost of the industrial sector ($\beta_1 = 0.433$). On the other hand, the industrial prices have a large share, but do not form the entire aggregate index of prices for the economy ($\lambda_1 = 0.750$). Thus, for a reduction in the rate of growth of wages of 4.39 percentage points, due to a rise in the unused capacity of 10 percentage points, there corresponds a decline of 1.9 and 1.43 percentage points in the rates of inflation of industrial prices and of the aggregate price index, respectively. This suggests that, in the actual level of Brazilian inflation of roughly 100% p.a., policies of containment of aggregate demand which generate recession and unemployment in the industrial sector would be practically useless as measures to combat inflation.

The relatively small coefficients for the rate of lagged inflation, calculated as 0.273 and 0.178 for the industrial prices and for the aggregate index of prices, respectively, refer exclusively to the implicit inertia in the wage readjustments. For the calculation of the global inertia of the rate of inflation, there must be added to these values the coefficients of past inflation which may perhaps explain the current evolution of other predetermined variables, such as the prices of raw materials and of agricultural products. It is worth further noting in Table 3 that the sum of the coefficients of the rate of lagged inflation and the rates of the variation of the prices of raw materials and of agricultural products is approximately unity, as would be expected from Equations (11), (12) and (13).

The results of the estimation of the simultaneous model of determination of wages and prices summed up in Tables 2 and 3 denote a certain "deflationary pessimism", in contrast with the "deflationary optimism" characterized by the traditional estimates of the Phillips curve by Lemgruber (1973 and 1974) and Contador (1977), where the coefficient of the idle capacity in the equation of prices assumes values in the interval of -0.6 to -1 , as well as with the "deflationary nihilism" suggested by the analysis of Lara Resende and Lopes (1981), which denies the existence of an inverse relation between inflation and the idle capacity.

With respect to the traditional estimates of the Phillips curve, Lopes (1982) observed that the pattern of errors of the regression is substantial and that the estimate of the coefficient of the idle capacity is sensitive to the definition of the sample. The noted loss of adherence in the recent episode of inflationary acceleration is attributed to the omission of the effects of the external shocks and of the compulsory indexation of wages. In this sense, the model of Lara Resende and Lopes (1981) would represent a more appropriate specification for the structural and institutional characteristics of the Brazilian economy. That being so, the instability of its coefficients in the analysis of a longer period, pointed out by Contador (1982), and the possible endogeneity of some of the exogenous variables, such as the minimum wage, later suggested by Lopes (1982), constitute some of the deficient aspects of this last model.

Taking as a basis these criticisms, the results obtained with the simultaneous model may be considered superior in terms of all of the measures of adherence (R — squared, standard error and Durbin-Watson statistics), of the significance of the estimated coefficients (t — statistics) and of robustness. Furthermore, the deficiencies pointed out in the conventional econometric analysis were eliminated in a manner even more explicit than in Lara Resende and Lopes (1981), through the estimation of structural equations for wages and prices which incorporated elements of external and internal shocks (agricultural and raw materials prices) and of the wage policy.

The question of endogeneity *versus* the predetermination or exogeneity of some of the explaining variables may also put under suspicion some of the conclusions which the estimation of the structural equations (6), (8) and (10) which make up the simultaneous model, allows. For a better understanding of this point, it may be considered that both the prices of raw materials as well as of agricultural products may be expressed as:

$$\begin{aligned} \bar{P}_i &= \delta \bar{P} + (1 - \delta) \bar{P}_{-1} + \varepsilon_i & (14) \\ 0 &\leq \delta \leq 1 \\ i &= M, A \end{aligned}$$

where $(1 - \delta)$ denotes the degree of inertia of these prices and s_t the variables of exogenous shocks. A plausible justification for equation (14) is based on the hypothesis that, as in the example of the model of wage readjustments of Lopes and Bacha (1983), the producers of raw materials and the farmers readjust their prices periodically.

Substituting (14) in (13) and observing the restrictions of unitary addition of the coefficients, one obtains an alternative reduced form for the price equation:

$$\hat{P} = \frac{\alpha_0 \beta_1 \lambda_1}{\Delta'} + P_{-1} + \frac{\alpha_3 \beta_1 \lambda_1}{\Delta'} (y^p - y) - \frac{\beta_1 \lambda_1}{\Delta'} \hat{q}_L + \frac{\beta_2 \lambda_1}{\Delta'} s_M + \frac{\lambda_2}{\Delta'} s_A \quad (13')$$

where $\Delta' = \Delta - \delta (1 - \beta_1 \lambda_1)$. It may be verified that with the omission of the shock variables s_M , and s_A and of the rate of growth of productivity \hat{q}_L , one obtains the specification for the price equation which characterizes the traditional estimates of the Phillips curve. It is then obvious that, if (13') represents the correct model, the existence of negative correlation, even if spurious, between the omitted shock variables and idle capacity tends to bias the estimate of the coefficient of this last variable in the direction of the results of Lemgruber (1973, 1974) and Contador (1977).

It is further observed in Equation (13') that the coefficient of idle capacity is greater the lesser is the inertia of the agricultural and raw material prices. In the case of perfect inertia ($\delta = 0$), which is consistent with the premise of predetermination of these prices discussed previously, the coefficient of the idle capacity, already calculated in Table 3, is approximately 0.14. On the other extreme, the inexistence of inertia ($\delta = 1$) would imply a coefficient for the idle capacity equal to $\alpha_3 / (1 - \alpha_1)$. Supposing for α_3 and α_1 the values of -0.35 and 0.5 , respectively, one obtains an amplification of the effect of the unused capacity of the economy on the level of prices on the order of 400% for a value around -0.7 . This value for the coefficient of the

unused capacity, which in this case represents an upper limit, may also be considered inexpressive *vis-à-vis* the actual level of Brazilian inflation.

4 — Extensions of the basic model

In this section some modifications and extensions of the basic model of Section 2, illustrating the robustness of the results obtained, are analyzed.

4.1 — Analysis of the most recent period

Despite the existence of a wage policy in the Brazilian economy since 1965, it is known that wage indexation did not perfectly accompanied the evolution of the cost of living at least until 1968. In a recent article, Lopes and Lara Resende (1982) demonstrated that the indiscriminate inclusion of this period (1965/68), characterized by a deflationary shock induced by the imperfection in the wage policy, tends to introduce a bias in the coefficient of idle capacity in the traditional estimates of the Phillips curve. To escape from this difficulty a reduced sample is then used, which covers only the years 1969/81, a period in which it appears reasonable to accept that the wage indexation may have been nearly perfect.

The remark mentioned above justifies the elimination of the period 1965/68 for an analysis of the robustness of the results obtained with econometric estimates of the evolution of wages and of prices. An econometric reestimation of the simultaneous model composed by equations (6), (8) and (10) for the period 1969/81 was then undertaken, despite the reduced number of degrees of freedom remaining. The results are presented in Table 4.

The comparison of Tables 2 and 4 suggests that the estimations of the structural coefficients are not significantly different. Despite the fact that the regression of the wage equation for the period 1969/81 presents an estimate of lower statistical significance for the coefficient of unused capacity (the *t*-statistic is -2.747 , in contrast with the value of -3.700 for the

whole period), one still rejects the hypothesis of a null coefficient to the level of significance of 5%.

Table 4

Econometric Estimates — 1966/81

a — average wages: \hat{W}

	Explanatory Variables			
	Endogenous	Predetermined		
	\hat{P}	Constant	\hat{P}_{-1}	$(y^e - y)$
Equation (6)				
$R^2 = 0.99$	0.521	0.108	0.472	-0.329
DW = 1.56	(10.409)	(7.765)	(7.228)	(-2.747)
SE = 0.024				

b — industrial prices: \hat{P}_I

	Explanatory Variables	
	Endogenous	Predetermined
	$\hat{W} - \hat{q}_L$	\hat{P}_M
Equation (8)		
$R^2 = 0.99$	0.405	0.615
DW = 1.74	(4.685)	(6.825)
SE = 0.031		

c — aggregate index of prices: \hat{P}

	Explanatory Variables	
	Endogenous	Predetermined
	\hat{P}_I	\hat{P}_A
Equation (10)		
$R^2 = 1.00$	0.865	0.164
DW = 1.73	(15.388)	(3.161)
SE = 0.015		

NOTE: The values between parentheses are the *t*-statistics; equations (6), (8) and (10) were estimated by the method of instrumental variables, using as instruments all the predetermined variables of the simultaneous model.

4.2 - The hypothesis of a flexible mark-up

In the derivation of the equation for industrial prices (8) of Section 2, the mark-up factor ($\bar{z} = 0$) was considered constant. Supposing that the mark-up factor could be variable, equation (8) must be rewritten as:

$$\hat{P}_I = \bar{z} + \beta_1 [\hat{W} - \hat{q}_L] + \beta_2 \hat{P}_M \quad (15)$$

$$\beta_1 + \beta_2 = 1$$

If one admits that the mark-up factor, similar to wages, responds to variations in aggregate demand, then one has:

$$\bar{z} = \beta_0 + \beta_3 (y^p - y) \quad (16)$$

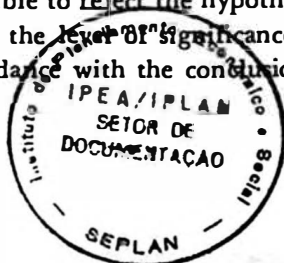
Substituting (16) in (15), one obtains an alternative specification for the equation of industrial prices, which is:

$$\hat{P}_I = \beta_0 + \beta_1 [\hat{W} - \hat{q}] + \beta_2 \hat{P}_M + \beta_3 (y^p - y) \quad (8')$$

$$\beta_1 + \beta_2 = 1$$

The hypothesis to be tested in (8') is that the coefficient of the unused capacity might be null ($\beta_3 = 0$). The alternative hypothesis ($\beta_3 \neq 0$) admits the possibilities of a variation of the mark-up for the industrial sector, as much procyclic ($\beta_3 < 0$) as anticyclic ($\beta_3 > 0$). With such a proposition, equation (8') was estimated both by the method of least squares (with and without correction for serial correlation) and by the method of instrumental variables. The results of the econometric estimation are summarized in Table 5.

Although, as in the example of the results of Camargo and Landau (1983), the sign of the estimated coefficient of the idle capacity in Table 5 may be positive, which would suggest an anticyclic mark-up, it is not possible to reject the hypothesis that the coefficient might be null at the level of significance of 5%. This result seems to be in accordance with the conclusions of



Gordon (1977), Nordhaus (1972), and Hall (1980), where, apart from possible effects through wages, the fluctuations of aggregate demand have little or no effect on the level of prices.

Table 5

Industrial Prices with a Flexible Mark-Up — 1966/81

	Explanatory Variables			
	Endogenous	Predetermined		
	$\hat{W} - \hat{q}_L$	Constant	$(y^p - y)$	\hat{P}_M
Equation (8'.1)				
R^2 — 0.99	0.474	—0.032	0.110	0.585
DW — 2.64	(6.911)	(—2.000)	(1.264)	(8.488)
SE — 0.027				
Equation (8'.2)				
R^2 — 0.99	0.447	—0.034	0.110	0.620
DW — 2.13	(6.195)	(—2.921)	(1.657)	(8.726)
SE — 0.025				
Equation (8'.3)				
R^2 — 0.99	0.467	—6.031	0.110	0.592
DW — 3.64	(6.643)	(—1.970)	(1.261)	(8.416)
SE — 0.027				

NOTE: The values between parentheses are *t*-statistics; equations (8'.1) and (8'.2) were estimated by the method of ordinary least squares and with correction for serial correlation of residuals, respectively, and equation (8'.3) was estimated by the method of instrumental variables, using as instruments all the predetermined variables of the simultaneous model.

4.3 — The change in periodicity of wage readjustments

The equation for the evolution of the average wages of the industrial sector (2) was derived from (1) by supposing that the transmission to wages of the variations of the aggregate index of prices was maintained unchanged. According to Lopes and Bacha (1983), on the other hand, the coefficient of transmission would be a purely institutional parameter determined by the

periodicity of the readjustments, fixed by the wage policy. Theoretically, with the transition from annual wage readjustments to semestral ones, which occurred in October 1979, the value of the coefficient α_1 would grow from 0.50 to 0.75. The test of this hypothesis is the principal objective of this subsection.

Supposing that the coefficients of transmission the average wages of the current and past variation of the price index might be variable, and observing the restriction of unitary addition of these coefficients, equation (1) may be expressed in terms of rates of change as:

$$\hat{W} = \hat{v} + \alpha_1 \hat{P} + (1 - \alpha_1) \hat{P}_{-1} + \hat{\alpha}_1 \alpha_1 \log \left(\frac{P}{P_{-1}} \right) \quad (2')$$

With the rise in frequency of the wage readjustments, the last term of equation (2') must assume a positive value for the year 1979. From that time on, there would be a permanent change in the slope of the curve.

Table 6 presents the results of the economic estimation of the modified equation for wages (6'), which results from the substitution of equation (3) in (2'). The three additional dummy variables representing modifications which were utilized were respectively:

- a) for the slope of the curve from 1980;
- b) for the 1979 intercept, when α_1 theoretically would assume a positive value; and
- c) for the 1980 intercept, admitting the possibility of a lagged effect of the change in periodicity.

In Table 6, for the coefficient of the change of the slope, there may be observed a sign contrary to that expected, and a nonsignificant value at the level of 5% in all of the regressions. Consequently, it is not possible to reject the hypothesis that the parameter of wage indexation may have remained unaltered after 1979. With respect to a possible shock resulting from the change in periodicity in 1979, it may be verified that, although the sign of the coefficient of the dummy variable for this year may

be correct, the estimated values are not significant at the level of 5% in either of the years (1979 or 1980).

Table 6

Change in Periodicity of Wage Readjustments — 1966/81

	Explanatory Variables					
	$\hat{\beta}$	Constant	\hat{P}_{-1}	$(y^p - y)$	Dummies	
					$\hat{\beta} - \hat{\beta}_{-1}$	1979
Equation (6'.1)						
$R^2 = 0.99$	0.610	0.105	0.384	-0.321	-0.098	
DW = 2.19	(5.280)	(6.282)	(3.244)	(-2.667)	(-0.819)	
SE = 0.027						
Equation (6'.2)						
$R^2 = 0.99$	0.524	0.110	0.462	-0.374		0.023
DW = 1.66	(9.178)	(7.220)	(6.191)	(-3.546)		(0.771)
SE = 0.028						
Equation (6'.3)						
$R^2 = 0.90$	0.601	0.106	0.390	-0.326		-0.047
DW = 2.16	(5.299)	(6.569)	(3.243)	(-2.711)		(-0.749)
SE = 0.027						
Equation (6'.4)						
$R^2 = 0.99$	0.577	0.106	0.415	-0.335	-0.065	0.014
DW = 2.18	(3.971)	(6.021)	(2.854)	(-2.573)	(-0.429)	(0.396)
SE = 0.028						
Equation (6'.5)						
$R^2 = 0.99$	0.644	0.088	0.405	-0.309	-1.598	0.776
DW = 2.35	(5.244)	(3.472)	(3.324)	(-2.520)	(-0.947)	(0.891)
SE = 0.027						

NOTE: The values in parentheses are the *t*-statistics; equations (6) were estimated by the method of simple least squares.

Despite the small number of observations for the post-periodicity-change period (1980/81), the results above permit the questioning of the utilization, in empirical work, of the theoretical formula representative of the process of wage indexation of Lopes and Bacha (1983). With respect to the alteration of the slope of the equation of wages in the biennium 1980/81, apparently the hypothesis of the constancy of the rate of inflation and the approximations of the first order necessary for its

derivation tend to overestimate the permanent impact on the parameter of wage indexation of a rise in the periodicity of the adjustments. With respect to the change in the intercept attributed to a shock in 1979 or 1980 as a result of the change in periodicity, although the above considerations remain valid, the result obtained would be less conclusive if one admits the possibility of the occurrence in these years of some other simultaneous and neutralizing shock. Cunha (1982), for example, suggests that a fall in the wages desired by the workers, rising since 1978, would have neutralized the effect of the shock of the change of periodicity.

4.4 – Productivity variation and wages

For the specification of equation (6), it was supposed in (5) that the evolution of average wages did not depend on short term fluctuations in labor productivity. The hypothesis that the evolution of wages might be linked only to the trend of productivity growth justified, with other motives, the inclusion of a constant in equation (5). In this subsection, the question of the relation between productivity and wages is explored in greater detail.

It is considered now that the bargaining power of the workers is simultaneously greater, the greater is the growth in productivity, and the lower the level of unemployment in the economy. In this case, equation (5) is expressed in terms of rate of change, as:

$$\begin{aligned} \dot{w} &= a_0 + a_1 (u - \bar{u}) + a_2 q_L & (5') \\ a_1 &< 0 \text{ e } a_2 > 0 \end{aligned}$$

Substituting (4) in (5') and then the result in (2), one obtains a modified version of the equation for wages (6), given as:

$$\begin{aligned} \hat{W} &= \alpha_0 + \alpha_1 \hat{P} + \alpha_2 \hat{P}_{-1} + \alpha_3 (y^p - y) + \alpha_4 \hat{q}_L & (6'') \\ \alpha_1 + \alpha_2 &= 1, \alpha_3 < 0 \text{ e } \alpha_4 > 0 \end{aligned}$$

The results of economic estimation of the relation (6'') for the period 1966/81 are presented in Table 7. In contrast with the results of Table 2, it may be observed that the inclusion of the rate of growth of productivity reduces the significance of the constant of the equation (whose t-statistic falls from 7.57 to 3.41) without significantly altering its value, which may be explained by the relative constancy of this variable in the period. The inclusion of the rate of growth of productivity introduces an element of colinearity in the data. Although the sign of the estimated coefficient may be correct, its value is not significant at the level of 5%. Therefore, it is not possible to reject the hypothesis that the fluctuations in productivity may be irrelevant for the determination of the rate of growth of the average wages in the industrial sector.

The elimination of the constant of the equation, for its part, generates, for the rate of growth of productivity, a coefficient which has the expected sign, is significant and cannot be statistically distinguished from the theoretical unitary value. In this case, it is not possible to reject the hypothesis that the growth of productivity may be integrally passed on to the wages. In any case, it may be observed that the statistics of adjustment

Table 7

The Passing-On of Productivity to Wages — 1966/81

	Explanatory Variables				
	Endogenous	Predetermined			
		\hat{P}	Constant	\hat{P}_{-1}	$(y^p - y)$
Equation (5'' .1)					
$R^2 = 0.99$	0.635	0.093	0.472	-0.406	0.254
DW = 1.93	(9.857)	(3.411)	(6.340)	(-3.434)	(0.742)
SE = 0.027					
Equation (0'' .2)					
$R^2 = 0.98$	0.590		0.512	-0.437	1.207
DW = 1.60	(7.778)		(5.120)	(-2.678)	(4.609)
SE = 0.038					

NOTE: The values between parentheses are the t-statistics; equations (6'') were estimated by the method of instrumental variables, using as instruments all the predetermined variables of the correspondent simultaneous model.

(*R*-squared, Durbin-Watson statistic and error standard of the regression) of this last regression are qualitatively inferior to those obtained with the original specification.

The above observations suggest, therefore, that the association of the evolution of wages to the trend of productivity growth, through equation (6), with the short term fluctuations being absorbed by variations in costs for the industrial sector according to equation (8), is an adequate representation of the dynamics of wages and prices in the Brazilian economy for the period in question.

5 – Conclusion

In Section 2 a theoretical model was presented for the dynamics of wages and prices, incorporating institutional and structural aspects which characterize the Brazilian economy. The principal characteristic of this theoretical model is the simultaneity of determination of wages and prices in the economy inherent in the process of wages indexation specified by the legislation in force. It is admitted that wages, partially indexed, could respond to cyclical variations in aggregate demand. It is considered also that the industrial sector operates with a fixed mark-up above variable costs, which includes raw materials as well as labor. The index of prices which serves as a basis for the wage readjustments consists, for its part, of a combination of industrial and agricultural prices.

In Section 3, in contrast with the existing literature, the theoretical model was estimated in its structural form, utilizing the empirical evidence for the Brazilian economy for the period 1966/81. In the process of estimation, the prices of raw materials and of agricultural products were considered predetermined variables. This hypothesis concerning exogeneity was based on the observation that these prices were subject, in the period, to violent supply shocks and to specific policies of control and subsidy.

In contrast to the traditional estimates of the Phillips curve, as well as to more recent estimates about the formation of industrial prices for the Brazilian economy, the results obtained

suggest a "deflationary pessimism". Although the direct estimation of an equation for the evolution of the average wages of the industrial sector may have generated a coefficient for the idle capacity with the correct sign and statistically significant, its magnitude is considerably inferior to that claimed by the traditional estimates. The relevance of recessive policies in the combat of inflation, given the actual inflationary level of the Brazilian economy, may therefore be disputed.

It is concluded also, that raw materials are responsible for a substantial portion of the variable costs of the industrial sector and are passed on to industrial prices through a fixed mark-up. The variations of industrial prices, for their part, constitute the largest share in the mark-up of the aggregate index of prices.

Following that, in Section 4, alternative specifications were analyzed and a more recent period was utilized. It was demonstrated that the inclusion of the period 1966/68, characterized by a deflationary shock resulting from the imperfect indexation of wages, does not modify the results obtained for the entire period. The econometric reestimation of the simultaneous model for the reduced period, which includes only the years 1969/81, generates statistically identical estimates of the coefficients.

Considering also the alternative of a flexible mark-up for the industrial sector, it is demonstrated that, despite the anticyclic sign, the empirical evidence does not support the existence of a variation of the mark-up, whether procyclical or anticyclical. It was not possible to reject the original hypothesis of a constant mark-up for industry. The possibility that the transition from annual readjustments to semestral ones in 1979 may have provoked both a significant modification in the parameter of indexation and a shock in the evolution of wages was also analyzed. It was observed that this hypothesis also is not supported by the empirical evidence of the period.

Finally, through a more complete model, the question of the relation between the rate of growth of productivity to wages was analyzed. It was concluded that the evolution of wages in the period does not depend on the fluctuations of productivity,

absorbed as variations of opposite sign in the cost of labor in the industrial sector. This result supports the basic hypothesis of the theoretical model that the evolution of wages in the economy is linked to a measure of the trend of productivity growth.

Appendix:

Table A.1

	Index of Manpower Employed in Industry (1)	Index of Real Output of the Industrial Sector (2)	Index of Produc- tivity of Manpower Employed in Industry (3)	Index of Real Output (Real GNP) (4)	Real Idle Capacity (Real GNP) (5)
1966	89.5	69.2	77.3	71.7	0.2130
1967	88.0	71.3	81.0	75.2	0.2295
1968	93.6	80.8	86.4	83.6	0.2015
1969	97.5	90.6	92.9	91.0	0.1809
1970	100.0	100.0	100.0	100.0	0.1681
1971	104.6	114.3	109.3	113.3	0.1210
1972	109.9	129.6	117.9	126.6	0.0833
1973	119.7	150.1	125.4	144.2	0.0263
1974	129.3	164.9	127.5	158.3	0.0025
1975	129.8	175.2	135.0	167.3	0.0165
1976	135.9	193.9	142.7	182.3	0.0000
1977	137.3	201.4	146.6	190.8	0.0235
1978	140.3	217.8	155.3	202.3	0.0344
1979	145.1	232.7	160.4	215.3	0.0414
1980	149.4	251.3	168.2	232.5	0.0345
1981	137.8	230.2	167.1	224.4	0.1309

SOURCES: (1): 1966/69 = *Produção Industrial*, publication of IBGE/DEICOM;

1969/70 = *Indústria de Transformação*, quarterly research of IBGE/DEICOM;

1970/71 = *Boletim Econômico*, publication of IPEA; 1971/81 = *Indicadores Conjunturais da Indústria*, monthly research by IBGE/DESDE.

(2): and (4): *Conjuntura Econômica*, various numbers.

(3): Constructed by the author by dividing the index of column (2) by that of column (1) and multiplying the result by 100.

(5): Constructed by the author from the log linear trend of the series of real output in column (4).

Table A.2

	Index of Average Annual Wage of Manpower Employed in Industry (1)	Index of the Cost of Labor (2)	Index of Wholesale Prices of Raw Materials (Non-Food) (3)	Index of Wholesale Prices of Industrial Products (Total Supply) (4)	Index of Wholesale Prices of Agricultural Products (Total Supply) (5)	Index of Wholesale Prices (Domestic Supply) (6)
1966	37	48	41	43	44	45
1967	48	64	52	55	55	57
1968	63	73	68	71	64	70
1969	79	85	79	86	78	84
1970	100	100	100	100	100	100
1971	124	113	116	117	125	121
1972	156	132	133	136	153	143
1973	193	154	152	156	182	165
1974	252	198	206	202	236	213
1975	256	264	271	262	293	272
1976	523	367	364	357	466	382
1977	785	535	490	497	696	537
1978	1,182	761	630	673	992	746
1979	1,875	1,169	965	1,047	1,550	1,159
1980	3,601	2,141	1,993	2,133	3,293	2,425
1981	7,768	4,649	3,964	4,470	6,732	5,166

SOURCES: (1): 1966/69 = *Produção Industrial*, publication of IBGE/DEICOM; 1969/70 = *Indústria de Transformação*, trimestral research by IBGE/DEICOM; 1970/71 = *Boletim Econômico*, publication of IPEA; 1971/81 = *Indicadores Conjunturais da Indústria*, monthly research by IBGE/DESDE.

(2): Constructed by the author by dividing the index of column (1) by that of column (1) of Table A.1 and multiplying the result by 100.

(3): through (6): *Conjuntura Econômica*; various numbers.

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Employment and income in urban “small-scale production” in Brazil *

Paulo Renato Souza **

1 — Introduction

The purpose of the present article is to analyze the proportion of “small-scale production” in urban employment in Brazil, and to discuss some aspects that are central to the process of income determination for those so employed. Before proceeding, it is important to clarify the nature of the concept referred to as “small-scale production”. We use the term to encompass a universe of economic entities which are characterized by not being “typically capitalist”, despite their insertion in a society whose dominant mode of production is capitalism.

The basic characteristic which distinguish the non-typically capitalist forms from the rest are related to the type of production relationships which may be observed within such forms. In the first place, we may classify in this group those firms where permanent wage-earning work does not exist: here we have self-employed workers who may, or may not, count on family help. In the second place, we have the small businesses where, even with permanent wage-earning work, the owner of the means of production is not completely separated from directly productive

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tasks, that is, tasks connected with the principal activity of the firm or business.¹

Unfortunately we cannot focus right from the start on the central theme of this article — the analysis of the principal peculiarities of the Brazilian situation — without first trying, briefly, to sum up the main aspects of our interpretation of the dynamics of the labor market with regard to employment and income in urban small-scale production.²

In the following section we will attempt to sketch out, briefly, two theoretical interpretations of the manner in which small-scale production fits into the urban economy. First, we will analyze the simultaneous processes by which jobs and incomes are determined in small-scale production. We then will attempt to systematize some aspects revealed in the previous analysis in order to try and formulate a typology of production on non-typically capitalist lines in cities.

The analysis of the Brazilian case is also divided into two parts. In the first, we will attempt to reproduce the principal characteristics of the evolution of urban employment during the post-war period, using general data derived from the 1960-70 period and partial information pertaining to the seventies. The second part seeks to analyze in detail the structure of employment and income in cities with more than 50,000 inhabitants in 1970, adopting the typology defined in the previous section, and utilizing a special tabulation of the Census³ for that year. In some cases it was possible to compare the results obtained

¹ As always happens when we apply some effort to an attempt at classification or systematization, the "gray areas" are considerable. We are not concerned with these; on the contrary, our intention is to map out the essential features of the phenomena which we hope to explain. As may be appreciated, our universe of analysis also has much in common with the already "traditional" concept of the "informal sector".

² This summary contains aspects which were analyzed in more detail in the author's doctoral thesis presented at UNICAMP (Souza (1980), esp. Chaps. II, III and IV).

³ This tabulation was graciously lent by INPES/IPEA, of the Secretariat of Planning of the Presidency of the Republic, to whom we express our thanks.

with figures from the National Study of Family Expenditures (ENDEF) of 1974. The problem of working with figures from past years is less important than may appear at first sight, since we are trying to detect structural characteristics of urban small-scale production which ought to be observable during a process of industrialization such as that experienced by the Brazilian economy in the last 30 years.

The article's conclusions emphasize the essentially heterogeneous character of small-scale production within the urban universe of Brazil, especially with respect to the incomes received in each type of city and in comparison with income levels of wage earners in related occupations.

These conclusions permit one to regard the contribution of employment as minor, to a certain extent, in explaining the model of Brazilian development in the last few decades, which has excluded the majority of the population from the benefits of growth.

2 — Small-scale production in capitalist accumulation

2.1 — Accumulation and structure of employment

We may define the "economic space" of an economy or of any country as equivalent to the total volume of its productions of goods and services. Some of this production goes on the market and the rest is produced by those who will consume it. The production of the market is realized by economic units of different kinds, from typically capitalist enterprises to ordinary self-employed workers.

Capitalist accumulation does not merely depend on the existence of a significantly large and concentrated market to allow a high degree of division of labor, but also promotes the expansion of the market in self-reinforcing mercantilism. If we started from a theoretical situation with the supply for a particular market provided exclusively by simple mercantile (non-typically capitalist) enterprises, we would have a gradual evolution in which the typically capitalist forms of organization would

penetrate and expand that market, and expel the preexisting entrepreneurial forms from it. Penetration of typically capitalist forms of organization in the different markets is an inexorable process and may — or may not — be associated with a higher degree of “economic efficiency” in microeconomic terms. The typically capitalist enterprise often destroys the small-scale production sector although its products are of lower quality and its microeconomic “productivity” is also inferior. In such cases, the penetration of the capitalist enterprise is justified by its economic power and, consequently, by its capacity to dominate the market.

This does not mean that the economic space of the small-scale production sector tends to disappear during the process of capitalist development of every economy. On the contrary, this space may even grow in absolute terms. In some activities, small-scale production is destroyed by penetration of capitalist enterprises: small grocery stores and small retail outlets have their “economic space” taken over by the supermarkets; even so, these same small businesses have a chance to reproduce themselves in new neighborhoods in the city where the market is not yet sufficiently concentrated to allow the setting up to typically capitalist businesses. In the same way, the appearance of some more modern industries such as the electrical appliance or the automobile industry tends to create new spaces for the reproduction of small family businesses in the retailing, repair, licensing, etc. of this type of products. Other times, the expansion of large organizations presupposes the organic linking of small businesses which are formally independent.⁴

In the context detailed here, we may therefore affirm that as the truly capitalist nucleus of an economy expands, it creates, destroys and recreates the economic spaces in which non-typically

⁴ Thus, for example, the large restaurant chains in the United States maintain subcontracts with a large number of small businessmen, who form a part of the chain along with the establishments which belong directly to the economic group concerned; likewise, many agrobusinesses (tobacco, sugar, etc.) are tied to a large number of small rural farmers who provide them with basic inputs.

capitalist small-scale production acts. It is in this sense, also, that we may say that the economic spaces of small-scale production are totally determined by the capitalist nucleus. This signifies that small-scale production does not have the capacity to generate its own economic space in an economy in which capital is already dominant.

From the point of view of employment we must likewise consider all the people as a whole connected with the production of goods or services which can be traded in a market. This brings us close to the modern concept of "Economically Active Population", which includes all employees, employers who administer their own businesses, and people employed in non-typically capitalist organizations, including those who produce goods for their own consumption.

While capital accumulation is developing jointly with the growing participation of capitalist businesses in the "economic space", its relative importance is also growing in total employment. Labor, which was originally employed in the non-typically capitalist forms of production, is gradually being freed from its functions, owing to the destruction of its market by capitalist penetration, and needs, therefore, to find a different mode of subsistence. If it is possible to reproduce small-scale production in another area or another urban or rural activity, the labor shifted as a result of capitalist penetration will try to recreate its earlier mode of life. Such reproduction is often not possible (at least not immediately), either because the destruction of small-scale production has reached the point of expropriating the means of production, or because of the lack of sufficient knowledge to change from one activity to another. In such cases, the destruction of small-scale production immediately signifies the proletarianization of this labor which must work for wages to gain its subsistence.

The capitalist nucleus of an economy satisfies its needs for labor by incorporating the workers forced out of small-scale production, and by incorporating the new workers resulting from the natural growth of the urban labor force. The rate of this absorption will depend on the rate of growth of output and on

the production method used, which imposes certain coefficients of labor required. Throughout the development of capitalism, the competition between the factors of production has led to growing concentration, to the growth of the organic composition of capital and to the lessening of the labor required per unit of output.

Sometimes, as the result of a high rate of population growth and of the rapid destruction of the space occupied by rural and urban small-scale production, the rate of growth of the "supply" of labor is so rapid that the capitalist nucleus of the economy does not need to go on employing the accumulated stock of all who have suffered the proletarianization process. In such cases, the workers released or not absorbed, will have to struggle for survival in the spaces reserved for simple mercantile small-scale production.⁵ In this case, they will leave the work force and go on to become part of non-typically capitalist employment.

In summary, the penetration of economic space by the typically capitalist forms of organization and the relative weight of these forms in total employment are ruled by completely different laws and there is no reason why they should be in harmony. The only general law which relates the two movements is that capital can never reproduce itself if it cannot count on the necessary labor. That is, the "supply" of workers — a product of the destruction of the non-typically capitalist forms and of the growth of population — must always be above a certain minimum. But there is nothing to guarantee that the "production of the labor force" — or the growth of "supply" — might not be greatly superior to the needs of the capitalist nucleus. If this happens, the labor left over tends to "return" to non-typically capitalist production, in order to ensure its subsistence. The space in which it will act is also determined by the capitalist nucleus, but there is no guarantee that that space will be sufficient

⁵ The processes of migration and incorporation of workers into urban activities in Brazil seem to follow a sequence of more or less the following order: migrants in general enter civil construction and later — when they have already managed to "find themselves" in the urban world — try their luck in an independent activity or in small-scale production.

to provide an "adequate" income level for those employed there. If the relationship between the two dimensions is "adequate", the income level will be high; if it is not, it will condemn a large part of this mass of people to poverty.⁶

An important consequence of this is that such activities must show a high "degree of ease of entry" for new "producers", particularly in the light of the prevailing situation in the capitalist nucleus. This being the case, the average output of simple mercantile activities is the variable which adjusts the size of their economic space to the number of producers who guarantee their survival by acting in this fringe of the market.⁷ In the case of self-employed producers, the average product coincides with the average income; in the case of businesses which use wage-earning labor, but lack the typical characteristics of capitalist businesses, the average output includes both the income of the owners and the wages of the employees.

This formulation makes it possible to consider problems of the low incomes of those employed in small-scale mercantile production, resulting particularly from an inadequate relation between the size of the economic space in which they act and their occupational dimensions. The essential condition for output to be the adjustment variable between the two dimensions is the degree to which it is easy, for new producers to enter the various non-typically capitalist activities. This degree, even so, is not the same for all those activities. In fact, we may distinguish diverse segments which differ for various reasons, among them being the degree to which they facilitate access. We continue with an attempt at a systematic classification of those activities, showing their basic characteristics.

⁶ The economic space of small-scale production is something like a sponge. The quantity of water contained is variable and corresponds to the occupational dimension of non-typically capitalist production. In the second part of this chapter we will return to this point to examine the conditions which determine the level of income in the various forms of non-typically capitalist organization.

⁷ This idea has been developed in other articles by the author. See specifically Souza and Tokman (1976).

2.2 – A typology of non-capitalist organizations

We will attempt to systematize a number of concepts which may help us to construct a typology of the non-typically capitalist organizations in the backward economies of the twentieth century, keeping in mind the situation of countries like those in Latin America, especially the more developed ones. Specialization of the forms of small-scale mercantile production has significant consequences for the incomes which each type of organization can provide for those employed in it. We may separate these organizations initially into two large groups: those where permanent wage-earning does not exist (there may be occasional examples of wage-earning), and those which may be characterized as quasi-capitalist, where permanent wage-earning exists, but family labor is also important and/or the “boss” is not detached from the actual productive tasks.⁸

3 – Forms of simple mercantile organizations without permanent wage-earning

3.1 – Family businesses

In the first place we must consider the small “businesses” or the self-employed workers (excluding, for obvious reasons, independent *liberal professionals*), who may be considered “efficient and productive” in filling the economic spaces made available by the capitalist nucleus. They are essentially concentrated in small settled businesses, in small enterprises (e.g. bakeries, tailor shops, lumberyards), in auto repair shops, etc.

Their “efficiency and productiveness” derive from their use of a certain amount of equipment and installations or from the fact of their access to non-competitive markets. In fact, these economic units generally make use of some production goods

⁸ We mean here by “productive tasks” those linked to the production of the goods or services in which each business or economic unit is engaged. We exclude from this concept, therefore, the administrative tasks connected solely with the running of the businesses.

purchased with earlier "savings" or resulting from the operation of the business itself. In addition, such businesses have access to markets protected from the competition of other "simple mercantile" units. Therefore, indiscriminate entry of new producers, which would lead to a fall in the average production per business and in employees' incomes, is not possible. The protection of that market results from its atomization, from its clientelistic policy, from its personal relations, etc., which are fairly well-known phenomena not only in economic literature but also as a matter of "common sense".

3.2 – Subordinate self-employed workers

A broad segment of workers in non-agricultural activities is made of individuals who are formally self-employed, but in fact produce or perform services for a single business or capital venture. This represents a special form of wage-earning and submission of workers which businesses of all sizes and degrees of modernity utilize to lower certain labor costs. The case of seamstresses who work at home for a certain factory making previously cut out garments, or the case of street vendors of certain brands of products (ice creams, soft drinks, snacks) who receive a "commission" per unit sold, are two good examples of this form of organization.

The entry of new "producers" does not present problems as serious as those that occur in the case of family businesses, which tend to depress the income of those employed there, whether by reason of a lower wage rate paid by the businesses, or by reason of a smaller volume of operations for each worker. The average income, therefore, tends to be the adjustment variable between the economic space which belongs to this activity and the number of persons who have to subsist in it.

3.3 – Small-scale service suppliers

In the third non-capitalist segment there is an immense range of self-employed workers who are neither protected by the amount of equipment which they use or by the reserved share of the market in which they operate, nor subordinated to a single source

of capital. The majority of the “odd-job workers”, street vendors, shoe shiners, car-park attendants, etc. are probably to be included in this category. There may often be some tie with capital by way of the interest paid to money-lenders who finance their operations, but this subordination is not linked to the individual’s main activity. The entry of new producers is even freer than in the earlier case and more rightly so; therefore, the average income is the adjustment variable between a given market (reserved for this type of production by the economic system) and the number of persons who resort to these occupations in order to survive.

3.4 – Domestic service

Domestic service constitutes a very special case within the labor market. Formally, we are in the presence of wage-earners, but there is no subordination to capital. Services are performed for a non-economic unit, the family. The “economic unit” in this case, is the worker herself who sells her services, and who can, for purposes of classification, be counted with other self-employed workers.

The conditions for “ease of entry” of new “producers” into this market are very broad in general terms. In fact, in most cases, this is the activity in which migrants of the female sex first enter the urban labor market. The tendency toward the establishment of personal relationships, however, is very strong, which makes it impossible to speak of a competitive market with a single wage rate in effect for domestic help as a whole.

3.5 – Quasi-capitalist businesses

Quasi-capitalist businesses constitute a special group of economic units whose behavior is similar, in various respects, to that of family businesses, with the difference that they permanently use wage-earning labor. Frequently the owner himself is involved in the productive process and his entrepreneurial behavior cannot be exactly compared with that of capitalist businesses properly speaking. The similarities with family businesses, on the other

hand, are enormous. The "rate of profit" is not the key variable in the functioning of these businesses; much more important is the level of the owner's total return on his investment. In general, their place in the market is also interstitial, real competition with other forms of capital being non-existent.

The wage-paying relationship, in these cases, has some peculiarities worthy of mention. There is a tendency for relations to be non-legally formalized, just as factors like schedules, length of working days, etc., are not rigidly laid down. The scale of operations, in general, is sufficient to guarantee the owner an "adequate" level of earnings, but not necessarily enough for the wage-earning labor to be remunerated in accordance with the legislation in force ⁹

Great instability and job-switching of labor must be regarded as characteristic of this labor market.

The entry of "new producers" seems to present difficulties as great as in the case of the family businesses, for the same reasons mentioned. Therefore, one cannot speak of the "average product" of these businesses as the "variable of adjustment" of this market between the volume of operations and the number of producers.

4 — The case of Brazil

4.1 — Industrialization and generation of jobs in small-scale production in Brazil in the post-war era ¹⁰

During the central period of Brazilian industrialization and particularly at the end of the sixties, Latin American social

⁹ This makes one suppose that a good number of the employees with wages less than the minimum who appear in demographic censuses and household research may be employed in these businesses. (The rest would be made up of minors and women with a schedule of part-time work in all sorts of establishments)

¹⁰ The data with which we are working in the present section are part of the *Report of Research on the labor market in Brazil*. Mimeo. DEPE/UNICAMP, 1980. The tables which we include here present only the part of the information which seems to us most interesting. This article includes some data extracted directly from the report.

scientists lived through a time of great apprehension and discussion about the excluding and concentrating character of the process of industrialization in Latin America in general and Brazil in particular. In occupational terms, the available indicators showed clearly that "urban marginality" had grown noticeably as a proportion of the population of the cities. This occurred precisely in the period in which, in accordance with ECLA's theoretical model, the absorption of industrial labor should have been most rapid; it was further expected that there would be a decline in the weak rate of generation of jobs in industry, concomitantly with the evolution of the process [ECLA (1966) Pinto (1965) and Vuskovic (1970)]. In addition, there was clearly a sharp spatial concentration of the population, which in all the countries – except Brazil – tended to seek their means of livelihood in the capitals, given the absence of other occupational alternatives in the agricultural zones and in the small towns. At the beginning of the seventies, on the other hand, criticism of ECLA's dualist model tried to demonstrate that the "swelling" of the tertiary sector, in occupational terms, would not be an "anomaly" of the system, but would have a certain logic about it, seeing that the growth of non-capitalist employment in service activities in the peripheral regions would be quite important from the point of view of the accumulation of capital (Oliveira, 1976).

We can now "travel back" to the period in question, with more certainty than we could with the more or less sparse information then available, especially with regard to the behavior of the sixties. Our conclusions do not diminish the gravity of the problems of marginality, misery and poverty (the "excluding" character of the model of development), pointed out in the analyses referred to. But its direct and exclusive link with the low rate of incorporation of labor into "modern" activities is slightly impaired on the evidence now available. In the same way, the criticism by Oliveira (1976), based on the idea of the dichotomy between a national "center" and a "periphery" in which the former would have created the "good" jobs and the latter been responsible for allowing the survival of the excluded,

through a great expansion of "marginal" jobs, is not supported by the information available. On the contrary, the "center" — São Paulo, in the case of Brazil — seems to have created both the "good" as well as the "bad" jobs at a much higher rate than the other regions. Despite this, we will see in the second part of this section that the standards of living allowed by these "marginal" jobs differ very greatly among the various regions of the country.

So that we can deal with the enormous complexity of the themes to be analyzed, we will use the available information by making three different analytic cuts. In the first we have the regional aspect, in which we contrast the overall figures referring to the country with the evolution of six of its states: São Paulo, Rio de Janeiro, Minas Gerais, Rio Grande do Sul, Bahia and Pernambuco. Taken together, these represent, during the period analyzed, about two thirds of total non-agricultural employment in Brazil, and have heavy "specific weight" in the definitions of the overall tendencies. In addition, we have here the two economically most important states, two states of "intermediate development" and two which belong to the "heart" of the national "periphery".

The second cut refers to the sectoral dimension of employment in terms of the activities to be considered. We adopt the traditional classification which puts non-agricultural employment into the secondary sector, and civil construction into the tertiary sector. This sector is subdivided into business, services, transport, communications and warehousing, private social activities, public employment and the liberal professions.¹¹

The third cut, finally, is the most innovative and complex. In it we will deal with problems analyzed in the earlier section with reference to the creation, destruction and re-creation of

¹¹ Public employment includes the public social services. Details of the methodological steps followed in the process of adjustment between the censuses may be found in the Report of Research on the Labor Market in Brazil, DEPE, UNICAMP, 1980.

"non-typically capitalist" job opportunities throughout the process of industrialization. A first approach to the theme is made possible by a dichotomic cut between "capitalist" and "non-capitalist" employment. In contrast to the others, the measurement of this is difficult, making it often necessary to fall back on "heroic" hypotheses. Making use of these we may be able to measure two universes which, roughly speaking, ought to correspond to the above-mentioned concepts.¹²

4.1.1 – General tendencies of the growth of employment

Total employment in Brazil grew at the substantial rate of 2.7% per year in the period from 1950 to 1970. The rapid process of rural-urban migration may be appreciated by the difference between the rates of growth of agricultural employment (1.2% per year between 1950 and 1970) and of non-agricultural employment (4.3% per year in the same period), as shown in Table 1.

¹² The first criterion adopted was of the type of activity *vis-à-vis* the predominant characteristic of the forms of organization which formed it. Using this criterion, we define as belonging to "organized" employment activities such as banks, transport, industrial services of public utility, public employment, private social activities and the liberal professions. In the same way we consider that domestic helpers and street vendors belong to "non-organized" employment. In the case of industry, established trade, services and civil construction, we are confronted with the difficulty of separating capitalist employment from the rest. We opted for the solution of regarding "organized" employment — in the first three cases — as what was recognized as such in the economic censuses; and "non-organized" as the difference between the employment according to the demographic and the economic censuses for each activity. The hypothesis is that this difference must correspond to employment in establishments unregistered in the above-mentioned activities. In the case of civil construction there was no possible solution and we have had to regard it as a separate category, not belonging to "organized" or "non-organized" employment. A detailed description of the methodology employed may also be found in the *Report of Research on the labor market in Brazil*. Mimeo. DEPE/UNICAMP, 1980.

Table 1

*Brazil: Annual Rates of Growth of Employment in Certain States
by Economic Sectors 1950/70*

(Percentages)

States	Total Employment			Agricultural Employment			Non-Agricultural Employment								
	1950/60	1960/70	1950/70	1950/60	1960/70	1950/70	Total*			Secondary Sector			Tertiary Sector		
							1950/60	1960/70	1950/70	1950/60	1960/70	1950/70	1950/60	1960/70	1950/70
São Paulo	2.5	3.5	3.0	-0.1	-1.2	-0.7	4.2	5.2	4.7	2.7	6.0	4.3	4.9	4.9	4.9
Rio de Janeiro	2.1	3.0	2.5	-0.7	-1.8	-1.3	2.7	3.6	3.2	0.3	4.3	2.3	3.3	3.3	3.3
Minas Gerais	2.1	1.5	1.8	0.9	-0.2	0.4	4.3	3.6	4.0	1.4	4.2	3.1	4.9	3.5	4.2
Rio Grande do Sul	2.3	2.5	2.4	1.4	0.9	1.2	3.6	4.2	3.9	1.2	5.9	3.5	4.2	3.7	4.0
Bahia	2.4	1.6	2.0	2.0	0.7	1.4	3.4	3.5	3.4	1.6	3.4	2.5	4.1	3.2	3.6
Pernambuco	1.4	1.2	1.3	0.7	-0.5	0.1	2.5	3.6	3.0	-0.5	3.2	1.4	3.5	3.5	3.5
Subtotal 6 States	2.2	2.5	2.3	0.8	-0.1	0.3	3.6	4.3	4.0	1.7	5.2	-3.4	4.3	3.9	4.1
Other States	3.7	2.9	3.3	3.1	1.5	2.3	5.3	5.7	5.5	2.8	5.2	4.0	5.8	5.9	5.9
Total Brazil	2.7	2.6	2.7	1.8	0.6	1.2	3.7	4.8	4.3	1.9	5.2	3.6	4.6	4.5	4.5

SOURCE: DEPE/UNICAMP, Report of Research on the Labor Market in Brazil. Original data from the Economic and Demographic Censuses of Brazil.

* Total includes civil construction, excluded from the secondary sector.

From the regional point of view, there are two very clear tendencies. In terms dynamism of growth, the six states considered show a drop in their overall share of total employment, but the state of São Paulo manages to gain a slightly higher share as a result of its high urban employment growth rate. This signifies that the other states (the less populated and/or less "developed" ones in 1950) raised their share in total employment from 32% to 37%; this tendency is observable both in the area of agricultural and non-agricultural employment.

These numbers suggest a type of growth of employment, especially urban, which is both "polarized" and decentralized at the same time. The greatest dynamism was in São Paulo and in the regions of more recent settlement. This relatively decentralized pattern of growth of non-agricultural employment was probably related to the accelerated expansion of the medium-sized cities. In fact, on the subject of the more general process of urbanization, Faria (1976) showed that the number of cities with more than 20,000 inhabitants increased from 85 to 270 between 1950 and 1970, while the share of São Paulo and Rio de Janeiro in the urban population fell from 42% to 28% over the same years. The proportions of "organized" and "non-organized" employment in the non-agricultural total remained unaltered between 1950 and 1970, the former at 63% and the latter at 27%; civil construction was responsible for the remaining 10% (see Table 2). Even so, this unchanging pattern conceals important changes within the activities and examples mentioned, as we will see later.

The same unchanging pattern may be observed in all of the states considered, with the exception of Rio de Janeiro and Bahia. In the first case, the proportion of "non-organized" employment rises, probably owing to various factors, such as fall in industrial production and the fact that it no longer exercised important administrative functions at federal level. On the other hand, it is also true that the city of Rio de Janeiro continues to house a substantial medium and upper income population and continues to be the most important tourist center in the country, which tends to maintain and increase job

Table 2

*Brazil: Structure of Non-Agricultural Employment According to
"Organized" and "Non-Organized" Strata 1950, 1960, 1970*

(Percentages *)

States	Organized Employment			Non-Organized Employment			Civil Construction		
	1950	1960	1970	1950	1960	1970	1950	1960	1970
São Paulo	66	69	66	25	22	25	9	10	10
Rio de Janeiro	67	66	64	23	24	25	10	10	11
Minas Gerais	56	52	55	33	35	33	11	12	12
Rio Grande do Sul	70	66	70	22	24	21	8	10	10
Bahia	46	48	50	40	39	35	14	13	15
Pernambuco	60	56	60	33	35	30	8	9	10
Brazil	63	61	63	27	28	27	10	11	11

SOURCE: DEPE/UNICAMP, *Program of Research on the Labor Market in Brazil*. Original data from the Economic and Demographic Censuses of Brazil.

*Totals may not equal 100% due to rounding of figures.

opportunities for a series of independent producers of goods and services.

In Bahia, on the other hand, it is "organized" employment which shows a proportional increase. The causes of this process may be identified in the industrial dynamism of the state — Bahia is the northeastern state with the highest industrial growth, much of it generated by Petrobrás and Sudene — and in the considerable rate of growth of public employment, especially in the "social services".

Analysis by decades shows that "non-organized" employment expanded at a striking rate in São Paulo during the sixties, which may be associated with an acceleration in the migratory process beginning in the peripheral zones, especially those of "older" settlement. This conclusion is suggested to us by the impossibility of explaining the phenomenon as the result of "debility" in the growth of opportunities for "organized" employment. In fact, such opportunities grew at the high rate of 4.8% per year, while the "non-organized" employment did so at 6.6% per year, between 1960 and 1970. This fact adequately illustrates the discrepancy between our conclusions and the analyses which presuppose that it is the peripheral regions which are largely responsible for the expansion of "non-organized" employment.¹³

During the seventies, employment in "modern" activities continued to show great dynamism, judging by the partial information available. Table 3 shows some indicators of the growth of industrial employment in the most "developed" region of the country, from which it is possible to appreciate the high rate of expansion in the number of employed during the early years of the decade. In the final years the economic deceleration led to slow growth of industrial employment. These indicators

¹³ We are, however, able to point out that in 1960 there was a certain underestimate of "non-organized" employment in São Paulo, and this may be able to explain part of such a high rate of growth. What is certain is that the dynamism of this type of employment was as high as that of the others between 1950 and 1970, as may be deduced from its constant proportion in the total.

allow us to predict that the data from the 1980 census will certainly confirm, in general terms, what occurred during the twenty years leading up to 1970: greatly expanded employment in the more modern activities of the cities, along with an increase in employment in urban "small-scale production". In any case, the numbers for the growth of industrial employment also allow us to predict a probable decline in the proportion of non-typically capitalist production in the total of non-agricultural employment in 1980.

Table 3

Brazil: Indicators of the Dynamism of Employment in the "Modern" Activities in the Decade of the 70s

(Percentage rates of annual growth)

Rates of Annual Growth	
<hr/>	
Industrial Employment in Establishments With 5 or More Employees 1970/74*	
Brazil	8.4
State of São Paulo	8.8
Total Industrial Employment 1970/76**	
State of São Paulo	8.6
Industrial Employment in the Metropolitan Area of São Paulo (monthly average)***	
1971/74	9.2
1974/78	2.6
1971/78	5.6

*SOURCE: IBGE, *Industrial Census, 1970 and Industrial Research, 1974.*

**SOURCE: *Demographic Census and PNAD, 1976.*

***SOURCE: Federation of Industries of the State of São Paulo.

4.1.2 The expansion of non-organized employment in tertiary activities

In the period for which the information is most complete (1950/70), several important aspects of the evolution of employment in the small-scale production of tertiary activities need to be emphasized.

In Retail Merchandising, employment rose at the same rate as urban labor. Within this activity, the rates of growth of "organized" and "non-organized" employment were almost identical, which suggests that the capitalization of this activity and the "horizontal" extension of the commercial outlets may have occurred at the same time (see Table 4). This last phenomenon is linked to the process of the growing "mercantilization" of the traditional economy in the peripheral regions.

The process of capitalization of "organized" commerce may be shown by the drop in the proportion of employers and self-employed workers (42% to 28% of the total between 1950 and 1970) and the growth in the number of employees (50% to 62%; see Table 5). This process occurred only in the more "developed" states (São Paulo, Rio de Janeiro and Rio Grande do Sul). In Bahia and Pernambuco the Table 5 data quite clearly show the "reproduction" of small commercial establishments.

In contrast with the previous table, Table 4 allows one to appreciate that the number of self-employed workers, street peddlers and street market vendors grew at very high rates during the period. What is most striking is that this expansion was most rapid in São Paulo.

The evolution of the so-called "services" can fairly be compared to that of the other activities (see Table 6). Expansion was more rapid in Rio de Janeiro and São Paulo than in the other states considered or in the rest of Brazil because the centers of higher income demand more services than the poorer ones. "Horizontal" expansion of the less-skilled services did not, therefore, occur in the peripheral regions.

Table 4

*Brazil: Annual Rates of Growth of Employment in Businesses
According to "Organized" and "Non-Organized" Strata and
According to Certain Occupational Categories 1950/70*

(Percentages)

States	Total Business			"Organized" Business			"Non-Organized" Business			Self-Employed Workers			Street Vendors and Market Sellers		
	1950/60	1960/70	1950/70	1950/60	1960/70	1950/70	1950/60	1960/70	1950/70	1950/60	1960/70	1950/70	1950/60	1960/70	1950/70
São Paulo	5.1	5.3	5.2	4.3	5.9	5.1	6.5	1.1	3.8	7.1	5.0	6.0	9.6	2.8	6.1
Rio de Janeiro	3.6	3.6	3.6	0.8	5.1	2.8	10.1	-1.2	3.9	6.2	2.9	4.5	6.5	0.2	3.3
Minas Gerais	5.1	3.4	4.2	3.0	5.0	4.0	8.0	0.2	4.5	6.2	2.2	4.2	9.6	0.6	5.0
Rio Grande do Sul	4.3	4.2	4.3	2.3	6.7	4.5	10.6	-11.7	-0.5	5.6	3.1	4.3	9.1	1.4	5.2
Bahia	3.3	4.7	4.0	3.4	5.4	4.4	2.2	2.2	2.2	4.8	4.5	4.6	4.3	2.7	3.5
Pernambuco	2.9	2.6	2.8	2.5	6.4	4.4	3.7	-7.7	-2.2	3.2	3.4	3.3	3.6	3.3	3.4
Brazil	4.6	4.8	4.7	3.2	6.2	4.7	7.4	-0.2	3.5	5.9	4.3	5.1	7.6	2.3	4.9

SOURCE: DEPE/UNICAMP. Report of Research on the Labor Market in Brazil. Original data from the Economic and Demographic Censuses of Brazil.

Table 5

*Brazil: Percentage Structure of Employment in "Organized" Business
According to Occupational Categories 1950 and 1970*

(Percentages)

States	Employers and Self-Employed Workers		Employees		Family Workers	
	1950	1970	1950	1970	1950	1970
São Paulo	37.4	18.9	57.0	76.2	5.6	4.8
Rio de Janeiro	29.4	13.3	67.5	84.4	3.1	2.3
Minas Gerais	50.4	30.1	40.2	61.5	9.3	8.3
Rio Grande do Sul	39.0	24.5	49.0	66.8	12.0	8.7
Bahia	51.9	44.1	41.2	40.7	6.9	15.2
Pernambuco	45.3	41.8	45.3	40.0	9.3	18.2
Brazil	42.2	28.8	49.9	62.1	7.9	9.0

SOURCE: DEPE/UNICAMP *Program of Research on the Labor Market in Brazil.*
Original data from the Economic and Demographic Censuses of Brazil.

In occupational terms, domestic service was responsible in 1970 for 60% of the total employment in the "non-organized services" and its growth was considerable specifically in the large urban centers — in São Paulo, it was actually at the rate of 6.4% between 1950 and 1970. It was not only domestic employment which grew in São Paulo; the other "non-organized services" did so as well at the high rate of 5.2% per year, much higher, therefore, than that for the other states.

Table 6

*Brazil: Annual Rates of Growth of Employment in Services
— 1950/70*

(Percentages)

States	Total Employment in "Organized Services"			Total Employment in "Non-Organized Services"			Domestic Service		
	1950/60	1960/70	1950/70	1950/60	1960/70	1950/70	1950/60	1960/70	1950/70
São Paulo	3.6	3.1	3.2	4.7	5.6	5.2	5.4	7.5	6.4
Rio de Janeiro	0.1	3.6	1.8	3.1	4.1	3.6	2.9	5.3	4.1
Minas Gerais	2.1	2.1	2.1	5.3	3.3	4.3	2.5	4.3	3.8
Rio Grande do Sul	1.1	3.8	2.4	4.3	3.7	4.0	3.3	5.2	4.2
Bahia	3.7	2.3	3.0	4.6	1.6	3.1	2.8	4.2	3.5
Pernambuco	2.3	1.0	1.7	3.3	3.0	3.1	2.6	4.0	3.3
Brasil	2.1	3.9	3.0	4.8	4.1	4.5	3.9	5.9	4.9

SOURCE: DEPE/UNICAMP, *Program of Research on the Labor Market in Brazil*. Original data from the Economic and Demographic Censuses of Brazil.

4.2 – Forms of organization and income

Employment in the non-typically capitalist forms of organization cannot be properly estimated by the economic censuses, which forces us to turn to the demographic ones. This leads to greater imprecision in defining the occupational categories and restricts information about the strictly economic aspects of the activities in which the persons concerned are employed.

Given the impossibility of carrying out specific research to attempt to remedy the deficient aspects of the available sources, we have no choice but to make some analytic cuts in the information and again introduce some “heroic” hypotheses in order to arrive at a rough approximation of the phenomena which we are attempting to focus upon. Fortunately, we had access to a special tabulation of the 1970 Demographic Census, containing information on about 240 occupations classified according to sex and occupational category (self-employed and private workers), for each of the roughly 120 municipalities with more than 50,000 inhabitants and for some of the metropolitan areas.

First, we isolate the typical occupations entered by technicians, administrators and university-educated professionals, on the one hand, and then the non-manual ones with some degree of specialization, on the other. There remains the large group of manual and non-manual non-specialized occupations, which we began to study by making analytic cuts referring to predominant activity, occupational category and sex.

For the analysis by activity, we regrouped approximately 200 occupations into 42 new groups, so that we could approximate to the industrial classification of economic activities. Within this cut we separated the wage-earners from the self-employed. In the first group, we separated domestic service from the rest; in the second, we made three cuts: Family businesses, small-scale service suppliers and subordinate self-employed workers. In the family businesses we included those self-employed workers whose activity presupposes the use of some equipment – basically those who engaged in some industrial activity, established businesses and certain specialized services. In the second group

(small-scale service suppliers) we included essentially the self-employed street peddlers, other self-employed workers offering various services, and self-employed workers in civil construction. Among the subordinate self-employed workers we also included some special cases such as "employed" street vendors, "employed" shoe shiners and seamstresses, embroiderers, lace-makers and similar female occupations.¹⁴

The big deficiencies of this methodology — which cannot be remedied for lack of data — are, on the one hand, connected with the impossibility of distinguishing between the wage-earners of typically capitalist organizations and those of non-typically capitalist small-scale production units and, on the other, with the impossibility of including the non-wage-earning family workers and certain "bosses" in non-typically capitalist employment. Beyond this, obviously, we cannot characterize the structure of employment as a whole, owing to the exclusion of public employees and of employers in general. However, for purposes of comparison we will also include, in some tables, data referring to technicians, administrators, and professionals and to specialized non-manual occupations.

4.2.1 Occupational structure and average income in the big cities

The persons whom we can define as pertaining to non-typically capitalist small-scale production form a significant proportion

¹⁴ The inclusion of this last group of employed in this type of organization is certainly the most arbitrary definition of all, since the seamstresses may be in a large factory, or may be "subcontracted" in a system similar to that of putting-out. In the more "peripheral" regions, the second alternative may be more frequent, while in the developed areas the occurrence of typically capitalist relations is more probable. Thus, for example, 2554 women in Greater Recife, whose average income was Cr\$ 127.00 monthly in 1970, are to be included in this situation. In São Paulo, on the other hand, we find 47,332 women with an average wage of Cr\$ 207.00 (the minimum monthly wage in Recife was Cr\$ 144.00 and in São Paulo, Cr\$ 187.00). These differences of insertion in the occupational structure alter the actual average income of the group of subordinate "self-employed workers" in both cities, as we will see later.

of the total labor employed in the eight most important metropolitan areas of the country (see Table 7). In São Paulo, Rio de Janeiro and Curitiba, they made up 18% and 19%, respectively, reaching a percentage of around 25% in Belo Horizonte, Salvador and Fortaleza; (in Porto Alegre, it came to about 16%). It should be noted that this proportion is a minimum estimate, since it does not include the workers, the bosses and the wage-earners of the "businesses" which in the previous section are characterized as "quasi-capitalist". In addition, it should be remembered that we deliberately exclude self-employed administrative and professional technicians and specialized non-manual workers.

This information, together with that analyzed in the first part of this section, reveals that, despite the lesser dynamism in the generation of low-skilled jobs during the period from 1950 to 1970, the urban areas belonging to the periphery showed a higher proportion of tertiary employment, especially of "small-scale service suppliers" and "domestic helpers" in 1970. This is certainly as much due to the significant position which these sectors already had before 1950 in employment in these cities, as to the low degree of dynamism characterizing the generation of employment in "modern" activities. In the big cities of the Center-South, on the other hand, the greater dynamism of low-skilled tertiary employment does not appear in the structure of the seventies, for exactly the opposite reasons.

The average income differences between each of these occupationally defined groups show a truly remarkable degree of similarity in the eight metropolitan areas studied. In order to avoid, at least in part, the danger that regional differentiations might introduce problems of comparability, we constructed Table 8, in which the incomes of each stratum are calculated in the form of an index, the base being the local minimum wage in effect at the time of the Demographic Census. This reveals that technicians, administrators and professionals have an average income of about seven to eight times the local minimum wage, the proportion being greater in São Paulo and lower in

Table 7

*Brazil: Occupational Structure of the Big Cities, 1970 **

(Percentages)

Occupational Structure	Greater São Paulo	Greater Rio de Janeiro	Greater Porto Alegre	Belo Horizonte	Curitiba	Salvador	Greater Recife	Fortaleza
1. Techs. Admins. Professionals	5.4	4.9	5.2	5.3	5.6	4.4	3.7	3.7
2. Specialized Non-Manual Occupations	13.6	10.8	11.2	11.2	12.2	9.5	7.6	7.8
3. Manual and Non-Manual Non-Specialized Occupations:								
Wage-Earners	34.4	30.7	25.3	30.4	28.9	30.1	26.8	27.4
Self-Employed Workers in Family Businesses	2.3	1.9	2.0	2.1	2.7	2.2	2.2	2.9
Small-Scale Service Suppliers	4.9	5.2	4.0	7.3	4.8	9.8	8.9	11.6
Subordinate Self-Employed Workers	2.1	1.2	1.0	1.0	0.7	1.1	1.2	1.6
Domestic Service	8.5	10.7	8.5	14.1	10.2	13.7	11.9	10.9
Total of Non-Agricultural Economically Active Population	100	100	100	100	100	100	100	100

SOURCE: DEPE/UNICAMP. *Program of Research on the Labor Market in Brazil, 1980*. Original data: FIBGE, *Demographic Census of 1970*, Special tabulations prepared by INPES/IPEA.

*Refers only to the private employees and self-employed workers. The totals do not equal 100 due to the exclusion of public employees, occupations linked to National Defense and Public Security, family workers and employed in general.

Fortaleza. The average income of non-manual specialized workers is about three times the minimum wage and in all cases is very similar to that of self-employed workers in "family businesses", and to that of manual and non-manual non-specialized workers.

Among the manual and non-manual non-specialized occupations, the structure of incomes is also very similar throughout the six metropolitan areas. The self-employed workers in "family businesses" have the highest incomes, followed in general by the wage-earners who receive, on average, between 1.3 and 1.9 times the local minimum wage. This income is more or less similar to that of "small-scale service suppliers" in São Paulo, Rio de Janeiro, Porto Alegre and Curitiba, being higher than the incomes of this group in other cities. In the case of São Paulo and Rio de Janeiro there is a fairly concentrated market for "services", and it is precisely in these two cities, along with Porto Alegre and Curitiba, where the proportion of "small-scale service suppliers" is smallest in relation to the total of the Economically Active Population within the cities considered. In summary, the high incomes might be explained in this case as much by a larger "economic space" as by a smaller "occupational dimension".

It is interesting to note that these data are, in certain ways, compatible with the structure of "overall expenses" by family, depending on the socio-economic category of the head of the household, according to research conducted in 1974 by IBGE.¹⁶ In Table 9, we compare the differences in income between "small-scale service suppliers" and the unskilled manual and non-manual wage-earners, utilizing the data from Table 8 and the differences which the IBGE study registers between "non-established self-employed workers" and the "manual employees" for the non-farming sectors of certain regions of

¹⁶ See for this: IBGE, *Estudo Nacional de Despesa Familiar*. This is a research study with the purpose of identifying all family expenditures, including the growth of assets (real and financial) and the diminishing of liabilities. The concept of expenditure may, therefore, in this case, be likened to that of (personal) family income, especially in the case of self-employed and wage-earning workers.

Table 8

Brazil: Indices of Average Income of Occupational Strata in the Big Cities in Relation to the Local Minimum Wage, 1970

(Indices based on the minimum wage of each city = 100)

Occupational Structure	Greater São Paulo	Greater Rio de Janeiro	Greater Porto Alegre	Curitiba	Belo Horizonte	Salvador	Greater Recife	Fortaleza
1. Techs. Admins. Professionals	896	811	735	738	751	847	779	648
2. Specialized Non-Manual Occupations	346	327	309	318	292	344	320	314
3. Manual and Non-Manual Non-Specialized Occupations:								
Wage-Earners	189	160	158	161	136	165	139	141
Self-Employed Workers in Family Businesses	341	283	321	343	285	283	258	233
Small-Scale Service Suppliers	205	149	161	188	111	116	98	110
Subordinate Self-Employed Workers	123	125	120	148	112	102	94	91
Domestic Service	75	65	56	57	42	43	36	33

SOURCE: DEPE/UNICAMP, *Program of Research on the Labor Market in Brazil, 1980*. Original data: FIBGE, *Demographic Census of 1970*, Special tabulations prepared by INPES/IPEA.

NOTE:

Values of the minimum wage in 1970: São Paulo: Cr\$ 187,20, Rio de Janeiro: Cr\$ 187,20, Belo Horizonte: Cr\$ 177,60, Curitiba: Cr\$ 170,20, Porto Alegre: Cr\$ 170,40, Salvador: Cr\$ 144,00, Recife: Cr\$ 144,00 and Fortaleza: Cr\$ 124,80.

Table 9

Brazil: Relation Between the Incomes of the Lower Strata of Self-Employed Workers and Wage-Earners in Non-Agricultural Activities — 1970 and 1974

(Indices)

	Income of the Lower Strata of Wage-Earners		Income of the Lower Strata of Self-Employed Workers	
	1970	1974	1970	1974
State of São Paulo	100			150
Greater São Paulo	100		108	
State of Rio de Janeiro	100			119
Greater Rio de Janeiro	100		93	
Southern Region	100			127
Greater Porto Alegre	100		102	
Curitiba	100		116	
Northeast Region	100			91
Salvador	100		70	
Greater Recife	100		70	
Fortaleza	100		78	
State of Minas Gerais and Espírito Santo	100			109
Belo Horizonte	100		82	

SOURCE: 1970: Table 8 (Special tabulations of the Demographic Census); 1974: IBGE, *National Study of Family Expenditures*, Rio de Janeiro, 1979

NOTE: Definitions adopted:

Lower stratum of wage-earners

1970: Manual and non-manual non-specialized occupations
1974: Manual occupations

Lower stratum of self-employed

1970: small-scale service suppliers
(see definition in text)
1974: Non-established self-employed Workers

Brazil. Despite the difference in criteria for categories, and the difference in geographic coverage — the census data which we have available refer to the metropolitan regions of the big cities and the IBGE data to the regions and/or states indicated in the table — one may note, roughly speaking, the existence of a more or less compatible relationship among the incomes of these

categories according to geographic area. Thus, in the Center-South the lowest stratum of self-employed workers tends to show a higher income than that of the lowest stratum of wage-earners, whereas in the Northeast of Brazil the opposite occurs.

The "subordinate self-employed workers" receive about a minimum wage in Belo Horizonte, Salvador, Recife and Fortaleza and slightly above the minimum (20%) in the same cities where the "small-scale service suppliers" had relatively high incomes (in Curitiba the difference reaches almost 50%). Finally, domestic help shows the lowest incomes of all the groups, its proportion varying between an incredible 33% to 36% of the minimum wage in Fortaleza and Recife and up to 75% of it in São Paulo.¹⁰ The importance of domestic help as a proportion of employment in all of the cities considered needs to be stressed. Only in São Paulo and Porto Alegre is this proportion (slightly) below 10%, reaching 14% in Belo Horizonte and Salvador.

4.2.2 — Non-capitalist employment in medium-sized cities

In Tables 10 and 11 we present information similar to that for the big cities with respect to employment and income in the small-scale production sector. We include the capitals of the northeastern states which cannot be characterized as big cities, and eight medium-sized cities in the Center-South.

The proportion of the non-typically capitalist forms of organization in total employment in the medium-sized cities follows a pattern similar to that of the big cities in the regions considered. In the cities of the Northeast, employment in "small-scale production" shows a percentage at least greater than 25%, while in the cities of the Center-South, the characteristic figure revolves around 20%. The most striking difference is undoubtedly the proportion of the "small-scale service suppliers" which in the cities of the periphery reaches

¹⁰ Domestic helpers also earn "payment-in-kind" which is not computed in the average income. Its inclusion, however, would not substantially alter our conclusions.

figures between 9% and 13%, whereas in the Center-South the higher percentages do not in general rise above 6%. Some difference is also evident with respect to the proportion of domestic employment in the total, being higher in the Northeast (10-16%) and lower in the Center-South (6-13%).

The structure of average incomes of those employed in the various types of organization of small-scale production in medium-sized cities also follows a very similar pattern to that of the big cities both in the more "developed" regions and the more "backward" ones (compare Table 11 with Table 8). The incomes of the self-employed workers in family businesses are substantially higher than the minimum wage in all cases

Table 10

Brazil: Share of Employment in "Non-Typically Capitalist Organizations" in the Non-Agricultural Total in Certain Medium-Sized Cities — 1970

(Percentages)

	Self-Employed Workers in Family Businesses	Small-Scale Service Suppliers	Subordinate Self-Employed Workers	Domestic Service
<i>Medium-Sized Cities of the Northeast</i>				
Macció	3.3	9.0	0.8	14.4
João Pessoa	2.2	9.8	1.3	16.2
Natal	3.3	11.0	1.9	12.8
Teresina	4.3	13.2	0.9	10.2
São Luís	3.8	8.8	1.1	10.0
<i>Medium-Sized Cities of the Center-South</i>				
Campinas	1.9	4.6	0.9	10.3
Santos	2.2	4.8	1.0	9.4
Ribeirão Preto	2.6	6.6	0.9	13.3
Sorocaba	2.2	5.3	1.3	8.7
Jundiaí	2.0	4.0	0.8	6.1
Petrópolis	2.8	4.5	1.8	10.9
Londrina	3.3	6.7	1.2	11.4
Pelotas	3.3	6.2	0.5	10.8

SOURCE: DEPE/UNICAMP, *Program of Research on the Labor Market in Brazil*, 1980. Special tabulations prepared by INPES/IPEA.

Table 11

Brazil: Average Income Compared to the Local Minimum Wage for Those Employed in "Non-Typically Capitalist" Organizations in Some Medium-Sized Cities - 1970

(Indices: Base of minimum wage in each city = 100)

	Self-Employed Workers in Family Businesses	Small-Scale Service Suppliers	Subordinate Self-Employed Workers	Domestic Service
<i>Medium-Sized Cities of the Northeast</i>				
Macció*	207	119	100	35
João Pessoa*	231	106	95	30
Natal*	251	103	92	29
Teresina*	161	99	86	26
São Luís*	219	147	156	35
<i>Medium-Sized Cities of the Center-South</i>				
Campinas**	318	176	111	64
Santos**	321	202	116	66
Ribeirão Preto**	239	125	83	44
Sorocaba**	283	150	85	39
Jundiaí**	306	157	114	44
Petrópolis**	235	134	104	59
Londrina***	251	149	98	41
Pelotas***	223	116	91	36

SOURCE: DEFE/UNICAMP, *Program of Research on the Labor Market in Brazil, 1980*. Original data: FIBGE, *Demographic Census of 1970*. Special tabulations prepared by INPES/IPEA.

* Minimum wage: Cr\$ 124,80

** Minimum wage: Cr\$ 187,20

*** Minimum wage: Cr\$ 170,40

(in general more than double). The income of small-scale service suppliers is substantially higher than the minimum wage in the cities in the Center-South, but this is not true of the Northeast (São Luís is the exception). The income of the subordinate self-employed workers is in the region of the minimum wage both in the Northeast and the in the medium-sized cities of the Center-South (São Luís is again the exception). Unlike the situation in the large metropolitan areas of the Center-South, the income of domestic helpers in the medium-sized cities in the region is not much higher than that in the "periphery".

4.2.3 – *Minimum wages and incomes of people employed in the non-typically capitalist organizations*

The data in Table 8 suggests also to us, a hypothesis about the power of the minimum wage (the wage rate or floor of the economy), as an ordering parameter for all of the incomes of wage-earners and others employed in non-typically capitalist forms of organization. We must remember that we are working with average incomes and that when we note that unskilled manual and non-manual wage-earners receive, on the average, about 1.5 minimum wages, we are forced to conclude that a fairly significant portion earn the minimum wage or something close to it.

Tables 12 and 13 should illustrate this point adequately. In them we compare the average incomes of each category in São Paulo with those of the other seven large metropolitan areas of the country. In the first table we take the absolute values of the incomes, and in the second the indices of income weighted by the local minimum wage. Bearing in mind the fact that the minimum wages are differentiated regionally, being higher in the larger centers, and also that the average incomes in the big cities are higher than the rest in each occupational group, Table 13 reveals a much smaller degree of regional dispersion of incomes in each group than Table 12.

More than a merely tautological result, this suggests the importance of the minimum wage in orienting all labor-derived incomes in the various cities. Logically, we ought to expect that it would be verified in regard to wage-earners in general; the significant thing is that it is also true of the incomes of self-employed workers.

In the second place we also note from Table 13, the extraordinary similarity of the incomes in the occupational strata in the various cities when compared to the local minimum wage. In all categories, including self-employed workers in family businesses and “subordinate self-employed workers” the differences in the average incomes in terms the minimum wage do not in general rise above 25%. The only two exceptions are the “small-scale service suppliers” and of “domestic helpers”

Table 12

Brazil: Indices of (Absolute) Average Income in Each Occupational Stratum in Relation to the Income of São Paulo

(Indices: Base of average income of occupational strata of São Paulo = 100)

Occupational Structure	Greater São Paulo	Greater Rio de Janeiro	Greater Porto Alegre	Curitiba	Belo Horizonte	Salvador	Greater Recife	Fortaleza
1. Techs. Admins. Professionals	100	90	75	75	79	73	67	48
2. Specialized Non-Manual Occupations	100	95	81	84	80	77	71	61
3. Manual and Non-Manual Non-Specialized Occupations:								
Wage-Earners	100	85	76	78	68	67	57	50
Self-Employed Workers in Family Businesses	100	83	85	91	79	64	58	45
Small-Scale Service Suppliers	100	73	72	84	52	44	37	36
Subordinate Self-Employed Workers	100	101	88	109	86	64	58	49
Domestic Service	100	86	68	69	52	44	37	29

SOURCE: DEPE/UNICAMP, *Program of Research on the Labor Market in Brazil, 1980*. Original data: FIBGE, *Demographic Census of 1970*, Special tabulations prepared by INPES/IPÊA.

Table 13

Brazil: Indices of Average Income (in Terms of Units of Local Minimum Wage) for Each Occupational Stratum in the Large Cities in Relation to That of São Paulo

(Indices: Base of average income (in terms of minimum wage) of São Paulo)

Occupational Structure	Greater São Paulo	Greater Rio de Janeiro	Greater Porto Alegre	Curitiba	Belo Horizonte	Salvador	Greater Recife	Fortaleza
1. Techs. Admins. Professionals	100	90	82	82	84	95	87	72
2. Specialized Non-Manual Occupations	100	95	89	92	85	99	93	91
3. Manual and Non-Manual Non-Specialized Occupations:								
Wage-Earners	100	85	84	86	72	87	74	75
Self-Employed Workers in Family Businesses	100	83	94	100	83	83	76	68
Small-Scale Service Suppliers	100	73	79	92	54	57	48	54
Subordinate Self-Employed Workers	100	101	97	119	91	83	76	73
Domestic Service	100	86	75	76	55	57	48	44

SOURCE: Table 8.

in the cities in the "periphery" or near to it: Fortaleza, Recife, Salvador and Belo Horizonte. We should remember what we said before with respect to the data given in Table 7, where it was noted that, precisely in these two categories, the proportion of employment was higher than in the other three cities considered. These data are compatible with our interpretation that the income of those employed in small-scale production is a resultant variable which adjusts an "economic space" to a given "occupational dimension" with the minimum wage functioning as a type of "guiding light" for orientation. The low occupational dynamism of the three cities mentioned (Salvador, Recife and Belo Horizonte) seems, therefore, to have compelled a larger proportion of persons to dispute a given economic space, thus lowering the average wage and making the minimum wage lose its "orienting" power for other incomes.

5 — Some conclusions

The information which we have been working with in the present article enables us to a minor view of the idea, many times defended, that poverty and urban marginalization in Brazil are phenomena directly and exclusively associated with the low rate of job-creation in modern economic activities. From what we have been able to deduce from the census figures, we may conclude that the urban economy, besides being dynamic in the creation of jobs, has been able to generate "spaces" for the reproduction of small-scale production organized on non-typically capitalist lines. These "spaces" have not merely been confined to the peripheral regions where "capitalism has not yet penetrated" as is often stated, but have also, and more particularly, been reproduced in the industrial heart of the country. In occupational terms, the proportion of those engaged in modern activities and in non-typically capitalist forms within the Active Urban Population seems to have remained unchanged during this period.

The variety of situations within the "non-typically capitalist" occupations, on the other hand, is very great. A smaller number of them are concentrated in activities where the "degree of ease of entry" is low and where, therefore, the average income is

higher. In these cases, income is rather higher than that of wage-earners in similar occupations. The larger part, however, is made up of those whom we earlier called Small-Scale Service Suppliers, Subordinate Self-Employed Workers and Domestic Helpers. In these cases, incomes were not only systematically lower than the average of wages for similar occupations, but also, and especially in the "peripheral" regions, lower than the minimum wage itself (the "wage rate" of the economy).

The possible relation of the small-scale production workers' incomes to the minimum wage was suggested in the final section of the present article, but unfortunately we do not have the data to be more conclusive. However, it is opportune to remember that the real minimum wage suffered a drastic reduction during the sixties, as a result of the wage policy, especially between 1964 and 1967. The level of the real minimum wage at the end of the sixties was about 40% lower than that in effect 10 years before.

In showing that the economic situation of those employed in small-scale production is varied, that the position which they occupy in the Center-South of the country and in the Northeast are radically different, and finally that São Paulo appears to have the highest expansion rates of non-typically capitalist employment for the country as a whole, in some way we are opening a space for other phenomena included among the causes of the "exclusionary" character of the model of Brazilian capitalist development. There is no doubt that a proportion of the labor force has engaged in activities where it is unable to obtain an income equal to that of the poorest wage-earners. However, the great lesson of Brazilian development in the last few decades is that the mere fact of being integrated into a modern activity does not guarantee the labor force a certain socio-economic status a priori. The low wage levels, which compel a substantial portion of wage-earners to live in conditions of extreme poverty, should not be allowed to continue being one of the most glaring consequences of the "exclusionary" character of the Brazilian model. This theme has been treated in other articles, [Souza (1980); Tavares and Souza (1980)].

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Sources of Brazilian export growth in the 70s *

Maria Helena T. T. Horta **

1 — Introduction

The major aim of this work is to analyse the trading performance of Brazil in the 1970s in an attempt to establish to what extent the high growth rates of exports observed in the period merely reflected the growth tendency of world trade in general or whether they would be partly explained by specific features of the Brazilian economy allied to economic policy measures — more specifically, to the exchange rate policy and to the policy of export subsidies.

Section 2 presents an analysis, at a fairly aggregate level, of the major alterations that occurred throughout the period, not only concerning the actual composition of exports, but also concerning the destination of Brazilian exports.

In Section 3, through an analysis of the 'constant-market-shares' type, we have broken down the export growth rate into structural

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factors and into a "competitiveness" factor, determined by residue. The growth of exports is, therefore, explained by the growth of world trade, by the favourable (or unfavourable) concentration of exports on products or markets of fast (or slow) growth and by a "competitiveness" effect, which would result in gains (or losses) of the share enjoyed in the different markets by the different products that constitute the list of exports. At the end of this section, data are given concerning the evolution of the share of Brazilian exports in the markets of the country's major trading partners.

In Section 4 indices of competitiveness have been constructed for the manufactured products, with a view to assessing the relationship existing between the competitiveness and performance of exports.

2 — Patterns of trade in recent years

In this section an attempt is made to identify the major tendencies observed during the 1970s in the patterns of trade of Brazil with other countries, not only in terms of the composition of the exports, but also in terms of their destination.

The generalized version of the Heckscher-Ohlin model [Krueger (1977) and Baldwin (1979)] for various countries tells us that there will be no complete specialization in international trade: a country should trade in both directions, selling more labour-intensive products to countries with a relatively abundant endowment of the capital factor, and more capital-intensive products to countries with a smaller relative endowment of capital. A dynamic version of this theory [Balassa (1979)] also says that countries at a stage of rapid growth tend to obtain comparative advantages in the production of goods that are more capital-intensive and more skilled-labour-intensive, losing competitiveness, however, to countries of slower growth in the production of goods that are more unskilled-labour-intensive. In this way, exports from countries at a stage of rapid growth should show an increasing tendency towards the employment of capital and

specialized labour factors, although maintaining the characteristics of the goods traded in both directions.

Analyzing the composition of the list of exports by areas of trade, we can observe a pattern of behaviour similar to that predicted by the theory.

As can be seen in Table I, whilst Brazil's exports, both to the United States and to the major European markets,¹ in 1971, show a high concentration on primary products (86.8% and 92.0% respectively); the same cannot be observed in relation to the major Latin American markets,² for which 51.2% of exports already consisted of manufactured products. Even within the manufactured products themselves, it can be seen that, for the major Latin American markets, 65% of our exports consisted of more technologically sophisticated and/or more capital intensive products, such as machines, transport equipment and material and metal products. For the United States and the major European markets, this proportion was 33.5% and 31.3% respectively.

The evolution of the composition of exports in the period 1971/80 also occurs in the sense envisaged by the theory, with the growing share of manufactured products: from 16% in 1971 to 38.9% in 1980. It should be stressed that, among the manufactured products, machines, transport equipment and material, and metal products are the only categories that have increased their share from 44% of the total of manufactured goods in 1971 to 60% in 1980.

This movement, in the direction of a greater share of manufactured goods in exports, is confirmed even when we disaggregate the analysis into regions: between 1971 and 1980, the share of manufactured products in exports to the United States and European countries practically tripled; as for the major Latin American markets, despite the high share of manufactured

¹ Germany, France, Italy, Holland, United Kingdom, Belgium/Luxembourg and Spain.

² Argentina, Chile, Mexico, Paraguay and Uruguay.

Table 1

Evolution of the Structure of the Composition of Brazilian Exports

(In %)

	Brazil Total				Major European Partners				United States				Major Latin American Partners			
	1971	1974	1978	1980	1971	1974	1978	1980	1971	1974	1978	1980	1971	1974	1978	1980
1 — <i>Primary Products</i>	64.0	74.0	65.4	61.1	92.0	87.5	70.8	78.3	86.8	70.0	63.4	64.2	48.8	30.9	24.3	18.2
1.1 — <i>Foodstuffs, beverages and tobacco</i>	58.3	48.8	47.7	42.1	56.8	39.8	52.6	47.9	77.2	58.2	55.3	56.0	24.3	27.5	15.6	11.8
1.2 — <i>Raw materials (excluding fuels)</i>	22.9	22.8	13.6	15.4	31.7	43.6	24.8	28.1	7.6	8.4	6.6	6.7	23.9	11.5	8.6	6.0
1.2.1 — <i>Ores</i>	10.4	8.3	8.9	8.9	18.6	16.9	15.8	15.7	4.5	6.2	4.3	3.7	5.1	3.1	4.8	2.4
1.2.2 — <i>Other raw materials</i>	12.5	14.4	4.7	6.5	13.1	26.7	9.0	12.4	3.0	2.2	2.2	3.0	18.8	8.4	3.8	3.6
1.3 — <i>Fats and oils</i>	2.8	3.0	4.1	3.0	3.7	4.1	2.4	2.3	2.0	4.3	1.5	1.5	0.6	0.9	1.1	0.4
2 — <i>Manufactured Products</i>	16.0	25.4	34.6	38.9	8.0	12.5	20.2	21.7	13.2	29.1	36.6	35.8	51.2	60.1	75.1	81.8
2.1 — <i>Chemical products</i>	1.8	2.9	2.1	3.5	1.2	1.9	1.3	1.7	1.7	3.4	1.3	3.4	2.7	0.7	6.6	7.1
2.2 — <i>Machines, transport material and equipment</i>	4.8	8.4	15.7	17.4	2.1	1.8	6.8	6.3	1.4	8.9	13.2	11.0	22.0	28.8	43.5	46.5
2.3 — <i>Metal products</i>	2.2	2.9	5.0	0.1	0.4	0.9	2.1	3.4	1.7	3.1	7.0	7.8	11.3	10.3	7.1	10.4
2.4 — <i>Textile manufactured products</i>	1.7	4.0	3.4	3.4	0.4	3.8	3.5	4.5	2.0	2.9	2.3	2.3	3.8	5.3	4.3	3.1
2.5 — <i>Footwear</i>	1.1	1.6	2.3	2.0		0.4	1.2	1.2	3.1	5.5	6.6	6.8	0.1	0.4	0.2	0.5
2.6 — <i>Other manufactured products</i>	4.4	5.6	6.1	6.5	2.9	3.7	5.3	4.6	3.3	5.3	6.2	4.5	11.3	8.6	14.0	14.2

SOURCES: *Annual Trade Book* (OECD); *Commodity Trade Statistics* (UNO) and *Comércio Exterior do Brasil* (CACEX).

products in exports already observed in 1971, it also went up, reaching a figure of 81.8% in 1980.

At a product category level there can also be seen, in the three markets under consideration, significant gains in the share of machines, transport material and equipment. Significant increases can be observed in the share of metal products both for the United States and for the European market, whilst for the latter the export of textile manufactured products also increased between 1971 and 1974.

As far as markets are concerned, there can be seen throughout the period a certain de-concentration of our exports: while in 1971 the United States and the major European and Latin American markets absorbed approximately 80% of total exports (excluding fuels), this proportion fell to about 65% in 1980. However, two completely distinct phases can be identified. The first of these, between 1971 and 1974, is when the share of these countries in the total exports was reduced from about 80% to 66%. In the second phase, which goes from 1974 to 1980, the joint share of these countries remained reasonably stable.

Disaggregating this information into primary and manufactured products, we can observe the same tendency as that seen for the aggregate: in fact, the greatest drop in the share of these countries in our exports occurred between 1971 and 1974. However, while the share of these countries in the Brazilian exports of primary goods was reduced even more between 1974 and 1980, for manufactured goods it remained stable between 1974 and 1978, and grew between 1978 and 1980.

If we examine the different trading areas separately, it can be seen that the greatest loss in the share of primary products in exports between 1971 and 1974 was to the United States, although both the European and the Latin American countries also reduced their share. As for manufactured goods, only the share of Latin American countries went down to any great extent (33.8% to 18.9%), there even being an increase in the American share.

With regard to these manufactured goods, there can be seen some interesting alterations in the flows of trade throughout the

Table 2

Distribution of Brazilian Exports According to Trading Areas

	Major European Partners				United States				Major Latin-American Partners				Rest of the World			
	1971	1974	1978	1980	1971	1974	1978	1980	1971	1974	1978	1980	1971	1974	1978	1980
1 — <i>Primary Products</i>	45.7	42.8	39.7	39.1	27.7	20.8	23.5	20.9	6.1	4.3	3.0	4.0	20.5	32.1	33.8	39.0
1.1 — <i>Foodstuffs, beverages and tobacco</i>	40.5	29.8	35.8	34.7	35.6	26.2	28.1	20.4	4.4	4.5	2.5	3.7	10.5	39.5	33.6	35.2
1.2 — <i>Raw materials (excluding fuels)</i>	57.9	60.9	59.4	55.0	8.9	8.1	11.7	8.7	11.0	4.1	5.2	5.1	22.2	17.9	42.5	30.3
1.2.1 — <i>Ores</i>	74.7	74.0	57.7	54.2	11.8	16.3	11.8	8.4	5.2	3.1	4.4	3.6	8.3	6.0	20.1	33.8
1.2.2 — <i>Other raw materials</i>	43.8	67.5	62.6	58.1	6.5	3.7	11.6	9.1	15.9	4.6	6.7	7.3	33.8	24.5	10.1	25.5
1.3 — <i>Fats and oils</i>	54.5	49.0	10.2	10.3	18.8	30.7	9.0	8.2	2.1	2.3	2.2	1.6	24.6	17.1	69.6	70.0
2 — <i>Manufactured Products</i>	20.8	18.0	18.9	17.0	22.1	25.2	25.7	19.3	33.8	18.9	18.0	28.0	23.3	37.0	37.4	34.8
2.1 — <i>Chemical products</i>	27.8	23.4	19.9	14.9	24.4	25.8	15.3	19.9	15.7	18.5	25.5	27.3	32.1	32.3	39.3	37.9
2.2 — <i>Machines, transport material and equipment</i>	17.8	7.8	14.0	11.1	7.9	23.3	20.3	12.6	48.9	27.4	22.7	35.6	25.4	41.5	43.0	40.7
2.3 — <i>Metal products</i>	7.5	11.4	13.7	17.1	20.5	23.2	34.3	25.3	53.6	28.5	11.7	22.6	18.4	36.9	40.3	35.9
2.4 — <i>Textile manufactured products</i>	10.2	34.8	33.2	40.6	30.5	15.6	10.3	13.3	23.2	10.7	10.4	12.1	36.1	38.9	40.1	34.0
2.5 — <i>Footwear</i>	0.9	8.6	17.9	18.4	80.7	77.3	70.3	67.9	0.5	2.0	0.6	3.3	17.9	12.1	11.2	10.4
2.6 — <i>Other manufactured products</i>	37.2	24.3	28.3	30.6	20.2	21.0	24.7	10.4	19.8	12.3	18.8	28.9	22.8	42.4	28.2	21.1
Total	41.7	36.5	32.5	31.1	26.8	21.9	24.3	20.3	10.6	8.0	8.2	13.3	20.9	33.6	35.0	35.3

SOURCES: The same as Table 1.

period. Between 1971 and 1974 there is a considerable increase in the North American share of exports of machines, transport material and equipment and in the share of European countries in the exports of certain traditional products such as textiles and footwear. Between 1974 and 1978, the share of European countries in the exports of machines and equipment doubled, and there is a significant increase in the American share of exports of metal products. Between 1971 and 1978, on the other hand, the share of Latin American countries in the exports of these products falls significantly, the greatest reduction being that of metal products (from 53.6% to 11.7% in 1978). Finally, between 1978 and 1980, there is a fresh increase in the share of the Latin American countries in the exports of manufactured products, together with a reduction in the American share.

Summing up the major results of this section, it can be said that throughout the 1970s there was both a diversification of products and a deconcentration of markets for Brazilian exports. However, whilst the diversification of exports is a phenomenon that can be observed throughout the whole period, the reduction of the share of traditional markets, like those of the countries considered in our total exports, occurs only between 1971 and 1974.

The move towards diversifying exports, throughout the whole period, was in the direction envisaged by the theory, increasing the share of manufactured goods in our total exports from 16% in 1971 to 38.9% in 1980. And of the manufactured goods it was the technologically more sophisticated and/or more capital intensive products that showed the largest gains.

3 — Brazil's trading performance

3.1 — Determining factors of exports

In simple terms, it can be said that the major variables that determine the *quantum* exported by one country are: on the supply side, the relation between export prices and selling prices in the domestic market and the capacity utilization level; and, on

the demand side, the level of world income and the price of the products exported by the major competitors.

One distinction, however, could be drawn between the studies that seek to explain the level of a country's exports and those whose objective is to assess the performance of a country's exports in relation to other countries. In the second case, the evolution of the level of world income would not be a very relevant explanatory variable, in that it must affect all the countries with a small share in international trade in more or less the same way. Therefore, the relevant factors to explain the country's relative trading performance would be: a) the composition of its list of exports and the direction of its trade – the larger the increase in the demand for its export goods, and the larger the growth of the demand in the countries to which it exports, the greater the growth of its exports will be in relation to the growth of total worldwide trade; b) the utilization level of the economy's installed capacity – which should determine the limits to the growth of exports on the supply side; and c) the evolution of its "competitiveness" – which, if favourable, should allow a greater penetration of the country's export products in the international market.

The aim of this section is to assess the performance of Brazilian exports in recent years, seeking to separate the share of the growth that could be explained by the growth of world trade from that which could be explained by gains (or losses) in Brazil's share in total world trade, that is to say, by Brazil's trading performance in relation to other countries.

3.2 – Breakdown of the export growth rate

In studies of the growth and performance of exports, analyses of the "constant-market-shares" type are frequently used. This technique, although presenting certain problems of a methodological nature and of interpretation [see Richardson (1971)], makes it possible to break down the export growth rate (g_e) into four components and assess the contribution of each of these factors

in explaining the growth of exports in the period under consideration:

$$\begin{aligned}
 g_b \equiv & g_w + [\sum (1 + g_w^i) \alpha_i - (1 + g_w)] + [\sum \sum_{j,i} (1 + g_w^{ij}) \alpha_{ij} - \sum_i (1 + g_w^i) \alpha_i] + \\
 & (1) \qquad (2) \qquad (3) \\
 & + [(1 + g_b) - \sum \sum_{j,i} (1 + g_w^{ij}) \alpha_{ij}] \\
 & (4)
 \end{aligned}$$

where:

- g_b = growth rate of Brazilian exports;
- g_w = growth rate of world exports;
- g_w^i = growth rate of world exports of product i ;
- g_w^{ij} = growth rate of world exports of product i to country j ;
- α_i = share of product i in the total value of Brazilian exports in the base-period; and
- α_{ij} = share of the exports of product i to country j in the total value of Brazilian exports in the base-period.

From the above identity, the growth of exports can be explained:

a) by a growth effect of world trade, which would be the rate observed if the exports of the country had grown at the same rate as world trade; b) by a "composition of exports" effect, which makes it possible to identify the gains (or losses), in terms of the growth rate, due to the concentration of exports on products that showed higher (or lower) growth rates than the average of all products; and c) by an export destination effect, which represents the gains (or losses), in terms of the growth rate, due to the fact that the country exports to markets that grew at higher (or lower) rates than the average observed for all countries. These first three effects presuppose constant shares for all the products exported in the different markets, due to gains (or losses) of competitiveness, either in terms of price and/or costs or as a result of improvements in the quality of the products and/or in the terms of financing.

3.3 – Description of the data and presentation of the results

Due to the lack of more detailed information about world trade in recent years, the period of analysis covers only the years 1971 to 1978, the calculations also having been made for the sub-periods 1971/74 and 1974/78.

The markets considered were the 15 largest importers from Brazil in 1979, for which it was possible to obtain information for the three years being studied,³ and a market we will call the rest of the world, which includes all the other countries.

As far as products are concerned, the level of disaggregation used corresponds to the Standard International Trade Classification (SITC), taken at two and three figures, and was determined on the basis of the availability of the disaggregated data for world exports and by the importance of the products in the list of exports. Nine groups of products were identified: foodstuffs, beverages and tobacco; ores; other raw materials (excluding fuels); animal and vegetable fats and oils; chemical products; machines, transport material and equipment; metal products; textile products; and other manufactured goods, that correspond, in the SITC, to all other manufactured goods, classified according to raw materials, not considered individually or as diverse items. The calculations were made for total exports and for manufactured products alone.

As can be seen from Table 3 for the period as a whole, the average annual growth rate for Brazilian exports was higher than the growth rate of world exports, both in terms of the export of primary products and manufactured products. However, when the sub-periods 1971/74 and 1974/78 are considered separately, it can be seen that, overall, Brazilian exports grew on average at a higher rate than world exports only in the sub-period 1971/74. In the sub-period 1974/78, they grew on average at the same rate as world exports, although the growth rate of manufactured exports remained higher than that of world exports.

³ The 15 countries selected were: United States, West Germany, France, Italy, Holland, United Kingdom, Belgium/Luxembourg, Spain, Japan, Argentina, Chile, Mexico, Iraq, Poland and Soviet Union.

Table 3

Average Annual Growth Rates for World and Brazilian Exports in the Period 1971/78

(In %)

Products	Years					
	1971/78		1971/74		1974/78	
	Brazil	World	Brazil	World	Brazil	World
Primary Products						
(excluding fuels)	19.3	17.2	34.8	29.3	8.9	8.9
Manufactured Products	38.1	20.0	63.5	28.7	21.6	12.8
Total (excluding fuels)	23.6	19.3	40.2	28.9	12.6	12.6

SOURCES: *Yearbook of International Trade Statistics* (UNO) and *Comércio Exterior do Brasil* (CACEX).

The pattern of growth of Brazilian exports *vis-à-vis* world exports is reflected in the results of Table 4 — which presents the breakdown in percentage terms of the four previously considered effects.⁴ For the period as a whole, 71.4% of the growth can be explained by the growth effect of world trade. The contribution of the competitiveness effect was 39.1%, which is equivalent to saying that, with the share of our products in all the markets remaining constant, the growth rate of exports would have been about 40% lower than what was actually observed.

Finally, we can observe a negative contribution to the growth, both from the composition of exports effect and from the destination of exports effect, although the latter is negligible. As for the composition of exports effect, the fact that there was a concentration on slow growth products in 1971 led to a growth rate 9% lower than that which would have occurred in the absence of this fact in the period.

⁴ The exclusion of fuels and lubricants for the purposes of our analysis is due to the attempt to eliminate the direct effects on international trade of the quadrupling of oil prices in 1974.

When the sub-periods 1971/74 and 1974/78 are considered, a clear difference in behaviour can be observed. In the first place, while in the first period the average annual growth rate of our exports was 40.2%, in the second it went down to 12.6%. In the second place, between 1971 and 1974 the average annual growth rate of our exports was 40% higher than the growth rate of world trade, while between 1974 and 1978 these rates are practically identical. Finally, the competitiveness effect explains 48.9% of the growth of our exports in the first sub-period compared with only 18.1% in the second. In both periods the composition of exports effect and the destination of exports made a negative contribution to the growth of exports, although the relevant negative contribution, between 1971 and 1974, is that of the destination of exports effect and, between 1974 and 1978, that of the composition of exports effect. As there occurs throughout the period 1971/78 a substantial alteration in the composition of exports, with the share of manufactured products in the total exports (excluding fuels) having risen from 16.0% in 1971 to 34.6% in 1978, it is interesting to present the results obtained for the breakdown of the growth rate of manufactured exports.

Table 4

Sources of Growth of Total Brazilian Exports, Excluding Fuels, in the Period 1971/78

	(In % of exports growth rate)		
	Periods		
	1971/78	1971/74	1974/78
Growth of World Trade Effect	71.4	64.8	100.9
Composition of Exports Effect	-9.0	-0.1	-20.0
Destination of Exports Effect	-1.5	-13.6	1.0
Competitiveness Effect	39.1	48.9	18.1

SOURCE: Elaboration: IPEA.

As can be seen in Table 5, 73.8% of the growth of manufactured exports between 1971 and 1978 is explained by the competitiveness effect trade effect, with the contribution of the composition of exports effect and the destination of exports being negative, though fairly small.

When the two sub-periods are considered separately, the same tendency observed for total exports can be seen: the competitiveness effect explains a much larger part of the growth of manufactured exports between 1971 and 1974 (70.6%) than between 1974 and 1978 (42.7%), although the growth rate in world trade of manufactured goods in the first period was approximately twice as large as the growth rate observed in the second period (annual average of 28.7% and 13.8% respectively).

Table 5

Sources of Growth of Manufactured Exports in the Period 1971/78
(In % of the growth rate of manufactured exports)

	Periods		
	1971/78	1971/74	1974/78
Growth of World Trade Effect	30.2	33.7	57.2
Composition of Exports Effect	-0.1	-0.2	-0.1
Destination of Exports Effect	-3.9	-4.5	-0.2
Competitiveness Effect	73.8	70.6	42.7

SOURCE: Elaboration: IPEA.

Therefore, we can say that the rapid growth in the world trade of manufactured goods between 1971 and 1974 — together with the significant market gains obtained — led to an annual average growth in our manufactured exports of 63.5%, compared to an average annual rate in the period 1974/78 of only 21.6%, which reflects not only a smaller growth in the world trade of manufactured goods, but also a fall in the rhythm of penetration of our manufactured goods in the world market.

It can be argued that it was Brazil's extremely small share in the world trade of manufactured goods in the first years of the period that brought about these substantial market gains, which could not continue indefinitely, unless Brazil ceased to be a marginal exporter. However, as we will see, Brazil's share of the markets of the major industrialized partners in 1974 was still very small, suggesting that the evolution of the competitiveness of exportable manufactured products had an important effect on the performance of exports in the period.

3.4 — Evolution of the share of Brazilian exports in world trade

The data referring to the share of Brazilian exports in world exports show that Brazil increased its share of world trade more or less steadily between 1971 and 1977: from 0.922% in 1971 to 1.31% in 1977. In 1978 and 1979, Brazil's share went down in comparison to 1977, while in 1979 it was practically equal to that observed in 1974.

Disaggregating this information for foodstuffs, beverages and tobacco, raw material (excluding fuels), and manufactured products, it can be seen that these aggregates do not behave uniformly over time. As is to be expected from the previous results, the most significant gains in terms of export share are to be seen on the part of manufactured goods between 1971 and 1974, when Brazil more than doubled its share of world exports, going from 0.197% in 1971 to 0.404% in 1974. Between 1974 and 1978, its share in the world trade of manufactured goods also grew, the gains, however, being substantially lower than those obtained in previous years.

As for the evolution of Brazil's share in the world exports of raw materials, there can be seen a somewhat similar tendency to that observed in the case of manufactured products, with the difference that all the gains obtained in the early years were lost in the last three years: between 1971 and 1975, Brazilian exports of raw materials, as a proportion of world exports, went up from 2.069% to 3.467% — that is to say, an increase of over 50% — falling, however in 1978 to 1.967%.

Finally, for the item foodstuffs, beverages and tobacco, the evolution of Brazil's share in world trade does not present a clear pattern, the changes involved being fairly insignificant. This result is not surprising if we consider that Brazilian exports already represent something around 4% to 5% of world exports in this item, showing that Brazil can hardly be considered a marginal exporter.

Table 6

Share of Brazilian Exports in World Trade

(In %)

Years	Foodstuffs, Beverages and Tobacco	Raw Materials (excluding fuels)	Manufactured Products	Total (excluding fuels)
1971	3.609	2.069	0.197	0.922
1972	4.131	2.198	0.280	1.065
1973	4.011	2.682	0.337	1.203
1974	3.953	2.625	0.404	1.178
1975	3.554	3.467	0.414	1.204
1976	4.350	3.015	0.401	1.250
1977	4.935	2.597	0.458	1.319
1978	4.056	1.967	0.526	1.159
1979	3.636	1.939	0.595	1.179

SOURCE: *Yearbook of International Trade Statistics* (UNO).

The analysis of these data makes it possible to state that, between 1971 and 1974, the excellent performance of Brazilian exports was basically due both to the significant market gains of manufactured products, and the market gains, though smaller, of raw materials. The same is not to be seen with equal intensity in the sub-periods 1974/78, when the market gains of manufactured products, though less significant, were partly counterbalanced by the market losses of raw materials.

Table 7 presents the evolution of Brazil's share of manufactured exports according to the principal markets.

Briefly, it can be said that, for the period as a whole, the most significant market gains are to be seen for machines, transport material and equipment, and metal products, which between 1971 and 1978 saw their share of the world market multiply approximately three and four times respectively. In the American market, the strong penetration of Brazilian exports of machines, transport material and equipment is observed between 1974 and 1978. In the European market, however, the great penetration of Brazilian products classified under these two items it to be seen basically between 1974 and 1978. In the Latin America

Table 7

Share of Brazilian Manufactured Export Products in the Markets of our Major Partners and in World Trade

(In %)

Countries		Chemical Products	Machines and Equipment	Metal Products	Other Manufactured Products	Total Manufactured Products
United States	1971	0.770	0.076	0.248	0.644	0.325
	1974	1.448	0.611	0.452	1.434	0.875
	1978	0.544	0.801	1.254	1.326	1.021
European Partners	1971	0.154	0.084	0.039	0.208	0.126
	1974	0.216	0.094	0.085	0.442	0.222
	1978	0.139	0.261	0.227	0.436	0.290
Argentina	1971	1.074	5.826	5.956	8.645	5.348
	1974	2.750	7.339	4.157	6.970	4.993
	1978	4.277	6.310	5.889	6.937	5.919
Chile	1971	0.899	2.089	3.111	2.956	2.134
	1974	1.043	5.780	3.481	7.657	4.521
	1978	3.622	13.451	4.900	11.203	10.838
Mexico	1971	0.648	1.000	0.741	1.364	0.977
	1974	1.036	2.662	0.695	1.652	1.953
	1978	1.242	3.389	0.675	3.988	2.608
World	1971	0.210	0.128	0.176	0.319	0.197
	1974	0.347	0.315	0.261	0.670	0.404
	1978	0.271	0.511	0.545	0.651	0.526

SOURCES: *Annual Trade Book* (OECD), *Yearbook of International Trade Statistics* (UNO) and *Comércio Exterior do Brasil* (CACEX).

countries, the market share of metal products remained relatively stable throughout the period, while quite significant gains for machines and equipment are observed in both periods both in Chile and in Mexico.

As for the products classified as other manufactured products, which include basically the products usually called traditional products,⁵ Brazil's share in world trade doubled between 1971 and 1978. It should be noted, however, that the market gains, both in the American and in the European market, are seen only between 1971 and 1974, while between 1974 and 1978 the share in both markets remained stable. In Latin American countries, Brazil's share grew in both periods.

As far as chemical products are concerned, our share in world trade in 1978 was little better than that observed in 1971. Both in the American and in the European markets, the market gains between 1971 and 1974 were more than offset by the losses observed between 1974 and 1978, while in the Latin American countries Brazil increased its share in the two periods.

Finally, we should stress the already significant share of Brazilian exports both in the Argentinian and in the Chilean markets and, though on a smaller but by no means marginal scale, in the Mexican market, suggesting that it would be difficult for our exports to these countries to continue growing at rates much higher than the growth rates of these countries' total exports. The inverse situation can be seen in the European market, in which Brazil's share in 1978 was still totally negligible, being even lower (with the exception of machines and equipment) than that observed in 1971 in the American market, where only in 1978 did it reach 1%.

For 1980, these data are available only for the United States and the European countries. When Table 8 is compared with Table 7, it can be seen that the share of Brazilian exports in the American and European markets remained relatively stable.

⁵ The most important items in this aggregate are textile manufactured products and footwear.

At a more disaggregate level, only chemical products increased their share, although in both cases the gains observed were insufficient to recover the 1974 position.

In the next section, an attempt is made to analyse the evolution of the "competitiveness" of the Brazilian exports of manufactured products and ascertain to what extent it is possible to identify any relation between the evolution of "competitiveness" and trading performance.

Table 8

Share of Brazilian Exports of Manufactured Products in the American and European Markets in 1980

(In %)

Products	United States	European Partners
<i>TOTAL</i>	1.052	0.519
Chemical Products	1.013	0.179
Machines, Transport		
Material and Equipment	0.670	0.247
Metal Products	1.516	0.334
Other manufactured Products	1.330	0.451

SOURCES: *Commodity Trade Statistics — 1980* (UNO) and *Comércio Exterior do Brasil — 1980* (CACEX)

4 — Evolution of the competitiveness of manufactured export products

4.1 Measures of competitiveness

There are various factors that affect the competitiveness of a country's exports, such as the domestic rate of inflation, the rate of inflation in the rest of the world, the variations of productivity and the changes in the exchange rate. It is possible to develop a series of measures of relative prices and costs with a view to analyzing the evolution of the competitiveness of

exports, each of them having advantages and disadvantages. The choice of the most adequate measure will depend basically on the nature of the markets of the products exported by the country and the share in international trade of the country in question.

From the standpoint of demand, the relevant relative price variable for assessing the competitiveness of exports would be the ratio between the price of the country's exports and a weighted average of the prices of its principal competitors. From the standpoint of supply, measures of profitability and relative costs would be more adequate to assess alterations in the competitiveness of the exports.

If the country is a price-taker in the international market and, therefore, the demand for its exports is infinitely elastic at the ruling price in the international market, it is to be expected that the relation between the price of its exports and that of its principal competitors will be more or less constant over time,⁶ in such a way that a measure of this type will hardly be of any use for assessing the country's trading performance. By way of an example, after a devaluation in the exchange rate the relative position of a country that is a marginal exporter assessed by a competitiveness index of this kind does not change, in that the prices in foreign currency remain constant. However, the devaluation of the exchange rate should result, at least in the short term, in an increase in the profitability of the exports, with a positive impact on exports from the supply side, leading to a shift in sales from the domestic market to the foreign market. In the medium and long terms, an increase in the profitability of the export sector should also lead to a transfer of resources to this sector and a consequent increase in its production capacity.

Considering that Brazil is a marginal exporter of manufactured products, with only a small share of the international market,⁷

⁶ When the countries that are being compared export very different products, it is possible that any changes in these indicators will reflect changes in the relative prices of different baskets of export goods rather than changes in competitiveness properly speaking.

⁷ With the exception of some countries in Latin America.

the most relevant measures of competitiveness for analyzing our trading performance should be those of relative costs and profitability of exports *vis-à-vis* the domestic market.

In this section we will construct two indices of competitiveness:

a) Index of the real effective exchange rate for industry (θ_c) *Lato sensu*, this index is a measure of the evolution of the cost levels of the industry in the rest of the world, in comparison with the evolution of the costs of the industry in Brazil. The evolution of this index will depend basically on the rate of inflation in the rest of the world, on the rate of inflation in Brazil, on the evolution of the exchange rate of the other countries in relation to the dollar, and on our exchange rate. Therefore, Brazil's competitiveness improves, and its export potential grows when the increase of the prices in the rest of the world is greater than that occurring in Brazil, both the prices being expressed in the same currency.

Thus we can define:

$$\Theta_c = E \bar{P}^* / \bar{P}$$

where:

E = exchange rate index;

\bar{P}^* = weighted average⁸ of the indices of the prices, in dollars, of the industrial products of our principal trading partners;⁹ and

\bar{P} = index of prices, in cruzeiros, of the industry in Brazil (column 26 *Conjuntura Económica*).

⁸ The weightings used were the share of each country in the total exports of manufactured products to these countries in 1971 (1971, 1972, 1973), 1974 (1974, 1975, 1976, 1977) and 1978 (1978, 1979, 1980, 1981). For the quarterly series those observed in 1980 were used.

⁹ Indices used: United States, Japan, Belgium, and Chile: line 63a — *International Financial Statistics*, and France, Germany, Italy, Holland, Spain, England, Argentina, Mexico, Paraguay and Uruguay: line 63 — *International Financial Statistics*.

b) Index of the profitability of the exports of manufactured products (Θ_R).

This index gives us a measure of the evolution of the profitability of exports compared with sales to the domestic market. The evolution of this index depends directly on the behaviour of the index of export prices in dollars – which in its turn should reflect not only changes in the exchange-rates of the currencies of our principal trading partners in relation to the dollar and the behaviour of the price indices of these countries, but also changes in the relative prices of the basket of manufactured products exported by Brazil – on our exchange rate, on the level of subsidies and the evolution of domestic prices.

Thus we can define:

$$\Theta_R = \frac{P_x^* E (1 + s)}{\bar{P}}$$

where:

P_x^* = dollar price index of our exports (column 19 – *Conjuntura Económica*); and

$1 + s$ = index which reflects changes in export subsidies.¹⁰

4.2 – Results

4.2.1 – Annual data

The first column of Table 9 presents the index of the real effective exchange rate for the industry in the period 1971/81 – this index, which gets close to an index of purchasing power parity, shows that Brazil had gains in competitiveness in the period, especially from 1978 onwards, although there was a fairly considerable fall in 1981.

As we have said, this index basically reflects changes in the industrial price indices in Brazil and in the rest of the world,

¹⁰ For the period 1971/78, obtained from Musalem (1981). The last two years of the series were estimated by Braga and Markwald (1983).

and changes in the currency quotations of our major partners in relation to the dollar and in the Brazilian exchange rate.¹¹ Thus it is possible to explain the changes in the real effective exchange rate both through the changes in the relation between the indices of industrial prices in dollars of our major partners and the American industrial price index (column 2 of Table 9),

Table 9

Index of the Real Effective Exchange Rate
(1971 = 100.0)

Years	$\frac{E}{P} \cdot \bar{P}^*$	$\frac{\bar{P}^*}{\bar{P}_{USA}}$	$\frac{\bar{P}_{USA}}{\bar{P}/E}$
1971	100.0	100.0	100.0
1972	100.9	100.9	100.0
1973	110.1	114.4	96.2
1974	709.7	109.0	100.6
1975	105.4	101.5	103.9
1976	110.4	103.9	106.3
1977	110.5	102.1	108.2
1978	116.6	106.4	109.6
1979	132.9	112.5	118.1
1980	150.5	113.4	132.7
1981	128.7	164.7	122.9

SOURCES: *Conjuntura Econ6mica* (FGV), *Boletim do Banco Central* and *International Financial Statistics*, Vol. I (IMF).

and through the variations in the relation between the industrial price index in the United States and the index of industrial prices in dollars in Brazil (column 3 of Table 9). As can be seen from column 2 of Table 9, the gains in competitiveness observed in 1978 are basically due to the appreciation in the

¹¹ Notice that:

$$\Theta_e = \frac{E}{P} \cdot \bar{P}^* = \frac{\bar{P}^*}{\bar{P}_{USA}} \cdot \frac{\bar{P}_{USA}}{\bar{P}/E}$$

currencies of our principal partners in relation to the dollar. Between 1973 and 1977, the real effective exchange rate remained reasonably stable: if the weighted average of the indices of industrial prices in dollars of our principal partners grew less than or at the same rate as the American index, the dollar price index of industry in Brazil grew at lower rates than that observed in the United States. Between 1978 and 1980, significant gains in competitiveness were observed, resulting not only from the appreciation of the currencies of our major partners in relation to the dollar, but also from the fact that our index of industrial prices in dollars grew at lower rates than that observed in the United States. In 1981, however, there was a significant appreciation in the real effective exchange rate for industry, due both to the devaluation of the currencies of our principal partners in relation to the dollar, and also to the fact that our index of industrial prices in dollars grew above the American industrial price index.

When one considers the evolution of the profitability index of exports in relation to sales in the domestic market, its behaviour throughout the period is seen to be quite different from the behaviour of the index of the real effective exchange rate. As can be observed from column 1 of Table 10, significant gains in competitiveness in the period were seen between 1971 and 1974, when the profitability of exports in relation to sales in the domestic market increased by 70%. Between 1974 and 1980 this index, despite small oscillations, remained relatively stable, there being, however, a significant fall in 1981.

It is possible to explain the changes in the index of export profitability in relation to sales in the domestic market by reference to the evolution of the level of export subsidies (column 2 table 10) and of the relation between the index of export prices in cruzeiros and the domestic price index (column 3 of Table 10).

As can be seen from columns 2 and 3 of Table 10, these variables affect the profitability of exports in different ways according to the period under consideration. Between 1970 and 1974, the increase in the profitability of exports *vis-à-vis* sales in

the domestic market is explained basically by the favourable evolution of export prices in relation to the domestic prices, the changes in the level of subsidies being small. Between 1974 and 1979, there can be seen a falling tendency in the relation between the index of export prices in cruzeiros and the index of domestic prices, which to a certain extent is neutralized by an increase in export subsidies.¹² In 1980, despite the increase in export prices in relation to domestic prices, the fall in the level of subsidies¹³ was not reflected in a significant increase in the profitability of exports in relation to sales in the domestic market. From 1981 onwards, despite the partial restoration of the IPI premium-credit, the considerable fall observed in the relation $P_x^* E/P$ resulted in a substantial reduction in the profitability of exports.

On the other hand, it is possible to explain the behaviour of the relation between the index of export prices in cruzeiros and the domestic price index by reference to the evolution of the relation between the index of export prices in dollars and the weighted average of the indices of industrial prices in dollars of our principal partners (column 4 of Table 10) and the real effective exchange rate (column 5 of Table 10).

As can be seen from columns 4 and 5 of Table 10, the considerable rise in the relation between the index of export prices in cruzeiros and the domestic price index in the period 1970/74 is due not only to the fact that the prices of the basket of manufactured goods exported by Brazil grew well above the industrial price average of our partners [see Cardoso and Dornbusch (1980)], but also to an increase in the real effective exchange rate. From 1974 onwards, there can be seen a systematic reduction in the relation between the index of export prices in dollars and the weighted average of the dollar price indices

¹² In this period there can be seen an increase in financial subsidies for exports, a consequence not only of the increase in the part financed, but also a result of the maintenance of nominal interest rates, despite the rapid inflation.

¹³ With the maxi-devaluation of December 1979, the IPI premium-credit was eliminated, being partially restored in March, 1981.

Table 10

Index of Profitability of Exports vis-à-vis Sales in the Domestic Market

(1971 = 100.0)

Years	$\frac{P_1 E}{P} (1-s)$ (1)	$1 - s$ (2)	$\frac{P_1 E}{P}$ (3)	$\frac{P_1}{P}$ (4)	$\frac{E}{P} \bar{P}^*$ (5)
1971	100.0	100.0	100.0	100.0	100.0
1972	108.8	100.7	108.0	107.1	100.9
1973	139.7	102.0	137.0	124.6	110.1
1974	170.7	103.4	165.1	150.6	109.7
1975	167.3	110.3	151.7	143.9	105.4
1976	164.5	118.0	139.4	126.3	110.4
1977	172.9	116.3	148.7	134.5	110.5
1978	164.5	117.3	140.2	120.3	116.6
1979	169.7	113.2	149.9	112.8	132.9
1980	170.1	107.5	158.2	105.0	150.5
1981	147.4	113.1	130.3	101.3	128.7
1982*	116.8

SOURCES: The same as Table 9.

*Data referring to the first semester.

of our principal partners, which is partly offset until 1980 by an increase either in the real effective exchange rate, or in the subsidies.

In 1981 and in the first semester of 1982, there can be seen a considerable reduction in the relation between the cruzeiro price index of Brazilian exports and the domestic price index. This reduction, as we shall see below, may to a large extent be attributed to the appreciation of the real effective exchange rate, which resulted not only from the appreciation of the cruzeiro in relation to the dollar, which occurred after the maxi-devaluation in December 1979, but also from the depreciation of the currencies of the major trading partners in relation to the dollar.

In brief, it can be said that the increase in the profitability of exports in relation to sales in the domestic market which occurred between 1971 and 1974 may, to a large extent, be attributed to the favourable behaviour of the prices of the basket of manufactured products exported by Brazil and, to a lesser degree, to the exchange policy and export subsidies. Between 1974 and 1980, the profitability of exports in relation to sales in the domestic market remained reasonably stable, despite small oscillations. In this period, the relative stability of this index was due to the rise in the real effective exchange rate and the rise in export subsidies, which partly offset the unfavourable evolution of prices of manufactured products exported by Brazil in the international market. In 1981, the price of exports in relation to domestic prices fell considerably, due mainly, as we shall see below, to the appreciation of our real effective exchange rate, which resulted in a substantial loss of profitability for the export sector.

4.2.2 – Quarterly data

To analyze the evolution of the competitiveness of exports after the maxi-devaluation of the cruzeiro in December 1979, we have constructed quarterly indices of the real effective exchange rate for industry and of the “profitability” of exports in relation to sales in the domestic market up to the second quarter of 1982, based on the first quarter of 1980. In the absence of any measurements that would enable us to observe quarterly alterations in the level of export subsidies, the “profitability” index of exports in relation to sales in the domestic market, in this case, reflects only alterations in relative prices.

As we can see from column 1 of Table 11, the gains in competitiveness resulting from the maxi-devaluation of December 1979 had already been annulled at the beginning of 1981, while in the second quarter of 1982 a 42% devaluation of the cruzeiro was necessary to put the real effective exchange rate back to the level of the first quarter of 1980. The considerable fall in the real effective exchange rate, which more than offset the

maxi-devaluation of December 1979, may be attributed to two factors, as we can see from columns 2 and 3 of Table 11, which present, respectively, the evolution of the weighted average of the industrial price indices in dollars of our principal partners in relation to the American industrial price index and the evolution of the industrial price index of the United States in relation to Brazil's industrial price index.

Table 11
Real Effective Exchange Rate Index
(1st Quarter of 1980 = 100.0)

Years	$\frac{E}{P} \cdot \bar{P}^*$	$\frac{\bar{P}^*}{\bar{P}_{USA}}$	$\frac{\bar{P}_{USA}}{\bar{P}/E}$
1980 I	100.0	100.0	100.0
II	95.0	100.5	94.6
III	88.2	102.7	85.8
IV	83.9	102.6	81.8
1981 I	79.4	99.1	80.1
II	75.5	91.8	82.3
III	75.6	90.7	83.3
IV	79.6	93.5	85.1
1982 I	74.6	88.7	84.0
II	70.2	87.4	80.0

SOURCES: The same as Table 0.

Throughout 1980, the reduction in the real effective exchange rate may be attributed basically to the fact that the devaluation of the exchange rate was lower than the differential of Brazilian inflation in relation to American inflation, as a result of fixing the exchange devaluation well below the rate of inflation. From the first quarter of 1981 onwards, the fall in the real effective exchange rate was due to the devaluation of the currencies of our

principal partners in relation to the dollar,¹⁴ the devaluation of the cruzeiro in relation to the dollar having approximately accompanied the differential of Brazilian and American inflation.

Given the considerable appreciation of the real effective exchange rate in the period, a very favourable reaction on the part of the relative prices of the basket of manufactured products exported by Brazil would have been necessary for this phenomenon not to have an unfavourable impact on the profitability of our exports in relation to sales in the domestic market. In fact, however, this did not occur. As we can see from column 2 of Table 12, which presents the evolution of the dollar price index of exports deflated by an index that reflects the weighted average of the industrial price indices in dollars of our principal partners, from 1981 onwards the dollar price of the manufactured products exported by Brazil falls in relation to the evolution of the weighted average of the dollar price indices of our principal partners, aggravating even more the fall in export profitability due to the appreciation of the real effective exchange rate: overlooking alterations in the level of export subsidies, it would have been necessary, in the second quarter of 1982, to have a 56.7% devaluation in our exchange rate for the profitability of exports in relation to sales in the domestic market to reach the same level as the first quarter of 1980.

The quarterly indices of export "profitability" show, therefore, that not only throughout 1980 were the effects of the maxi-devaluation of December 1979 practically annulled, but also, even more important, the devaluation of the currencies of our principal partners in relation to the dollar and the fall in the prices of our export products, when compared to the evolution of the industrial prices of our principal trading partners, resulted in a considerable drop in the "profitability" of exports *vis-à-vis* sales in the domestic market.

¹⁴ The relation between the weighted average of the price indices of our principal partners and the American price index does not allow us to assess correctly the real devaluation of the currencies of the other partners in relation to the dollar, seeing that it includes the American price index in the numerator, with a high share.

Table 12

*Evolution of the Index of Prices in Cruzeiros of the Exports of
Manufactured Goods vis-à-vis the Industry's Wholesale
Price Index*

(1971 = 100.0)

Years	$\frac{P_z E}{\bar{P}}$	$\frac{P_z}{\bar{P}^*}$	$\frac{E}{\bar{P}}$	\bar{P}^*
1980 I	100.0	100.0	100.0	
II	96.5	101.5	95.0	
III	89.9	101.9	88.2	
IV	86.0	102.4	83.9	
1981 I	79.0	99.6	79.4	
II	72.2	95.6	75.5	
III	71.7	94.9	75.6	
IV	67.9	85.3	79.6	
1982 I	67.4	90.4	74.6	
II	63.8	90.9	70.2	

SOURCES: The same as Table 9.

4.3 – The competitiveness and performance of the exports of manufactured products

When we compare the evolution of the profitability of exports of manufactured products (Table 10) with the evolution of the share of our exports of manufactured products in the markets of our principal trading partners (Tables 7 and 8), it becomes clear that there is some positive association between market gains and an increase in export profitability: it is precisely between 1971 and 1974 when the profitability of exports in relation to sales to the domestic market increased by 70%, that the Brazilian export share in the American market went from 0.325 to 0.875% and practically doubled in the other countries under consideration, with the exception of Argentina. It is true that between 1974 and 1978, despite the relative stability of the export profitability

index in relation to sales to the domestic market, there can still be seen an increase in the Brazilian export share of manufactured products in the American, European and Latin American markets. However, in the American and European markets, these gains are explained exclusively by the performance of metal products and machines, transport material and equipment.¹⁵ When we compare the evolution of the relation between the index of prices in cruzeiros of exports of machines, transport material and equipment and the wholesale price index of the capital goods sector, what can be seen in the period 1974/78 is that the index of export prices in cruzeiros grew more rapidly than the wholesale price index in this sector, which would

Table 13

Relation Between the Cruzeiro Price Index of Capital Goods Exports and the Wholesale Price Index of the Sector

(1971 = 100.0)

Years	$\frac{EP_K^*}{P_K}$
1971	100.0
1972	100.8
1973	103.5
1974	112.4
1975	113.5
1976	121.8
1977	120.1
1978	115.9
1979	127.8
1980	143.4
1981	111.8
1982*	107.0

SOURCES: *Conjuntura Econômica* and *Boletim do Banco Central*.

*Data referring to the first semester.

¹⁵ For the other groups of products, our share tends to remain stable or even fall.

indicate that this group of products would also have presented gains in competitiveness between 1974 and 1978.¹⁶

Between 1978 and 1980, the Brazilian export share, both in the American and in the European market, remained more or less stable, both at an aggregate and disaggregate level, at the same time as there can also be seen a certain stability in the export profitability index.

These results, therefore, confirm the importance of the "profitability of exports *vis-à-vis* the domestic market" variable as an explanatory variable of the commercial performance of the country.

5 — Summary and conclusions

During the 1970s there was a considerable diversification of Brazilian exports, both in terms of products and markets. Analyzing the evolution of exports throughout the period, one can see a drastic change in the direction envisaged by the theory: the share in exports of manufactured products went up from 16% in 1971 to 38.9% in 1980.

Among the manufactured products, the greatest gains are to be seen in the more technologically sophisticated and/or more capital intensive sectors, such as machines, transport material and equipment and metal products, which in 1980 already represented, respectively, 17.4% and 6.1%, of our total exports and 44.7% and 15.7% of our exports of manufactured products.

In terms of the flow of trade, there can be seen a certain deconcentration of exports between 1971 and 1974, with a reduction in the share of traditional markets, such as those of the countries considered in the total of our exports. Considering only manufactured products, between 1971 and 1974 there was a rise in the relative importance of the American market and a quite considerable reduction in our export share to the Latin

¹⁶ It is also true, however, that, despite the growth of this index between 1978 and 1980, our share fell slightly in the American market and remained stable in the European market.

American countries, a trend that was inverted between 1978 and 1980. Among the manufactured products, we should stress the growing importance of the American market for machines, transport material and equipment in the early years and of the European market between 1974 and 1978, together with a considerable fall in the importance of the Latin American market: while in 1971 the principal Latin American partners absorbed 48.9% of our exports of this item, in 1978 this percentage fell to 22.7%. Between 1978 and 1980, this trend was inverted, reducing the share of the United States in our exports and increasing that of the Latin American partners. Also in relation to the exports of metal products, there can be seen a similar trend, increasing the relative importance of the American and European markets, while there is a fall in our export share to the principal Latin American markets.

In the period 1971/78, the growth rate of total Brazilian exports (excluding fuels) was higher than that of world trade. Disaggregating into sub-periods, however, it can be seen that, on average, the growth rate was higher than that of world trade only for the sub-period 1971/74, while in the sub-period 1974/78 the annual average growth rate is practically identical to that of world trade.

The excellent performance of Brazilian exports between 1971 and 1974 can be attributed to the significant market gains made by Brazil, which explain in this period 48.9% of the growth rate of all exports, and 70.6% of the growth rate of manufactured exports. For the sub-period 1974/78, when total exports grew on average at the same rate as world trade, the "competitiveness" effect explains 18.1% of the growth rate and is counterbalanced by the composition of exports effect, which had a negative impact on the growth rate, due to the fact that our exports were concentrated on slow growth products during this period. As for manufactured goods, the "competitiveness" effect between 1974 and 1978 still made an important contribution, though far smaller than that observed between 1971 and 1974.

Despite the high growth rates of the exports of manufactured products in the period, substantially higher than those of world

trade, Brazil's share in the American and European markets, especially the latter, was still very small in 1980. In the markets of the principal Latin American partners, however, the Brazilian export share could, by 1978, no longer be considered marginal, and it must have gone up even more in recent years.

When we analyze together the evolution of the export profitability index and the evolution of the share of Brazilian exports of manufactured goods in the markets of our principal partners, the existence of some association between market gains and an increase in export profitability becomes clear: it is precisely in the sub-period 1971/74, when the profitability index of exports compared to sales in the domestic market grew significantly, that Brazil increased its share in the world trade of manufactured goods significantly. If we also consider that it is precisely in this sub-period that not only did world trade grow at very high rates (more than twice the average rate for the sub-period 1974/78), but also the Brazilian industrial sector found itself operating with a small margin of idle capacity, then the role played by the increase in the profitability of exports in the trading performance of the country becomes even more apparent.

From 1979 onwards, the economic strategy put into practice in the majority of developed countries has been characterized by the introduction of restrictive monetary policies, aiming at reducing internal demand and, in this way, controlling the rate of inflation and improving the balance of payments by means of reducing imports and increasing exports. As a result of these policies, a considerable reduction has been observed in the level of economic activity in the majority of industrialized countries.

One consequence of this phenomenon has been the external squeeze today observed in almost all the developing countries. The maintenance of this strategy on the part of the leader countries suggests prospects of low growth rates for these economies and, therefore, for world trade in the short and medium terms. In this way, the possibility open to Brazil to generate high positive

trading balances, by way of export growth, would be to increase its share in world trade. Such an objective would demand an exchange rate policy designed to raise the competitiveness of the export sector.

However, this is not what has been happening in the last two years. Tied to the need for attracting foreign resources, the post-1980 Brazilian exchange rate policy has pursued the aim of reducing the costs of foreign currency loans, thus producing a significant exchange rate lag. Were it not for the existence of a growing volume of varied subsidies, both of a fiscal and credit nature, the loss of competitiveness of the export sector would have been even greater in recent years. In a situation of general market tightening, the policy practised until February 1982 — exchange rate lag and export subsidies — became increasingly more problematic, both because of the possibility of retaliation on the part of the trading partners and also as a result of its effect on the increase of the public deficit. Considering also that the situation was aggravated by the fact that Brazil had ceased to be, in many markets, a supplier of negligible importance and, therefore, with its policy of export promotion being closely watched, the remaining alternative was an active exchange policy as a way of gaining space in international trade.

The maxi-devaluation of the cruzeiro in relation to the dollar that occurred in February 1983, when analyzed *strictly* from the point of view of the competitiveness of Brazilian exports, was a necessary measure to bring about an alteration of relative prices in favour of the export sector, if it is believed that the performance of exports, particularly of manufactured products, is closely associated to the profitability of exports *vis-à-vis* the profitability of sales in the domestic market.

Finally, as for the size of the devaluation (30%), this appears to have been sufficient to restore the competitiveness of Brazilian products in the international market, if we consider the export performance in the short period after the maxi-devaluation.

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Social welfare: diagnosis and prospects

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1 — Introduction

It would be difficult to find anyone who doubts the importance of a social security system. However, the debates on such a vital subject have been limited to an extremely short-sighted view of the internal workings of the Brazilian Social Welfare System. Furthermore, even in this restricted context, attention has been given to transitory, superficial or even secondary aspects, causing enormous confusion in public opinion and even in more informed circles. Deficits, fraud, misappropriation of resources, bureaucratization of services are given generous coverage by the news media. Obviously they are problems that are disturbing, as they directly affect the general public and the contributor's pocket. But quite clearly they are not the main problems.

Therefore, it is necessary to analyse more cautiously the cyclical crises that seem to constantly afflict the Brazilian Welfare System, if we are to identify the real causes of imbalances.

Although there is no ideal "technical solution", as the conflicting interest can only be reconciled through the political process, there is a need to discuss objectively certain central issues in the field of Welfare and Social Assistance.

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The first question concerns the economic viability of the system, that is to say, the relationship between the cost of the programs and the activities and the capacity to generate resources from the economy in which the social security system operates.

Equally important is the discussion of equity, concentrating basically on an analysis of who pays and who benefits from the system.

In reality, both the question of viability and equity are two facets of the same problem, in the sense that one cannot, in general, disassociate the amount of the 'bill' to be paid/received from who is going to pay it/receive it.

It is also important to bear in mind that the precise definition of what is viable and/or fair depends, within certain limits, on the society's scale of values and on the efficiency of the mechanisms through which these values form a basis for the effective action of the State. In other words, beyond certain absolute impossibilities — such as situations where the "bill to pay" is greater than the capacity for payment — there are, in general, innumerable alternatives for a Social Security system whose "viability and equity" are only and exclusively functions of a political definition of the society as to the objectives to be attained and the level and distribution of the corresponding burdens.

What are the risks that should be covered by a social security system? What level of coverage? Who should pay, how should they pay and who will benefit from the system? These and many other questions really need to be discussed in depth, questions which lie at the very roots of the social security system.

One can see therefore, that from this point of view, no discussion about social welfare and assistance can ever be carried out in an isolated way, unrelated to the socio-political institutional context in which the system operates.

In the final analysis, what is being discussed are questions of an ethical, moral or doctrinaire character as to the limits and forms of relationship between the State and the individual to which there is no reply without each one making his own value judgement.

The objective of the article is to make a contribution, within the modest limits of the authors' knowledge, towards an informed discussion of these broader questions. For this reason, the basic approach is to supply the reader with data and information that will allow him to form his own opinion of the problems related to Social Welfare and Assistance in Brazil.

It is worth remembering that at the moment our knowledge of the problem is such that it is difficult to formulate alternatives which are efficient from the economic-financial point of view and at the same time reasonably fair on the social plane. On the other hand, a broad and informed discussion of the problem itself might lead to the emergence of alternative solutions. It is important to make clear that the scope of this broad discussion should obviously go beyond the ambit of the executive power, and focus, in a more representative way, on the ambit of society in general.

2 — The evolution of social security in Brazil

The origins of the system of social protection in Brazil go back to the birth of the nation itself. Even in colonial times, there existed some social assistance institutions such as the *Santas Casas* that provided relief for the poor. As Barroso Leite and Paranhos Velloso (1962) point out "it seems true, even from the practical point of view, to consider the *Santas Casas*, the pension societies and charitable institutions as marking an embryonic phase, as mere forerunners of social welfare ...".

Thus, to all intents and purposes, Legislative Decree No. 4.682, January 24, 1923 — more widely known as the Eloy Chaves Law — which introduced Retirement and Pension Funds for the employees of the railway companies, marks the beginning of social welfare as we know it today. Diagrams 1 and 2 provide a synthetic picture of the evolution of Brazilian social welfare, dividing it up into 4 phases.

The first phase, running from the enactment of the Eloy Chaves Law until the beginning of the thirties, operated on

Diagram I

EVOLUTION OF SOCIAL WELFARE IN BRAZIL

ELOY CHAVES LAW
1923

COMPANY LINKED

- Start of Amalgamation of Retirement and Pension Funds
- 1930s ● Establishment of Retirement and Pension Institutes

OCCUPATION LINKED

- Organic Law of Social Welfare (LOPS)
- 1960 s ● Setting up of National Institute of Social Welfare (INPS)

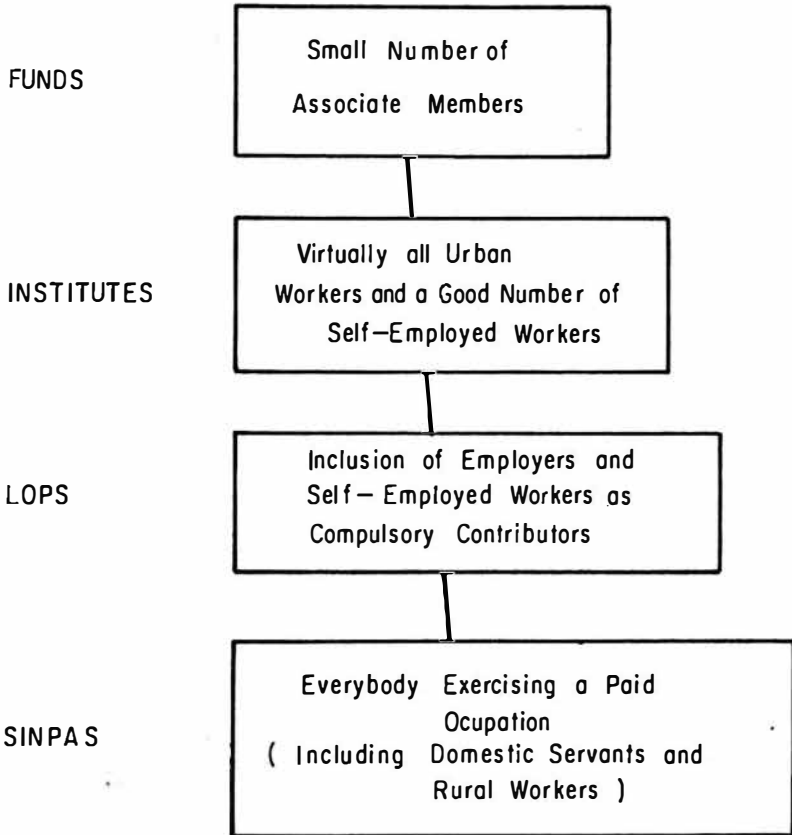
INSTITUTIONAL
UNIFICATION

- Setting up of Pró-Rural
- 1970s ● Formation of Ministry of Social Welfare and Assistance (MPAS)
- Setting up of National System of Social Welfare and Assistance (SINPAS)

UNIVERSALIZATION

Diagram 2

POPULATION COVERED



a company linked basis, through a system of "funds", each with relatively few associate members. This was followed by an occupation linked stage, with the creation of the famous institutes. Though the majority of urban workers were already covered, there continued to be a marked disparity between the benefits offered by the various institutes. After a long drawn out passage

of fourteen years, the Organic Law of Social Welfare was finally passed by the National Congress in 1960, unifying the various systems and paving the way for future institutional unification with the foundation of the National Institute of Social Welfare – INPS in 1967. The Organic Law, among other important provisions, included also for the first time self-employed urban workers as compulsory contributors.

Paradoxically, though Brazil was still a predominantly rural country, all the legislation for the social protection of the worker was aimed almost entirely at urban activities.

The 1970s marked the start of the fourth and final phase in the evolution of the Brazilian welfare system, that is to say, the so called universalization stage. In 1971, rural workers began to receive coverage with the setting up of PRÓ-RURAL which, although offering a plan of benefits considerably more limited than that offered to the urban worker, marked a significant step forward in the field of social justice.

The objective of achieving a redistribution, a fundamental element in a true system of social security, clearly predominates over the principle of strict proportionality between contributions and the value of benefits, inherent in private insurance. Some of the most important examples of this tendency were the establishment of FUNRURAL, of Welfare Assistance (AP) and the setting up of the Rapid Action Plan (PPA).

The National System of Social Welfare and Assistance – SINPAS established through Law No. 6.439, September 1977, is nothing more than the product of various functional specializations of the welfare organs. (see Table 1).

In sum, the Brazilian system of Social Security, on completing 50 years of existence, has also reached a phase of institutional maturity, characterized by practically universal coverage and by the wide range of services offered. The new stage of development is likely to concern itself with giving equality of treatment to certain groups of recipients, eliminating the final discriminatory features still existing in the system.

Table 1

Function	Organ
— Social Security	INPS
— Medical/Dental Assistance	INAMPS
— Pharmaceutical Assistance	CEME
— Fiscal and Financial Administration	IAPAS
— Data Processing	DATAPREV
— Social Assistance	
Needy	LBA
Minors	FUNABEM

Despite the crisis in the economic-financial field, it cannot be denied that the social welfare system represents a significant conquest for the Brazilian people. It is important, however, to see this 'conquest' as being not only a set of rights but also a set of obligations.

The crisis could bring about a deep inquiry into the workings of the welfare system which may lead to a redefinition of its development. Social Welfare and Assistance is not in danger of going bankrupt, as some people have feared. Now, as at many other times in the past, perhaps we have reached the moment when it has become necessary to adjust the objectives of the Welfare System to the political, economic and social realities of the country as it is today.

3 — Revenue and expenditure

3.1 — Revenue

3.1.1 — Source of revenue

The costs of maintaining the Brazilian Welfare System are met by revenues from Social Security contributions, Federal Government contributions and other revenues.

The revenues from contributions are made up, basically, of compulsory contributions which are levied on the pay-roll of urban companies and of contributions made by salaried employees, employers, self-employed persons, domestic workers and others.

The percentage figures for these contributions are, at present, the following:

Urban Employees — General System — varies according to the salary, up to a ceiling of 20 minimum wages:

13 th MW Bracket	Percentage
Up to 3	8.50
3 to 5	8.75
5 to 10	9.00
10 to 15	9.50

— Urban Companies — levied on the pay-roll, up to a limit of 20 minimum wages:

Breakdown	Percentage
Employee Complement General System	10.00
Rural Welfare Contribution	2.4
Family Allowance	4.0
Maternity Allowance	0.3
13 th Wage ¹ (average)	1.5
Work Accident Insurance (varies according to the risks in the activity, from 0.4; 1.2 or 2.5) — Average	1.8

¹On the occasion of paying the 13th wage the employer will receive a sum calculated on the average of wages paid during the year, around 0.72%

— Rural Companies — 2.5% contribution, based on the value of the product when first commercialized.

— Self-Employed Persons — and Contributors in Double — 19.2% contribution based on earnings, according to a table

of base-wages, which increase progressively depending on the time of contribution.

Starting out from this general rule, there are certain variations in the other contributions.

The contribution from the Federal Government is defined, by law, in terms of defraying the costs of personnel and general administration in the organs that make up SINPAS, that is to say, INPS, IAPAS and INAMPS. At present, it includes resources obtained from contributions levied on lotteries, horse racing competitions and the ex-refinery price of automotive fuels, which constitute the so-called "Welfare Quota" and the surplus from the Third Party contribution (Decree-Law n.º 1.867/81).¹

Schematically, Social Security revenues are made up of the following items:

Total Revenue	Average 1971/82 (100%)
1. Own Revenue	93
. Compulsory Contributions	89
. Others	4
2. Funds from Federal Government	7

The compulsory contributions, in their turn, are made up as follows:

	1981
Revenue from Compulsory Contributions	100%
1. Based on Pay-Rolls — Urban	96
. Employee Contribution	33
. Employer Contribution	63
2. Based on Rural Production	4

¹ Corresponding to the allocations to SESI, SENAI, SESC and SENAC based on the part of the payroll between 10 times the greatest reference value and the contribution ceiling.

In general terms, the most important features in the financing structure of Social Welfare can be summarized as follows:

- About 85% of total revenues come from contributions levied on urban pay-rolls. Hence, one can infer that any variation in SINPAS's revenue is determined, theoretically, by variations in urban employment and real average wages.

- Only 28% of total revenue comes directly from workers' contributions. The rest is paid by companies or society in general, through a possible, though unquantifiable, repercussion of the companies' contribution on prices.

- Rural Welfare is, theoretically, subsidised by urban companies, which lends support to the finding that there is no strict connection between the individual's direct contribution and the benefit he receives or will receive.

3.1.2 — Evolution of Revenue

Table 2 shows the performance of total revenue in the Welfare System in the 1971/82 period. One can notice, in a general way, that there has been a reduction in the percentage share of other revenues and an increase in contribution revenues.

As for the participation of the Federal Government, one can observe a general declining tendency in percentage terms up to 1980, with some recovery after this data.

Throughout the seventies, revenues from contributions grew extremely rapidly, at rates even above that of the GDP. This fact can be explained by the influence of various factors, of which the most important were: increase in the ceiling of contributions (from 10 to 20 minimum wages), increase in the percentage contribution of self-employed persons, adoption of new rates (for example: 2.4% contribution rate for rural welfare) and the incorporation of social groups not previously covered (for example: domestic workers). Alongside these factors of an institutional nature, there was also the rapid process of economic development and urbanization that the country was going through, which brought about a large increase in Social Security contributors.

Table 2

*Revenue Evolution of FPAS by Category 1971/82
(At Current Values)*

Specification	Revenue %	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Revenue from Social Security Contributions	Cr\$ Million %	10,166 83.44	15,300 85.42	22,286 87.05	32,733 88.81	49,148 88.21	78,793 88.04	124,594 89.68	188,038 87.97	304,315 92.10	582,687 91.62	1,199,131 87.61	2,962,519 93.06
Federal Government Contributions	Cr\$ Million %	1,338 10.98	1,765 9.80	2,169 8.48	2,662 6.95	3,479 6.24	5,560 6.21	9,856 7.09	12,743 5.96	16,600 4.94	33,139 5.21	130,428 9.53	145,437(*) 4.67
Other Revenues	Cr\$ Million %	680 5.58	857 4.78	1,142 4.47	1,561 4.24	3,090 5.55	5,142 5.75	4,487 3.23	12,967 8.07	9,946 2.96	20,177 3.17	39,116 2.86	75,392 2.37
Total	Cr\$ Million %	12,184 100.00	17,912 100.00	25,577 100.00	36,956 100.00	55,717 100.00	89,495 100.00	138,937 100.00	213,748 100.00	330,861 100.00	636,003 100.00	1,368,675 100.00	3,183,348 100.00

SOURCE: MPAS Costing Group and FPAS Accounts.

* In the Federal Government contributions for 1982, the accounts do not include as revenue the Cr\$ 180 billion of ORTN that were only deducted from the Treasury's debt. If these resources are taken into consideration, the National Exchequer's contribution would become 9.68%.

This increase was due not only to the growth in employment, but particularly to the inclusion by the welfare system of workers that, though already employed, were not contributors as their work situation had not been regularized. As Table 3 shows, the number of contributors grew at a faster rate than the urban population itself.

Table 3

Growth in the Number of Social Security Contributors and of the Urban Population 1971/81

Years	Social Security Contributors		Urban Population		Contrib. Urban Pop.
	Number in Thous	Growth Rate	Number* in Thous	Growth Rate	
1971	9,690		54,219		17.87
1972	10,436	7.70	56,606	4.40	18.44
1973	11,963	14.63	59,034	4.29	20.26
1974	14,973	25.16	61,522	4.21	24.34
1975	16,347	9.18	64,091	4.18	25.50
1976	18,595	13.75	66,727	4.11	27.87
1977	20,957	12.67	69,458	4.09	30.17
1978	21,166	10.26	72,277	4.06	29.28
1979	22,436	6.00	75,177	4.01	29.84
1980	23,782	6.00	78,153	3.96	30.43
1981	24,448	2.80	81,209	3.91	30.10

* IBGE estimate, *Anuário Estatístico do Brasil*, 1977.

It is important, however, to note that, despite the high growth rate in the number of contributors, the rate starts to level off. At the end of the period, this levelling off becomes more accentuated, due not only to the cooling off of the economy but also because the factors that led to the high growth rates in revenue contributions in the period were having a greatly reduced impact.

3.2 — Expenditure

3.2.1 — Structure of expenditure

Besides the normal administrative activities, resources are allocated to three main functions:

— Social Security, covering a wide range of benefits (cash payments) provided by INPS, including various types of retirement benefits, pensions, supplementary benefits, endowments paid to various recipient groups (urban, rural, civil servants).

— Medical Assistance, that is to say, the programs and activities administered by INAMPS.

— Social Assistance, covering the programs provided by LBA and FUNABEM.

Outlays on normal administrative activities include personnel and general administration of the organs in the system and any financial obligations that may arise.

3.2.2 — Evolution of Expenditure

Table 4 shows the evolution of expenditure of the different organs that make up SINPAS as if they had existed from 1971 onwards. It can be clearly seen that INPS, responsible for the payment of benefits, accounts for almost 2/3 of the total expenditure of the system.

It is worth noting that this percentage tends to grow, in a general way, during the period under consideration.

Finally, in that they have a dominant share in the make-up of expenditure, outlays on benefits (INPS) are decisive in determining the growth rate of total expenditure.

Contrary to what some people think, INAMPS, which came to account for about 32% of total expenditure in 1976, has since then experienced a declining share. In 1982, it can be seen that this share had dropped to only 23.28%. It is true that the series of measures introduced in 1981 increased revenues, making it necessary therefore to use a certain caution in interpreting the data

Table 4

Evolution of Expenditure of SINPAS Organs (Current Values) 1971/81

Years	INPS		INAMPS		IAPAS		LBA		FUNABEM		SINPAS	
	Cr\$ Million	%	Cr\$ Million	%	Cr\$ Million	%	Cr\$ Million	%	Cr\$ Million	%	Cr\$ Million	%
1971	7.684	65.67	3.265	27.91	631	5.39	78	0.67	42	0.36	11.700	100.00
1972	11.437	67.99	4.436	26.37	808	4.80	97	0.58	44	0.26	16.822	100.00
1973	15.735	67.77	6.230	26.84	1.077	4.64	118	0.51	55	0.24	23.215	100.00
1974	22.990	68.16	8.943	26.51	1.583	4.69	147	0.44	68	0.20	33.731	100.00
1975	34.290	65.12	15.377	29.21	2.659	5.05	225	0.43	98	0.19	52.649	100.00
1976	56.625	62.41	28.657	31.59	4.959	5.47	308	0.33	179	0.20	90.723	100.00
1977	89.459	64.91	42.115	30.56	5.045	3.66	866	0.63	324	0.24	137.809	100.00
1978	140.149	65.87	63.422	29.81	6.894	3.24	1.683	0.79	614	0.29	212.762	100.00
1979	229.088	68.84	91.791	27.58	7.305	2.19	3.639	1.09	991	0.30	332.814	100.00
1980	464.415	68.02	186.773	27.35	20.236	2.96	8.738	1.28	2.652	0.39	682.814	100.00
1981	1.015.381	68.26	362.112	24.34	84.344	5.67	19.280	1.30	6.467	0.43	1.487.584	100.00
1982	2.240.086	72.19	722.678	23.29	92.853	2.99	35.815	1.15	11.550	0.37	3.102.982	100.00
Average 1971/82	—	67.10	—	27.61	—	4.23	—	0.77	—	0.29	—	100.00

SOURCE: Costing Group of MPAS for the data up to 1977, FPAS General Accounts and the LBA and FUNABEM Accounts.

NOTE: The data relating to the years prior to 1978 were estimated with a view to reconstructing the expenditure of SINPAS if it had existed starting from 1971.

for 1982. Nevertheless, expenditure on medical assistance did not accompany the expansion in Social Security revenues caused by the so-called "welfare package".

On the other hand, expenditure by LBA and FUNABEM went up, showing the emphasis given to the programs and activities connected with social assistance. It must be mentioned, however, that these entities represent a relatively small share.

The growth in IAPAS expenditure in 1980 and 1981 is due to the *deficit*, since this organ has to cover the servicing of the system's debt with the banks.

Table 5 shows the evolution of expenditure with benefits for the 1971/82 period, in current values, as well as in 1982 prices, utilizing as inflators the average wage readjustment factors for each year. Despite possible imprecisions in the data, extremely high growth rates can be observed, generally speaking, in the series inflated in this way.

Table 5

Expenditure on Benefits

Years	Expenditure on Benefits		Growth Rate Inflated Series (%)
	Current Values	1982 Values ¹	
1971	7,126	486,320	—
1972	10,049	575,720	18.4
1973	13,257	662,190	15.0
1974	18,640	754,430	14.0
1975	28,437	879,850	16.6
1976	46,333	1,028,970	16.9
1977	86,931	1,349,520	31.2
1978	138,591	1,520,360	12.7
1979	213,815	1,555,780	2.3
1980	433,533 ²	1,705,230	9.6
1981	968,547	1,906,430	11.8
1982	2 135,000	2,135,000	12.0

SOURCE: MPAS costing group and FNPS general Accounts.

NOTE: ¹Inflator 1970/70 — Cost of Living Index of Mlab used as a basis for wage readjustments. 1970 onwards — variations in INPS.

²Includes Social Security outlays of the Treasury from 1980 onwards.

As to the possible causes of this phenomenon, an attempt is now made to speculate on some aspects which seem to be important without, however, exhausting the subject, as to do so would require an actuarial analysis.

In first place, as will be seen in greater detail later, it can be supposed that a "wave" of contributors in the past have today reached the stage of being benefit recipients. Even though reduced in number by mortality, this "wave" of individuals which, some years ago, produced a rapid growth in revenues, is today causing a rapid growth in expenditure in the form of benefits.

A second factor that is affecting the number of benefit recipients is the progressive liberalization in the conditions affecting retirement (e.g. reciprocal counting of length of service for civil servants) as well the establishment of new benefits (e.g. Life long monthly income for invalids and the elderly, not contributors to the system).

Moreover, with the increase in life expectancy individuals remain longer as benefit recipients, helping to produce the high net growth rates observed.

There is also some evidence that the average value of new benefits conceded each year is greater than the average value of benefits already in existence.

Finally, the selective readjustments according to income bracket introduced by various wage policies after 1979, has had an enormous impact in terms of the growth of expenditure on benefits. One should always remember that, with the legislation in effect, social security benefits are readjusted as if they were wages.

It is obvious that these high growth rates cannot be sustained indefinitely, levelling out in the long run at levels compatible with the growth of the EAP² (something around 3-4% p.a.). The problem is that, until that point is reached, the accumulated deficits and the consequent increases in taxation required to cover them, may simply become insupportable for Brazilian society.

² Economically active population.

In other words, it might be that the high growth rate in expenditure on benefits is the product of a "wave" that some day will pass.

What is not known, however, is the height and the length of this "wave". A more detailed analysis of the recent growth of benefits, elaborated later on in this work, provides some evidence that the peak phenomenon still has a considerable time to run.

4 — The deficit and its causes

Since 1976, the Welfare System has been showing a tendency towards economic-financial disequilibrium, not, however, revealed in the accounts due to the criteria adopted for allocating revenues and expenditure.

Such criteria, though perfectly within the norms in force, tend to record the entry of revenue in advance while delaying the allocation of certain expenditures. Despite this expedient, the Welfare System has been accumulating ever-increasing financial deficits since 1979. Taken as a proportion of total revenue, they amounted to 1.3% in 1979, 8.7% in 1980 and 14.2% in 1981.

The institutional measures adopted by the government at the end of 1981 produced a balanced budget in 1982 and an improvement in the level of indebtedness with the banks.

Already in 1983, as we have seen, the deficit started to grow again, indicating a likely and steady deterioration during the coming years.

On the basis of analyses already carried out, the situation can be explained in terms of an imbalance between the structure of expenditure and the revenues of SINPAS, the roots of which are to be found in the development of the system, especially in the 1970s.

Revenues during the post decade grew on average at 15% a year, in real terms, due to the influence of various factors.

Concomitant with this, expenditure grew at the same rate as revenues, as a result of the creation of new benefits, relaxing the requirement for others, expanding outlays on medical assistance and increasing the activities of social assistance.

Furthermore, one can observe that Social Security expenditure is channelled into two major areas: cash benefits and medical assistance. Contrary to revenues, which depend primarily on economic and institutional factors which can vary in the short term, expenditure and particularly benefit payments is determined by random or demographic factors, comparatively stable in the case of a large number of recipients, which makes it practically impossible to cut, except by institutional changes of considerable political repercussion.

As a result, the moment revenues start to grow at a more moderate rate, for perfectly explicable reasons, the system becomes unbalanced, as the expenditure structure is highly rigid and there is no reserve fund to cover such contingencies.

In fact, those factors mentioned before underlying the extraordinary growth in revenue have become almost exhausted today as a potential source for revenue expansion.

What should be emphasized is that Social Security revenue from now on, in the best of hypotheses, will grow at normal rates and be determined by the general level of economic activity. From an average annual growth rate of about 15% in the seventies, expansion in Social Security revenues this decade will be limited to accompanying the growth rate of the EAP.

While revenue expectations remain on a comparatively modest plane in relation to past performance, the evolution of expenditure follows its own dynamic which lies at the very heart of the structural problem of the Social Welfare System.

Outlays on benefits that take up the lion's share of total expenditures (70% on average), will continue to grow, unless there are changes in the legislation, at higher rates than that of revenue. In the last four years, the real growth rate of expenditure has been around 10% a year.

As for medical assistance, though not affected by the same legal restraints for reducing expenditure as in the case of benefits, there is also a rather complex problem of adapting expenditure to the available resources. Thus, the commitments entered into by the medical assistance system, from the point of view of the

patients and the suppliers of the services, are difficult to go back on and require time to be changed.

Therefore, one can conclude that the Social Welfare System is facing a grave situation, in which the current deficit, already considerable, goes hand in hand with the prospects of a constant lag, in the future, between expenditure and revenue.

Obviously various factors could have been responsible for this deteriorating situation and the size of the deficits. We will now move on to discuss some of them.

4.1 – Recession, unemployment and job turnover

The cooling down of the economy, recession or any other name one cares to give the present situation in the country has had a substantial and visible effect on the employment rate. One would expect, therefore, the growth of Social Security revenues to be adversely affected, producing deficits in the system.

Periodic increases in job turnover can also adversely affect the equilibrium of the welfare system. Although the available data is not sufficient to reach any final conclusions on the matter, there are signs that some companies faced with readjustments higher than the growth in their own income, have adopted the practice of dismissing employees shortly before they are due for a readjustment, and hiring replacements, shortly afterwards, at a lower wage.

4.2 – Wage policy

Wage policy affects the revenues and expenditure of the Social Security System, as 90% of revenues come from compulsory contributions based on wages.³

There are important structural differences between the make up of the wage-based contributions and the payroll of benefits as Table 6 shows.

³ Other benefits are readjusted by the following indices: minimum wage (17.5%); reference value (0.8%); ORTN (0.4%) employee readjustment (1.3%).

Table 6

Largest Minimum Wage*	% of Wage-Based Contributions		% of Payroll of Benefits Readjusted by Social Welfare System	
	By Wage Bracket	By Value Interval	By Wage Bracket	By Value Interval
Up to 3	29.00	58.78	55.55	80.83
3 to 7	30.64	23.35	31.83	17.39
7 to 10	11.64	7.54	11.31	1.46
10 to 15	11.44	6.76	0.91	0.20
15 to 20	7.28	3.57	0.15	0.07
Above 20	10.00	—	0.25	0.05
Total	100.00	100.00	100.00	100.00

*Other benefits are readjusted by the following indices: minimum wage (17.5%); reference value (0.8%); OltTN (0.4%) employee readjustment (1.3%).

As can be seen, although benefits and contributions are more concentrated in the lower wage brackets, there is a considerable disproportion between them, with losses on the contributions side.

Thus the readjustment coefficients differentiated according to wage bracket and greater for the lower wage levels, provided for by Law No. 6.075 since 1979, have introduced a factor of financial imbalance to the welfare system. In fact, the average readjustment of contribution revenue has been less than the average readjustment of expenditure on benefits, as is shown by Table 7.

Table 7

	Law No. 6708/79	Decree Law No. 2012/83	Decree Law No. 2024/83	Decree Law No. 2065/83
Average Readjustment Factor Applied to Earnings	1.027	0.942	0.953	0.878
Average Readjustment Applied to Benefits	1.080	0.987	0.996	0.957

One can see also that the benefit readjustments have a cumulative character, that is to say, the real increase conceded in each period, as was the case of the additional 10% on the INPC for the up to 3 (three) minimum-wage bracket (which was in force until Jan/83) remain as an expense for subsequent periods. The same may not occur on the side of contribution revenue, especially if one considers the current unfavourable situation of the labour market, low productivity gains and the periodic upsurges in job turnover. Thus, imbalances produced with each readjustment increased over time and could only be avoided if the benefit readjustment factor was equal to the readjustment factor applied to earnings.

It can be concluded, therefore, that like unemployment and job turnover, wage policy is one of the factors that can help to produce a deficit, without explaining it fully however.

4.3 – Treasury debt

The discussion about the inadequacy of the Treasury's contribution is as old as the hills. Every time the problem comes under review one is reminded of a discussion between the jacket pocket and the trouser pocket of the same suit about what one owed the other: irrespective of who wins the argument, the individual that wears the suit will still have the same amount of money!

The fact is that the government, in principle, is merely transferring resources; when it decides to do otherwise, issuing money or incurring indebtedness, the effects on the inflation and on interest rates are extremely harmful.

Obviously there is always the alternative of the Treasury financing a larger share of social welfare by reallocating resources. This rearranging of priorities comes up against the limits imposed by the economic conditioners operating in the country. In any case, the very size of the demand for resources from the Welfare System makes any solution fair through greater funding from the Treasury, without any additional burden on society, quite out of the question.

Having made these observations, we now move on to a more formal analysis of this question, for the simple reason that it crops up so frequently.

The Treasury's responsibility, as defined by the legislation in force, consists in covering the costs of personnel and general administration in IAPAS, INPS, and INAMPS, besides eventual financial shortages in the system.

In normal circumstances, the Treasury's contribution in meeting its responsibilities is made by transferring resources, through the budget, to the Social Security Liquidity Fund (FLPS).

In that respect, starting from 1981, the appearance of deficits in the Welfare System and the shortage of contributions led to the introduction of certain measures designed to boost SINPA's own source of revenues and to restructure the Treasury's contribution to the System.

The following measures were introduced to this end:

i) Extension of employers' compulsory contributions to cover allocations to SESI, SENAI, SESC, and SENAC, with the surplus from this levy going to SINPAS, as a Treasury contribution (D.L. No. 1.867/81); ii) supplementary budgetary credit of Cr\$ 50 billion at the end of 1981; iii) a special issue of ORTNS in April 1982, up to the value of Cr\$ 180 billion, with the aim of reducing the Welfare System's outstanding balance with the banks.

All these measures, especially the last one, boosted the Treasury's contribution to SINPAS considerably.

In principle, establishing the debt is simple: one has to ascertain the total expenditure on personnel and general administration in IAPAS, INPS and INAMPS and subtract it from the Treasury's contribution each year. However, it happens that there are various interpretations as to what constitutes "expenditure on personnel", which is the Treasury's responsibility, and from which very different conclusions are reached.

As far as expenditure on INAMPS personnel is concerned, according to one interpretation, expenses with personnel linked to the end-activity (doctors, nurses, etc.) should also be the

Treasury's responsibility. A second interpretation, based both on administrative logic as well as the legal aspects of the question, is that this type of expense should be debited to the account of the medical assistance program of SINPAS and not to the account covering personnel linked to administrative activities, it, therefore, being outside the Treasury's responsibility.

In terms of administrative coherence it is necessary to consider that the expenses of INAMPS, owing to their nature — medical assistance — basically consist of outlays covering the remuneration of specialized personnel, whether directly employed by INAMPS, or indirectly through accredited institutions.

For formal reasons, outlays arising from direct employment are treated as a personnel expense, while those that come from indirect employment — through accredited institutions — enter the accounts as outside services.

At present about 80% of the services provided by INAMPS are through outside institutions. Any change in this model, with the expansion in INAMPS own services, will be reflected in higher expenses on personnel, indispensable in the provision of medical assistance. In this case, if the Treasury's responsibility for covering personnel expenditures included outlays on personnel of the end-activity, this responsibility would become confused with the medical assistance program.

Therefore, in relation to personnel employed directly by INAMPS, the most rational approach would be to separate the cost of the routine operating activities, from that of the end-activities (direct provision of services to the public) which becomes confused with the medical assistance program, the former being the Treasury's responsibility and the latter that of the Social Welfare System.

It might occur that periodically it becomes necessary for the Treasury to foot the bill for the medical assistance program, but such an eventuality would be accounted for under the heading financial insufficiency, a common enough way of treating any deficits in the Social Welfare System.

Table 8 shows the Treasury's contribution compared to the general administration and personnel expenses of the Social

Welfare System, according to the two interpretations mentioned before.

Table 8

Treasury Debt

(Cr\$ million — current value)

Years	Treasury Contribution (1)	Personnel and General Administration*		Differences	
		Including End-Activity Personnel	Excluding End-Activity Personnel	(1 — 2)	(1 — 3)
Up to 1973**				(2,791)	(2,791)
1974	1,759	3,153	2,367	(1,394)	(628)
1975	2,722	6,037	4,097	(3,315)	(1,375)
1976	3,819	10,661	6 796	(6 842)	(2,977)
1977	7,457	14,572	9,562	(7,115)	(2,105)
1978	10,596	22,329	16,482	(11,733)	(5,886)
1979	14,200	37,547	24,992	(23,347)	(10,792)
1980	19,550	63,024	39,363	(43,474)	(19,813)
1981	111,461	185,992	139,508	(74,531)	(28,047)
1982	288,673	305,567	206,465	(16,894)	82,208
Total				(191,436)	7,794

* Included in the general administration expense is Cr\$ 80 billion of interest paid by the Welfare System to private banks in recent years.

** The amount given up to 1973 corresponds to the Treasury's accumulated debt, as registered in the General Accounts of the Social Security System. The same figure has been used for the two hypotheses because only since 1974 has it been possible to obtain data that disaggregates the expenses of personnel linked to the routine operating activities from the end-activities of INAMPS.

Even if one accepts the existence of a Treasury "debt", it would be wrong to cite the insufficiency of the Treasury's contribution as the cause of the social security deficit before 1979, as there was no such deficit. There would be no point, in fact, in increasing the allocation of budgetary resources to the Social Security System in a period in which besides expanding at a rate of 15% a year it was generating surpluses out of its own

resources. In this case, the rational thing to do would be to allocate budgetary resources to other sectors in greater need, especially as the Social Security System had no contingency reserve fund to cover possible deficits in the future. On the contrary, all previous surpluses had been rapidly used up.

Thus, one can speculate that if the Treasury had contributed additional resources to the Welfare System in the past, there would have occurred an even greater expansion in the expenditure, raising it to such a level that there would be a growing need for more resources in the future.

A different situation prevailed in 1979 and 1980, when although the Social Welfare System moved into deficit, the Treasury continued to reduce its contribution.

Thus, if the Treasury had contributed 8% of SINPAS's own revenue (the average for the 1970/78 period) in 1979 and 1980, there would have been no deficit in 1979 itself, with a reduction in the deficit in 1980. But already in 1981, even reestablishing the normal level of Treasury contribution, there occurred a budgetary deficit of Cr\$ 118.9 billion and a cash deficit of Cr\$ 194 billion.

In the same way, despite the exceptional contributions in 1982 and the budgetary surplus presented by SINPAS at December 31st, 1982, the outstanding balance with the banks stood at Cr\$ 31.9 billion.

To sum up, one can state that the financial problem which SINPAS has been facing since 1979 is of a more complex and grave nature than the Treasury's "debt" would make one believe.

The imputations that have been publicly made of the inadequacy of the Treasury's contribution as being the basic cause of the problems of SINPAS, besides being confusing, make it difficult for public opinion to look at the more substantive aspects of the problems of the Welfare System.

4.4 — Medical assistance

To put the discussion on Social Welfare and Assistance in its proper context, it might be necessary to have a look at some of the fallacies and half-truths that surround this subject.

One of the most frequently heard is that which attributes the welfare deficit to “excessive” and “unforeseeable” expenditure on medical assistance. As we have seen, outlays on medical assistance have declined as a percentage of total expenditure in recent years.

As for the lack of forecasting, here one is dealing with a half-truth, as medical expenses are really unforeseeable on an individual level; everyone knows or has heard of someone who goes into hospital thinking he will spend a certain sum of money and finishes up paying substantially more due to real or even fake complications.

It happens, however, that for a sufficiently large group of individuals — and nobody could say that the number of health service patients is small — outlays on medical assistance can be reasonably foreseen. Thus, theory shows and practice proves that there are no big frights in relation to the expenditure on national health service medical assistance, which continues to follow a smooth and declining trajectory.

There is little doubt that with the same amount of resources the national health service could provide much better medical assistance both in terms of quantity and quality than it does at present. Needless to say, frauds, abuses and pure administrative inefficiency produce greater outlays than would be required in ideal conditions.

Nevertheless, ideal conditions are generally speaking only a theoretical reference point to be reached. In terms of an institution the size of INAMPS, it seems true to presume that the gains and losses in efficiency proceed at an extremely slow pace.

In much the same way as the problem of Treasury resources, the medical assistance program would cause a deficit if, suddenly, it increased expenditure *vis-à-vis* contribution revenues, but this has not been the case.

Another line of argument frequently pursued — and equally fallacious — is that as medical assistance is provided according to the availability of resources, any deficit can be attributed to overspending by INAMPS. The fact is that Social Security contributions are divided up among various sectors which have

been increasing their "share of the cake" at the expense of medical assistance.

Finally, it is worth mentioning that medical assistance has been a fundamental objective of Social Welfare since the very beginning. It is useful to remember that usually it is more rational, more humane and above all more economical to provide medical assistance to the worker than to pay him or his dependents benefits for disablement or loss of life.

Thus the attempt to minimize the social welfare deficit by rationalizing medical assistance expenditures, although desirable, should be carried out with great caution: Rationalization cannot and should not become synonymous with rationing, extremely unpleasant in most cases, and socially unacceptable in the case of medical assistance.

4.5 – Contribution evasion

Besides the weak controls within the fiscal apparatus of the welfare system, the current difficult economic situation with high rates of inflation and high interest rates might be inducing employers and other contributors to pay social security welfare contributions in arrears or simply to ignore them. What is aggravating this tendency is the fact that the concession of advantageous terms to liquidate debts, which has been the usual procedure of the Welfare System, might be stimulating current evasion in the expectation of a future amnesty.

One could also presume that the high cost of Social Security contributions is the cause of the evasion. The reasoning would be simple. An employer is faced with a long list of taxes and social security payments: ICM, IPI, PIS, INAMPS, FGTS, FINSOCIAL, etc. Neglecting to pay any one of these places him anyway in an irregular situation, entailing all kinds of restrictions. If, perhaps, the employer cannot or does not want to remain absolutely up-to-date with his fiscal responsibilities, one of the most reasonable options would be to fall behind with social security payments. Depending on the field he works in, social security contributions could represent one of the greatest costs.

Thus in a list of payment priorities, Social Welfare might come (and very often seems to) very low down.

If we accept this type of reasoning, the more expensive the social Security contributions are, *vis-à-vis* the other fiscal and parafiscal levies, the greater the level of evasion. It is certainly an intriguing hypothesis to test.

Let us return, however, to the relationship of the cause and effect between evasion and deficit. As with the case of the inefficiency of medical assistance, evasion can only be considered a cause of the appearance of a deficit if there has been an increased occurrence from one period to another. In other words, if a constant percentage value of contributions is not collected in each period, the revenue growth rates are equal to those obtained if the full amount had been collected.

There are some signs, though very weak, that there was an increase in evasion in the years 1979/80. If the deterioration process continues, we will certainly have identified one of the causes for the appearance of the deficit.

On the other hand, a salubrious step to restore the system would be an all-out effort to increase the efficiency of the collection process, rather than resorting to higher contribution rates.

It can be seen that in the latter case, those that do not pay are rewarded, as they continue not paying the newly increased contributions. The "good contributor" carries the weight of covering the deficit. If we accept that the level of evasion depends on the contribution rates, it is likely that some of these good contributors will think again and decide to join the evaders.

Such a discussion about evasion can lead one to ambiguous conclusions. If there is a growth in the level of evasion, then certainly one of the factors producing the deficit will have been identified; theoretically and morally, the maximum effort should be invested in collecting what is owed, before any other step is taken.

In practice, the inertia of the administrative apparatus means that any efficiency gains in collecting revenues will take time to

be felt. In the case of the social welfare system, the deficit moves more quickly than the bureaucracy, forcing the government to resort to the bitter medicine of raising contribution rates which, as we have seen, might produce certain undesirable side-effects.

There remains, however, a fundamental question to be resolved. Is greater evasion the cause of the growing costs of the social welfare system, or is in fact the contrary the case?

We are not dealing with the old question of what came first — the chicken or the egg — but simply with defining the type of welfare system that we want and which is viable for Brazilian society. In sum, besides improving the controls, there is a need to redefine the level of contributions which can be supported by contributors without which all the efforts might be in vain at best, or extremely harmful at worst.

4.6 — Relationship with the banks (“single account”)⁴

The discussion about the so-called “single account” has often been just as intense as it has been badly informed. Let us try and clarify the question a little.

In the present situation, the banks collect contributions which are credited to a special account. In virtue of the reciprocal time period established in the banking agreement, the sums involved are retained by the banks for an average period of 8.33 days. For this service a charge is levied at a rate of 0.20% for each cruzeiro collected.

The banks also pay out social security benefits through another special account, at a charge of 0.35% for each cruzeiro of benefit paid.

These two accounts are not directly connected. The collected revenues are transferred in the due time to a current account which IAPAS has with Banco do Brasil. In its turn, IAPAS has to cover the “benefit payment” account 48 hours in advance.

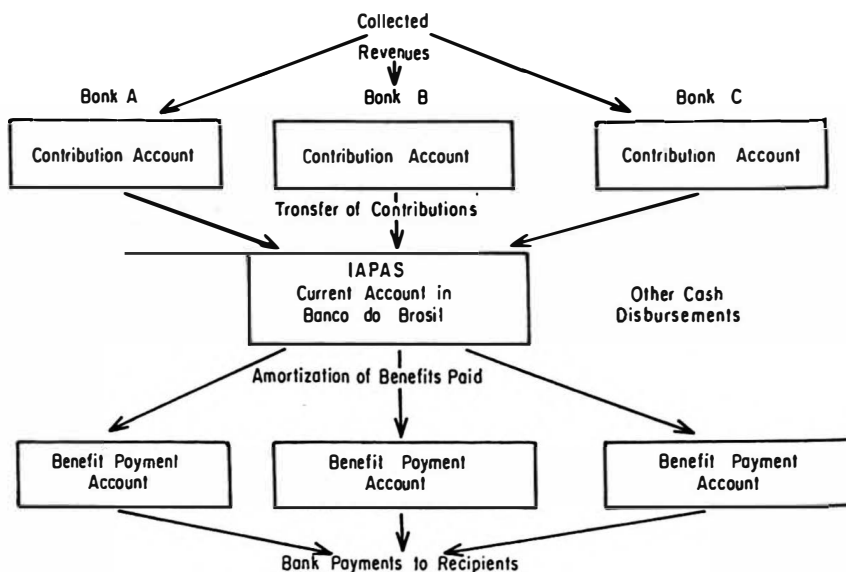
⁴ New agreements might have been reached between the welfare system and the banks since the present article was written.

With or without this cover, the banks pay out benefits. In the latter case, the funds that are advanced by the banks are subject to nominal interest equal to the Central Bank rediscount rate.

Diagram 3 shows the flow of resources between participant banks and IAPAS.

Diagram 3

SCHEMATIC FLOW OF RESOURCES BETWEEN PARTICIPANT BANKS AND IAPAS



One can see that it is not only possible, but in fact happens frequently, to have a situation where the benefit payment account is overdrawn, at the same time that the contributions account has a positive balance. In such a case, the real interest rates on the bank advances (overdraft on benefit payment account) are much greater than the stated nominal rate.

The proposal for a "single account", constantly put forward, limits the banks to charging interest, when the case arises, on

amounts actually owed, that is to say, on the outstanding balance between the two accounts.

Still on this aspect, it is worth remembering that operations with the Social Welfare System are highly profitable for the participant banks. Besides interest and time reciprocity, the banking charges for collecting contributions are indexed monthly taking into account wage readjustments. The half yearly readjustment of benefits, in the same way, corrects the amounts paid to the banks as a charge for these services.

Add to this the fact that Social Security benefit payments occur in the first ten days of the month, when the bulk of collected revenues are not available, mainly due to retention.

Thus the mechanisms through which the Welfare System is related to the banks further add to the deficit, to the extent that they incur interest and other financial costs comparatively greater than those that would be paid in more optimum conditions.

5 — Social security equilibrium — Development and prospects for the active/non-active ratio

The analysis carried out in the previous sections of this article leads one to believe that the root of SINPAS's problems lies in the extremely high growth of Social Security expenditure with social security cash payments.

All things being equal, the equilibrium of a social welfare system as a whole depends on the relationship between the number of active participants and non-active participants (retired people, old-age pensioners, supplementary benefit recipients etc.).

Diagram 4 shows the growth of contributors and beneficiaries in the Social Security System since it was created in 1923 up to the present time. One can clearly observe the rapid growth of contributors, with each successive incorporation of new labour groups into the system.

Eligibility for the first beneficiaries, pensioners and retired persons, was after 5 years, that is to say only in 1929 did they enter the system, establishing an inactive/active ratio of about 1/13.00, as Diagram 5 shows. Since then, the steady entry of beneficiaries into the system has been greater than the entry of contributors – coming from further extensions to the range of benefits – and the ratio increased, reaching 1/8.59 in 1933. The foundation of the Pension and Retirement Institutes for Seamen (1933), Commercial Employees (1934), Bank Employees (1934) and the Pension Funds for Warehousemen (1934) and Stevedores (1934) brought about a continuous reduction in the inactive/active ratio, which reached 1/30.36 in 1938 with the setting up of the Retirement and Pensions Institute for Industrial Workers (IAPI).

The great increase in the number of contributors (111.6% compared with the previous year) which came with the setting up of IAPI was followed by a progressive increase in the number of beneficiaries which led to a continual increase in the ratio, with occasional reversals as, for example, with the establishment of the National Institute of Social Welfare (INPS) in 1967, with the extension of coverage to domestic servants and with the regularization of the situation of self-employed persons in 1973. Other measures, such as the setting up of an Assistance Program for Rural Workers in 1971 and the establishment of social assistance for the over-seventies and for the disabled in 1974, caused a large increase in the number of beneficiaries and also helped the inactive/active ratio to reach 1/2.74 in 1982.

Obviously, using total figures for contributors and beneficiaries hides certain important features that should be taken into consideration in a more detailed analysis of the problem. Thus, for example, a beneficiary who happens to be a rural worker receives as an old-age pension half a minimum wage. Whereas an urban worker receives on average for the same benefit about 1.7 times the minimum wage.

Diagram 4

ACTIVE AND NON-ACTIVE PERSONS (in thous)

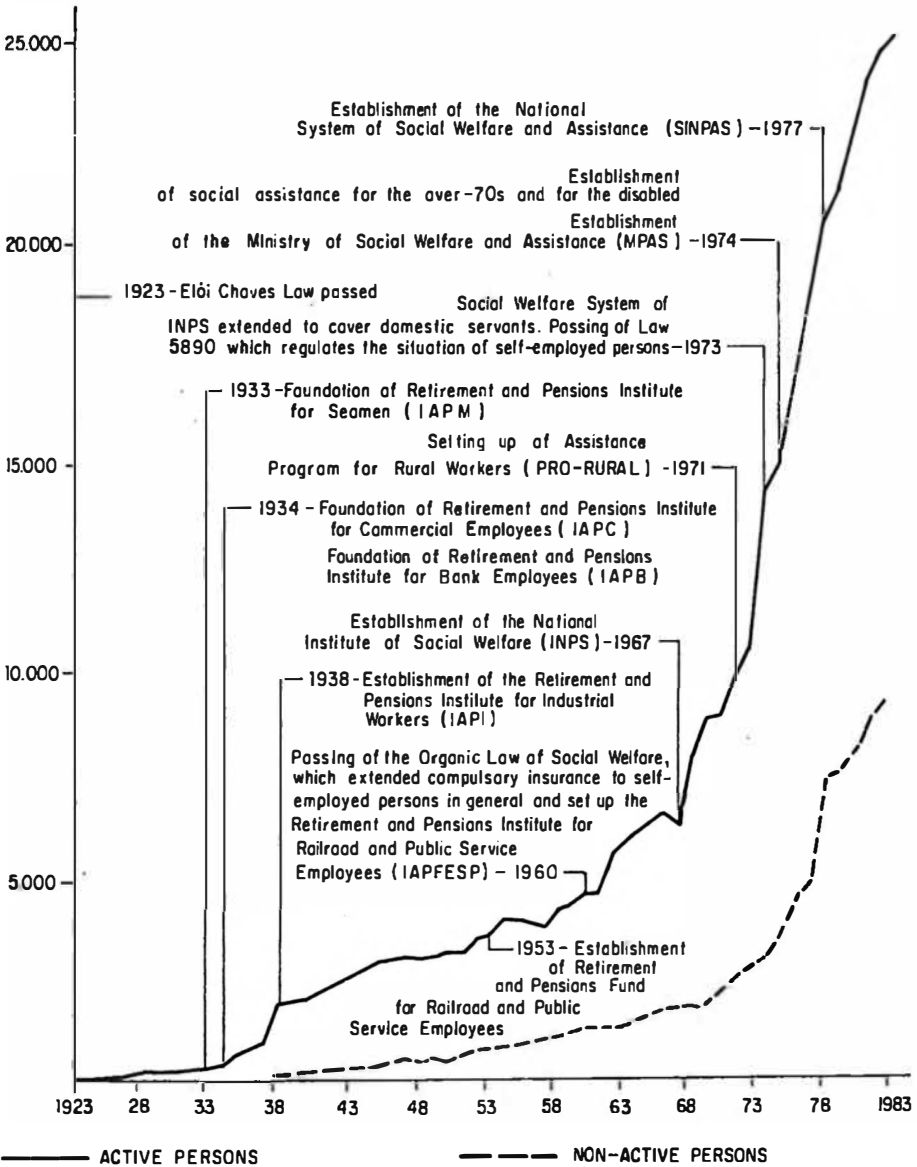


Diagram 5

RATIO OF ACTIVE TO NON-ACTIVE PERSONS

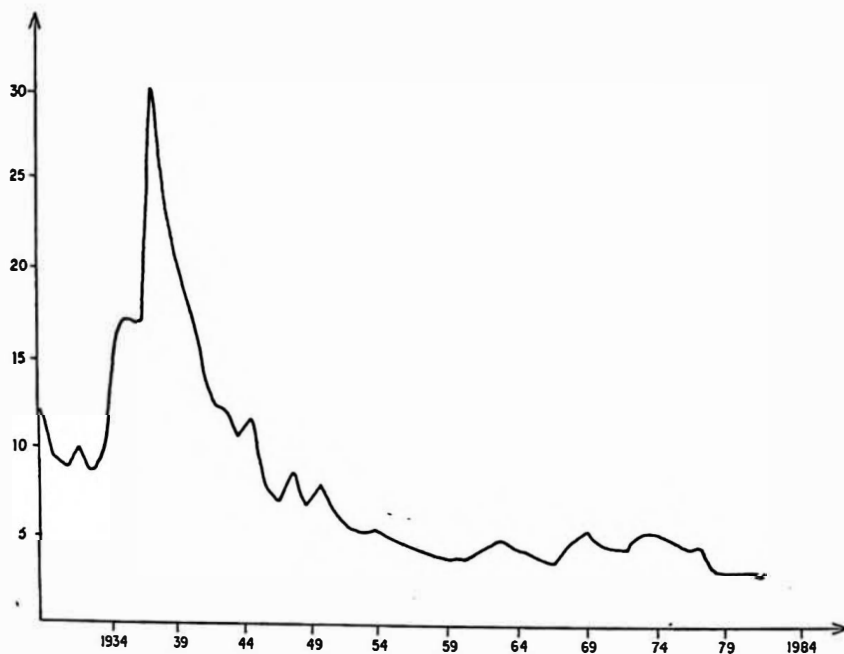


Table 9

Country	Dependency Ratio 1981
Japan	1/5.52
United States	1/3.23
Brazil	1/2.74
France	1/2.67 ¹
Germany	1/1.77 ²

SOURCE: Tamburi (1983).

NOTE: ¹ 1980.² 1979.

It is true, nevertheless, even recognizing these limitations to the analysis, that the dependency ratio in the Brazilian Social Security System has already reached very high proportions. Simply as an illustration, Table 9 shows the inactive/active ratios in some countries.

Like any international comparisons, this also should be interpreted with great caution. Given the different per capita incomes, a 1/1.77 ratio in Germany might be more easily supported than the Brazilian figure. The taxable surplus of active persons, above basic consumption levels, is considerable in developed countries, allowing a sizeable number of inactive persons to be maintained by the system.

As for future prospects, there are few signs on the horizon that the Brazilian social welfare system is going to be any less problematic. Recent studies which have been carried out (Carvalho *et alii*, 1981), show that the age structure of the Brazilian population by the end of this century will present a considerably aging profile. A decline in the birth rate may produce a situation where the proportion of people over the age of 60, in the year 2000, is about 15% greater than at present.

On the other hand, increased life expectancy will mean an increase in the duration of benefits. For example, someone who reaches retirement age at 55 can expect to live for a further 17.39 years in the case of a man and 20.91 years in the case of a woman.

As for the growth in contributors, there are two fundamental factors: evolution of the economically active population – EAP and the labour market. The fall in the birth rate may lead to a slower growth in the EAP even in this decade. Furthermore the rapid urbanization process through which the country has been passing in the last two decades seems to have almost reached its limit. Thus, on the demand side for urban jobs – and consequently in the formation of a mass of potential contributors to the social welfare system – a fall in the growth rate is expected.

On the supply side for jobs, the prospects are also none too brilliant, unless there is a rapid growth of output or radical

changes in the labour/capital allocation in the productive process. The same can be said of real wage increases.

To sum up, there is every indication that the social welfare system is heading straight for a crisis of a structural nature, of which we are only feeling the first symptoms.

6 — Recent evolution of benefits

The analysis of what can be described as the structural problems of social security require an extremely precise examination of the past evolution and future prospects of benefit expenditure. Strictly speaking, it should contain actuary projections, which, within the stated work hypotheses, would provide a panorama of the likely behaviour of each kind of benefit offered by the social welfare system.

Unfortunately, the studies being elaborated in this direction in the IPEA/INPES ambit still have not been completed. Thus we will use only the figures related to the last 4 years of the number and the value of regularly paid benefits as a basis for reaching certain conclusions.

Using data related to a very short period means that any conclusion should be interpreted with due caution. Even recognizing these limitations, an examination of the tables that follow provide strong evidence that certain types of retirement benefit — for ordinary and special time of service and old-age pensions — are witnessing extremely high growth rates by any yardstick.

It is always possible, of course, that the 1979/82 period is “atypical”. For lack of a better knowledge of the phenomenon, it is perhaps prudent to consider that these growth rates might remain relatively stable in the short run. In this case, as will be seen later, it will not be possible to finance the system in the form it is structured at present, without resorting to successive increases in contribution rates or other forms of taxation.

With these points in mind, let us turn to the data.

Table 10 provides a picture of the distribution of urban and rural benefits in number and in value, and the respective growth rates. One should observe, in particular, the evolution in value

of urban benefits which, as we have seen, represent more than 2/3 of the total outlay on regular payment benefits.

Table 11 shows the distribution and growth of social security benefits in the urban areas. One can notice that, although representing only about 40% of the number of benefits on average during the 4 years, retirement payments accounts for around 62% of the value of regular payment urban benefits.

It is also extremely apparent that retirement payments have grown extremely rapidly over the last 4 years.

Finally Table 12 analyzes in more detail urban retirement payments. As we have mentioned before, the benefit categories, time of service, special and old-age, have experienced very high growth rates, incompatible with any forecast for increased revenues, no matter how favourable the prospects for economic growth in the country may be.

Furthermore one should also point out that retirement payments for time of service and the special category added together account for 35.5% of the number of urban retirement benefits, while in value terms they account for 60% of the total. Even though some persons who have retired through time of service might also have been eligible to retire through age, it is

Table 10
Regular Payment Urban and Rural Benefits
(Average 1979/82)

Type of Benefit	Share of Total		Growth Rates*	
	In Number	In Value**	In Number	In Value**
Urban	67.76	84.81	6.25	10.78
Rural	32.24	15.19	8.59	9.28
Total	100.00	100.00	6.99	10.54

SOURCE: Tabulações DATAPREV.

NOTES: All values in percentages.

* Annual average rates.

** Values deflated by the highest minimum wage in force in December of each year.

Table 11

Regular Payment Urban Benefits
(Average 1979/82)

Type of Benefit	Share of Total		Growth Rates*	
	In Number	In Value**	In Number	In Value**
Retirement	39.99	61.96	8.50	12.81
Pension	25.77	18.15	6.79	10.51
Lifelong				
Monthly				
Income	16.65	5.92	-0.14	1.07
Assistance	15.15	12.26	8.07	7.15
Others	2.44	1.71	-1.63	4.19
Total	100.00	100.00	100.00	100.00

NOTES AND SOURCE: (See Table 10).

Table 12

Urban Retirement Benefits
(Average 1979/82)

Type of Benefit	Share in Total		Growth Rates*	
	In Number	In Value**	In Number	In Value**
Disablement	50.91	28.82	6.29	11.58
Time of Service	31.17	53.43	9.51	12.47
Old-Age	13.09	10.52	14.81	17.67
Special	4.45	6.96	10.56	14.17
Others	0.38	0.27	-9.16	-7.50
Total	100.00	100.00	8.50	12.81

NOTES AND SOURCE: (See Table 10).

easy to see the heavy weight that this type of benefit has in the overall scheme of social security payments and its prime importance in causing a financial-economic imbalance to the system.

7 — Equity aspects of social security system

A study of the redistributive aspects of the Brazilian social welfare system would require a volume of data and information which, at the moment, is still not available to us. Thus, we will limit the analysis to some comments about the possible distortions in the social security system, focusing basically on the problem of time of service retirement.

In fact, Brazil is one of the few countries in the world that offers this type of benefit. As Table 13 shows, in this country a minimum time of effective contribution is required (60 months) and there is no demand for the retirement beneficiary to give up working.

Table 13

The 7 Countries Which Have Time of Service Retirement

Country	Time of Service (Years)		Time of Contribution (Years)		Need to Give up Job
	Men	Women	Men	Women	
Brazil	30(2) 35(3)	30(3)	60	60	No
Egypt	20(2)	20(2)	240	240	Yes
Ecuador	35(3) 25(4)	35(3) 25(4)	420 300	420 300	No
Iraq	30	25	360	300	Yes
Italy	35	35	420	420	Yes
Kuwait	20	20	240	240	Yes
Lebanon	20	15(5) 20	240	180 240	Yes

(1) Special Retirement schemes for time of service after 15 years for certain occupations.

(2) Reduced.

(3) Full.

(4) Reduced, after the age of 45, 300 months of contribution and 6 months of unemployment.

(5) If married, mother, divorced or widow.

Table 14 shows the percentage of persons retiring through time of service for each age group according to the starting date of the respective benefit. One can see that 59.21% of the men that are today retired through time of service were, on the starting date of the respective benefit, up to 55 years old. For the female sex, this figure rises to 73.27%.

Table 14

*Percentage of Persons Retiring Through Time of Service *
According to Age of First Receiving Benefit*

Age When First Receiving Benefit	Sex		
	Male	Female	Both Sexes**
Up to 45	4.41	10.93	5.05
Up to 50	28.25	44.48	29.43
Up to 55	59.21	73.27	59.61
Up to 60	81.90	90.05	81.56

* B. 42.

** It also includes the benefits for those where the register does not give a sex breakdown.

In the debate on time of service retirement it is very common to hear the following statement:

"Life expectancy in Brazil is very low. If an age limit is established, almost nobody would make use of this benefit."

Indeed, as Table 15 shows, life expectancy at birth for a Brazilian, although on the increase, is still very low.

However, the fact is that life expectancy at birth is hardly relevant in analyzing the problems of retirement through time of service. As Table 16 shows, life expectancy at each age level is very diverse. Having overcome the infant mortality hurdle, life expectancy grows significantly. For example, an individual of the male sex who, in 1970, had been 50 years of age, would have lived on average another 20.67 years, reaching the age of about 70.

Table 15

Year of Birth	Life Expectancy at Birth (Years)	
	Men	Women
1910	33.4	34.6
1920	33.8	35.2
1930	35.7	37.3
1940/50	43.3	43.1
1950/60	52.3*	
1960/70	54.9	59.0
1970/75	58.8	63.1
1975/80	61.3	65.5

SOURCE: IBGE, *Anuário Estatístico do Brasil*, 1981.
* Both Sexes.

This means that anyone who started to work at the age of 14 would be able to retire at 50, with full benefit, or at 40, with proportional retirement benefit. In these cases, someone of the male sex, would receive benefits for 20.67 years or 24.25 year respectively. If there are dependents (wife, minor children or invalids) there (will also be) a pension after the death of the retired person.

It is worth remembering that under Brazilian legislation a 30 or 35 year time of service is required *in some activity covered today by the Urban Social Welfare System* to be eligible for proportional or full retirement benefits; however *only 60 monthly contributions are necessary to qualify*.

From the equity point of view, it is important to bear in mind the life expectancy differential according to income level. This differential is greatest when one is dealing with life expectancy at birth, given the strong influence of income on the infant mortality rate. Although steadily decreasing, those differentials also affect life expectancy at each age level.

This fact raises a new consideration in the analysis of the social justice aspect of retirement through time of service. Those

individuals from low income groups, having survived the high infant mortality rate and who happened perchance to have the foresight to keep all corroborative documentation of their time of service, are exactly those who, on average, tend to make the least use of the benefit.

Table 16

Life Expectancy, by Sex and Age — 1970

Age	Life Expectancy (Years)	
	Men	Women
0 year	55.06	59.22
1 year	60.67	64.84
5 years	58.38	63.20
10 years	53.80	58.66
15 years	49.10	53.96
20 years	44.58	49.40
25 years	40.23	45.02
30 years	36.03	40.78
35 years	31.96	36.55
40 years	28.00	32.42
45 years	24.25	28.48
50 years	20.67	24.62
55 years	17.39	20.91
60 years	19.51	17.48
65 years	12.03	14.27
70 years	9.96	11.39

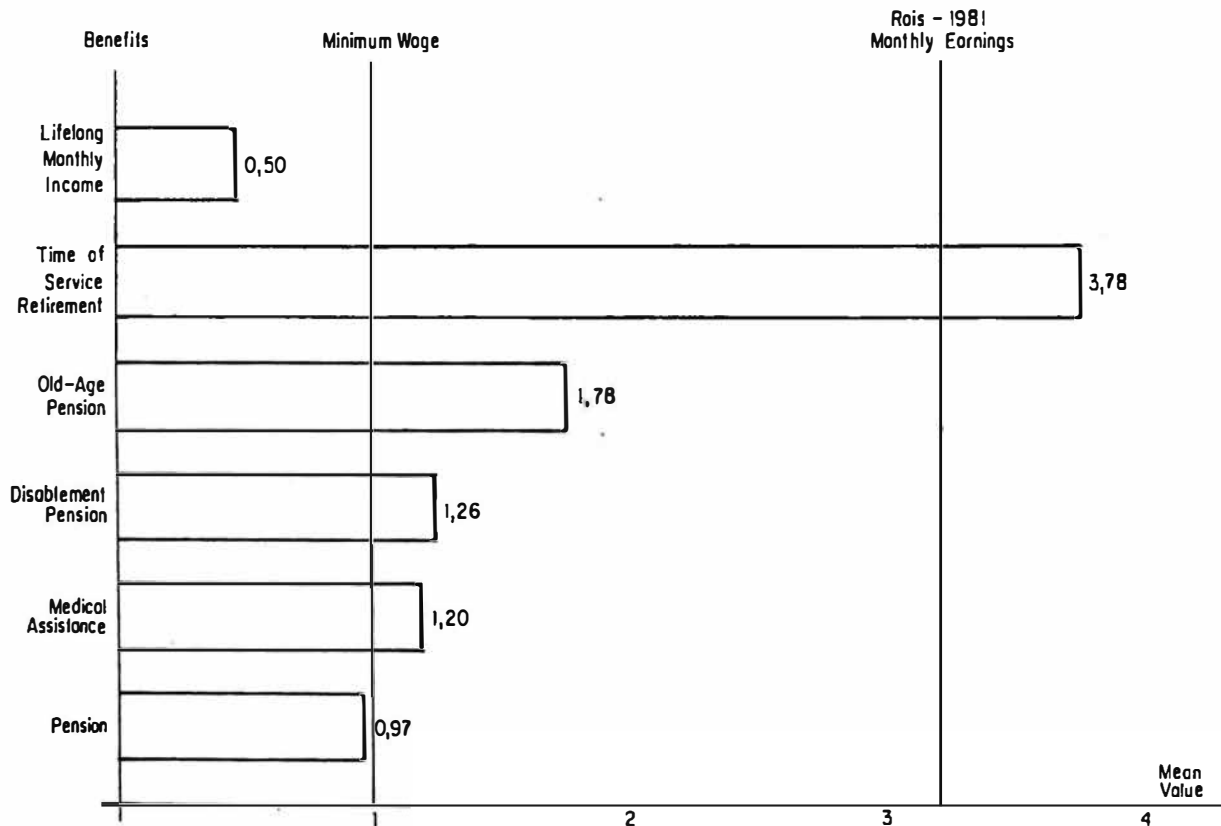
SOURCE: IBGE, *Anuário Estatístico do Brasil*, 1981.

Diagram 7 compares the average value of certain types of benefit, expressed in November 1982 minimum wages. It can be clearly seen that the average value of retirement benefit through time of service is about three times greater than that through disablement and is even higher than the average monthly remuneration found in the Annual Report of Social Information — RAIS.

Obviously the simple differential between the age profile of persons retiring through time of service and through disablement

Diagram 6

ONGOING BENEFITS IN NOVEMBER 1982 AVERAGE VALUE (IN MINIMUM WAGES



would in itself cause some differentiation in the average value of benefit, bearing in mind the correlation which exists between earnings and the age of the recipient. Although so far it has not been possible to quantify this, it seems likely that a large part of the differential is explained by the fact that the persons retiring through time of service come from a relatively "richer" segment of social security contributors than the population of contributors as a whole, from where the majority of persons retiring through disablement come.

In conclusion, there is some evidence that there might be a redistributive process at work in the wrong direction in the case of special retirement and through time of service.

8 — Final considerations

The discussion of the problem of Social Welfare and Assistance in Brazil should go beyond the narrow limits of projecting and analyzing the causes of periodic deficits and focus on the wider issues that are involved.

Everything seems to indicate that the burden of contributions necessary to finance social security benefits is becoming heavier and heavier for each new generation of contributors.

Along with the question of viability there should be a careful examination of the distribution of the burden and the benefits with each alternative for providing Social Security, so that any compromise solution, emanating from the political process better serves those really in need, without unduly penalizing society.

Thus, in our opinion, it is necessary that the basic concepts underlying a Social Security System are discussed as much as possible, demystifying certain tabus, clarifying the half-truths and helping to provide the right solution to a problem which is not only the government's, but that of practically every citizen in the country.

We consider that only by debating the issue can we achieve a just and viable system which meets the legitimate aspirations of the population, without becoming too paternalistic or overly pampering. If on the one hand the utopia of the "Welfare State"

seems to be becoming discredited, on the other hand certain absurd ideas have started to sprout, such as the total privatization of Social Security, an ominous hangover from the out-of-date concept of laissez-faire. It is very necessary to make sure in particular that the present crisis which the Social Welfare System is going through leads to an evolution and not an involution, both on the conceptual-theoretical plane as well as the practical.

We have to try and get away from simplistic solutions that tackle only short term problems and which are arbitrarily imposed on the population. One should always remember that one of the basic principles on which Social Welfare is founded is that of solidarity. For this principle to be something more than mere words and for it to have an effect on people's attitudes, it is vital that everyone is fully aware of the problems of Social Welfare, know what the future has in store for them and actively take part in choosing solutions.

We think that the best way of restoring the badly shaken credibility of the Social Security System is by revealing the truth in a simple and direct way. It is important to make it clear that in general, the "acquired right" to receive a specific benefit also implies an "acquired obligation" to pay the necessary contributions. It is important for everyone to understand that if someone is receiving more than he pays it is because someone else is paying more than he will receive. It is important to get rid of the myths.

No matter how obvious it may seem, one cannot repeat it too often, benefits are not like manna, which dropped freely out of the sky; on the contrary, they cost the population a lot, especially in a poor country like Brazil where very often Social Security Contributions mean sacrificing basic consumption itself. Thus, it is vital that mechanisms are created for society to control and take part in the Social Welfare System, so that it may develop, within the limits of what is viable, in the direction of real social priorities, benefiting particularly the low income groups both in terms of contributions as well as in the services offered.

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The new demographic profile of Brazil *

*José Alberto Magno de Carvalho ***

1 – Introduction

The Brazilian population, as a whole, can be considered closed in the post-war years, as it grew almost exclusively due to the balance between the levels of fertility and mortality. Population growth increased enormously between 1940 and 1960, reaching an yearly average of 2.34% in the 1940s and 3.05% in the 1950s, dropping slightly to 2.83% in the 1960s and more markedly to 2.48% in the last decade.

The increase in the rate of growth was due almost entirely to the decline in mortality during the period, with fertility remaining at a very high level. As the age distribution of a closed population depends basically on the level of fertility, the distribution of the Brazilian population remained more or less constant, with a high proportion in the young age groups, around 51% below 20.

Demographic growth in Brazil has been the subject of intense debates in political and academic circles, where, generally speaking, based on past trends, its high rate of population increase has

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•• Development and Regional Planning Center (CEDEPLAR) of Federal University of Minas Gerais (UFMG).

been taken as a given fact and as endogenously unlikely to suffer a decline in the short term.

However, based on the data collected in the various National Surveys by Household Sampling (PNAD) in the 1970s and the 1980 Demographic Census, there are clear signs of a rapid decline in fertility, at a rate which did not occur in the 1960s.

This rapid drop in fertility will have two distinct demographic effects, with important socio-economic repercussions. The first will obviously be a fall in the population growth rates. The second, less obvious, will be a change in age distribution over a very short period. There will be a relative decrease in the younger population, with the possibility in particular periods of even an absolute decrease in certain age groups, which is likely to cause a transitory situation where new generations are smaller than those immediately coming after.

While the age distribution remained constant, the basic element for socio-economic planning was only the demographic growth rate, since, for example, the increase in demand for school places and new jobs would basically accompany the rate of population increase. With a rapid decline in fertility, besides the demographic growth, the change in the age structure and its behaviour in the future become extremely important variables for the purpose of planning in the short, medium and long terms.

This study limits itself, after describing the demographic evolution of Brazil between 1930 and 1970, to a presentation and discussion of the behaviour of fertility and mortality in the 1970s, as well as their impact in terms of the rate of growth and age distribution of the Brazilian population.

2 — Evolution of fertility and mortality in Brazil — 1930 to 1970

There are few studies that analyse the evolution of fertility and mortality in Brazil, the majority of authors restricting themselves to an analysis of the data from the 1970 Demographic Census. The present article concerns itself almost exclusively with presenting the results of the research carried out by

CEDEPLAR, which has the advantage of covering the period that we propose to study, that is, from 1930 to 1980. It should be mentioned that estimates from other researchers for points within the period analysed show little divergence from the estimates that have been adopted here [Mortara (1958 and 1970), Leite (1971), Berquó (1977, pp. 251-303) and National Research Council Committee on Population and Demography (1983)]. So as to facilitate reading, the description of the estimation techniques used will be included as an annex.

Table 1 shows the estimates for the rate of total fertility in the 10 Brazilian regions,¹ as well as the gross birth rates from 1930 to 1970 (estimates for 1950/60 are not available.)

The rate of total fertility should be interpreted as the average number of live born children per woman on completing 50 years of age, given the prevalent levels of fertility in the period in question. The gross birth rate corresponds to the number of live born children during a year per one thousand inhabitants. The rate of total fertility depends only on the distribution of fertility, while the gross birth rate depends on the distribution of fertility and on the age distribution of the population.

An examination of the rates of total fertility in the 1960s reveals an enormous disparity between regions. The Amazon and the three regions of the Northeast have extremely high levels, above 7 live births per woman, while Rio de Janeiro and São Paulo are found at the lower limit, around 4 births. Such differences are also obviously found in the gross birth rates, reflecting besides the fertility level, differences in age distributions.

The table also shows the variation of the two rates between 1940/50 and 1960/70. While in the country as a whole the level of fertility fell 8% between the two decades, the birth rate went

¹ The 10 regions are made up as follows: The Amazon: Amazonas, Pará, Acre, Amapá, Rondônia and Roraima; North-Northeast: Maranhão and Piauí; Central-Northeast: Ceará, Rio Grande do Norte, Paraíba, Pernambuco and Alagoas; Southern Northeast: Bahia and Sergipe; Minas: Minas Gerais and Espírito Santo; Rio de Janeiro: Rio de Janeiro; São Paulo: São Paulo; Paraná: Paraná; South: Rio Grande do Sul and Santa Catarina; and Centre-West: Mato Grosso, Goiás and the Federal District.

Table 1

*Brazil and Regions: Estimates of the Rates of Total Fertility
(Per Woman) and of the Gross Birth Rates (Per 1000 Inhabitants)*

	Rate of Total Fertility				Gross Birth Rates			
	1930/40	1940/50	1960/70	$\frac{1960/70}{1940/50}$	1930/40	1940/50	1960/70	$\frac{1960/70}{1940/50}$
The Amazon	6.9	7.3	8.1	1.10	50.2	50.6	49.3	0.97
North-Northeast	7.0	7.0	7.3	1.04	51.1	49.4	45.3	0.91
Central-Northeast	7.9	7.7	7.8	1.01	55.5	55.1	51.1	0.92
Southern-Northeast	6.9	7.3	7.6	1.04	50.3	52.9	49.4	0.93
Mirás	7.2	6.8	6.5	0.95	50.4	48.6	42.4	0.87
Rio de Janeiro	4.2	4.0	4.0	1.00	33.7	33.0	29.3	0.88
São Paulo	5.6	5.1	4.2	0.82	41.8	39.3	31.9	0.81
Paraná	5.9	5.9	6.5	1.10	42.1	42.9	43.2	1.01
South	6.2	6.2	5.1	0.82	43.0	43.6	32.6	0.75
Centre-West	6.2	6.4	6.6	1.03	44.3	45.8	44.2	0.97
Brazil	6.5	6.3	5.8	0.92	47.2	46.5	41.1	0.88

SOURCES: 1930/40 and 1940/50: Carvalho (1974); and 1960/70: Carvalho (1978).

down 12%. This was due to the fact that between the two periods the small change in the age distribution of the Brazilian population led to a drop in the birth rate. Out of the total 12% drop in the birth rate, around 4% were due to changes in the age structure of the population.² This phenomenon also occurred in all the regions analysed, where even the regions that experienced an increase in fertility had a drop in the birth rate, with the single exception of Paraná, where there was a 1% increase in the birth rate, while the fertility level rose 10%.

Restricting ourselves to an analysis of fertility, it can be seen that the regions of the Amazon, the Northeast, the Centre-West and Paraná maintained their levels of fertility constant or even rising in the period. Particular attention should be paid to the cases of Paraná, which went from 5.9 to 6.5, and the Centre-West, from 6.4 to 6.9. Both are regions which, in the 1940s, exhibited average levels of fertility by Brazilian standards and yet experienced increases. As they were areas of agricultural expansion, this phenomenon is very common, since the greater availability of land can be a factor which induces the poor immigrants to form large families.³ As for the other regions in this group (the Amazon and Northeast), it is likely that in the period under consideration there was to some extent, an improvement in living conditions and standards of health which, in the absence of birth control, will have increased the level of fertility, due to increased fecundity⁴ and the reduction in fetal mortality,⁵ a factor which might also have influenced the fertility level in Paraná and the Centre-West.

The Southern region, São Paulo and Minas were already starting to experience a gradual decline in fertility in 1970,

² The argument is based on the assumption that, in the period analysed, there had only been a drop in the level of fertility, with its structure remaining constant, which in general seems to have occurred.

³ See, for example, Easterlin (1973) and Merrick (1976).

⁴ Fecundity refers only to the capacity of women to beget children.

⁵ In Carvalho and Paiva (1979), there can be seen a direct relationship between fertility and income for the poorer population in the country as a whole in 1960/70.

particularly the first two. Surprisingly enough, there was no variation in the Rio de Janeiro region. However, it should be mentioned that this region was characterized by low levels of fertility in the 1930s and 1940s.

Table 2 shows the estimates of life expectancy for the population of Brazil as a whole and for the various regions in the 1930s, 1940s and 1960s. The estimates of life expectancy at birth should be interpreted as the average number of years that the members of any given generation would live, if subjected to a mortality function defined by the average mortality observed in the decade and the region studied. As the levels of mortality declined throughout the period, the younger age groups would in reality live longer on average than the estimate for the decade, with the opposite occurring with the older generations.

Table 2

Brazil and Regions: Estimates of Life Expectancy at Birth and Gross Rates of Mortality

	Life Expectancy at Birth			
	1930/40	1940/50	1960/70	$\frac{1960/70}{1940/50}$
The Amazon	39.8	42.7	53.8	1.26
North-Northeast	40.0	43.7	50.6	1.16
Central-Northeast	34.7	34.0	44.2	1.30
Southern-Northeast	38.3	39.2	49.9	1.27
Minas	43.0	46.1	55.6	1.21
Rio de Janeiro	44.5	48.7	57.7	1.18
São Paulo	42.7	49.4	58.8	1.19
Paraná	43.9	45.9	57.0	1.24
South	51.0	55.3	62.6	1.13
Centre-West	46.9	49.8	57.9	1.16
BRAZIL	41.2	43.6	53.7	1.23

SOURCES: 1930/40 and 1940/50: Carvalho (1974); 1960/70: Carvalho (1978).

The substantial gain in the life span of the Brazilian population since the 1930s is quite apparent a phenomenon shared equally with other Latin American populations in the same period. In fact, the increase was much more rapid than that experienced by the European populations, when, at the end of the last century and the early part of this, they had similar levels of mortality to those of Brazil in the 1930s.⁶

It should be noted, however, that extreme regional differences continued to exist, despite the fact that the Central Northeast region with the highest level of mortality in Brazil experienced the greatest relative increase in life expectancy at birth for its population. Even so, the estimate of 44.2 years in the 1960/70 period was still very low, corresponding to the Brazilian average in the 1930s, if we do not include the region in question in the figures. In other words it took 30 years for the Central Northeast to reach in the sixties the average level of mortality of the rest of Brazil in the 1930s.

3 — Evolution of fertility and mortality in the 1970s

The data from the National Surveys by Household Sampling in the 1970s already indicated, surprisingly enough, a rapid decline in fertility in all the Brazilian regions [Carvalho (1980)], a fact which was fully confirmed by the 1980 Census.

Table 3 shows the estimates of fertility, based on data taken from the 1970 and 1980 Censuses. As we have seen before, while the level of fertility in the country declined only 8% between 1940/50 and 1960/70, with diverging patterns on a regional scale, there was a nationwide decline of about 26% between 1960/70 and 1975/80, with a significant drop in every region in Brazil. Except for the Southern Northeast region, with a more modest decline of 7.0%, in all the other regions the decline was very great, always above 18%, with the populations of the Central

⁶ See, for example, United Nations (1973).

Northeast, Minas, Rio de Janeiro, Paraná, the South and Centre-West experiencing a fall of over 25%.⁷

A generalized decline in fertility on the scale observed in Brazil, in such a short time period, 15 years on average, is surprising, when compared with the experience of other countries, both developed and underdeveloped, and one should not forget that it took place in a country with a vast surface area, large population, enormous heterogeneity and without any official demographic policy.

Table 3

Brazil and Regions — Rates of Total Fertility 1960/80

	1960/70	1975/80	Percentage Variations
The Amazon	8.1	6.4	—21.0
North-Northeast	7.3	6.8	—7.0
Central-Northeast	7.8	5.8	—25.6
Southern-Northeast	7.6	6.2	—18.4
Minas	6.5	4.3	—33.8
Rio de Janeiro	4.0	2.9	—27.5
São Paulo	4.2	3.2	—23.8
Paraná	6.5	4.1	—36.9
South	5.1	3.3	—35.3
Centre-West	6.6	4.5	—31.8
BRAZIL	5.8	4.3	—25.9

SOURCE: 1970 and 1980 Demographic Censuses.

In a country where the bulk of the population are found in the lower income groups, such a decline in the average level of fertility would only be possible if it also occurred in a general way in the poorer classes of society. This, in fact, was the case

⁷ The decline in rural fertility was also widespread, although at a slightly lower rate. In Brazil as a whole, in the same period, the decline was 22.4%.

and Merrick and Berquó show furthermore, using data from the 1970 Census and from the PNAD of 1976, that the percentage decline was greater exactly in the poorest segment of the population, that is, in families with a monthly income of below one minimum wage [Merrick and Berquó (1983)].

Table 4 shows the estimates of life expectancy at birth according to the 1970 and 1980 Censuses. The declining mortality trend continued throughout the 1970s, with an average gain, between the last two decades, of 6 years in life expectancy at birth, that is to say, with an average growth of more than one year in each biennium. Generally speaking, there still remains enormous regional heterogeneity in terms of mortality in Brazil; nevertheless, the estimates seem to show, confirming what has already been observed in the analysis of Table 2, a tendency to convergence in the long term.

Table 4

Brazil and Regions — Estimates of Life Expectancy at Birth and of Infant Mortality Rates — 1960/80

	1960/70	1970/80	Percentage Variation	Absolute Variation	Infant Mortality Rate — 1970/80 (per 1000)
The Amazon	53.8	63.2	17.5	9.4	69.7
North-Northeast	50.6	56.9	12.5	6.3	106.0
Central-Northeast	44.2	49.5	12.0	5.3	160.2
Southern-Northeast	40.9	58.2	16.6	8.3	97.9
Minas	55.6	63.1	13.5	7.5	70.1
Rio de Janeiro	57.7	63.6	10.2	5.9	68.0
São Paulo	58.8	63.7	8.3	4.9	67.5
Paraná	57.0	64.1	12.5	7.1	65.6
South	62.6	68.5	9.4	5.9	46.1
Centro-West	57.9	64.0	10.5	6.1	66.1
BRAZIL	53.7	60.9	11.5	6.2	87.3

SOURCE: 1970 and 1980 Demographic Censuses.

In the 1970s, infant mortality per 1000 births in the Central Northeast touched the incredibly high level of 160, while in the Southern Region, which had the lowest rate, it was 46, giving

a national average of around 87. It must be emphasized that Brazil, besides the enormous regional heterogeneity, still suffers from an extremely high infant mortality rate. One has only to compare the figures for other countries in 1970, a time, therefore, even before the Brazilian estimates referred to here: Cuba, 36; Argentina, 59; Costa Rica, 62; and Chile, 79 [United Nations Organization (1975)].

After discussing the fertility and mortality levels, we show in Table 5, according to region, the components of demographic growth in the 1970/80 period. The vegetative growth would be that of the closed population, that is to say, in the absence of immigration and emigration. Such a growth depends only on the prevalent levels of fertility, mortality and the age distribution of the population or, in other words, the difference between the gross birth and mortality rates. While in the 1960s, with the exception of Rio, São Paulo and the South, all the regions experienced vegetative growth rates above 3% a year [Carvalho (1980)], by the 1970s, only the Amazon and the North-Northeast remained with a growth potential above that level.

Owing to interregional migratory flows, the growth observed was very different from the vegetative growth. Here, the net rate of migration corresponds to the difference between the observed and the vegetative growth rates. It refers to the component of the vegetative growth rate which did not occur in its own region, due to a negative migratory balance in the case of regions expelling populations, or to the part of the observed growth rate caused by a positive migratory balance in the case of receiving regions.

As the observed rates of growth depend not only on a real growth of population, but also on being effectively covered by the 1960 and 1970 censuses, the net rates of migration should be treated very cautiously, especially when the numbers are very low, as is the case for Brazil as a whole (evidence of a slightly positive international migratory balance). However, in other regions, the figures are sufficiently high, as in São Paulo, the Amazon, Centre-West and Rio, which show the importance of immigration in the growth of population during the decade, or in the regions

Table 5

*Brazil and Regions: Components of Average Annual Rate of Growth
— 1970/80*

	Gross Birth Rate	Gross Mortality Rate	Vegetative Growth	Observed Growth	Net Migration
The Amazon	4.25	0.77	3.48	5.02	1.54
North-Northeast	4.43	1.16	3.27	2.76	-0.51
Central-Northeast	3.07	1.67	2.30	1.86	-0.44
Southern-Northeast	3.97	1.13	2.84	2.36	-0.48
Minas	3.19	0.83	2.36	1.64	-0.72
Rio de Janeiro	2.51	0.87	1.64	2.30	0.66
São Paulo	2.77	0.81	1.96	3.49	1.53
Paraná	3.20	0.72	2.48	0.97	-1.51
South	2.68	0.63	2.05	1.77	-0.28
Centre-West	3.49	0.69	2.80	4.05	1.25
BRAZIL	3.37	0.99	2.38	2.48	0.10

SOURCES: 1970 and 1980 Demographic Censuses and Tables 3 and 4.

of Paraná, the Northeast and Minas, where emigration was very significant. Paraná was an extreme case, as more than half of its vegetative growth in population was wiped out by interregional emigration.

Paraná and the Amazon were of particular importance in terms of changes to the pattern of interregional migrations in Brazil. Paraná, which up to 1970 was one of the principal regions enjoying a big inflow of migrants, became an area with a high outflow, while the Amazon became an important destination for interregional migratory flows.

4 — The effects of the evolution of fertility and mortality in the 1970s on the age distribution and growth of the Brazilian population

As was mentioned in the introduction to this article, it becomes very important, given the decline in fertility in the 1970s, to carefully examine its impact not only on the rate of growth of the population, but also on its age composition.

No matter what the initial age distribution of a closed population may be, if its fertility and mortality functions are fixed, this population will necessarily tend to move towards what is called a "stable population", with a constant proportional age distribution, as well as a constant growth rate, known as the intrinsic growth rate. A stable population with zero growth is a particular case, known as stationary population. Once the fertility and mortality functions are defined and determined, it is possible to calculate what the age distribution and intrinsic population growth rate defined by them will be. ⁸

Table 6 shows the proportional age distributions of a population, according to:

- a) the stable population defined by the fertility and mortality functions of Brazil in 1960/70;
- b) the Brazilian population, according to the 1970 Census;
- c) the stable population defined by the fertility and mortality functions of Brazil 1975/80 and 1970/80, respectively;
- d) the Brazilian population, according to the 1980 Census.

Before going over the results, it should be mentioned that:

a) the population covered by the census is presented as it was published by IBGE, without any corrections (it is known that there are errors of age declaration, as well as persons not being counted, especially at certain ages);

b) the stable population, 1980, was a product of functions which do not refer exactly to the same period; however, as fertility is the main determinant of age distribution one can take it as a good proxy of the stable population corresponding to the functions of the 1976/80 period.

⁸ On stable populations, Coale (1956); Coale and Demeny (1968); and Sbrayock *et alii* (1971).

Table 6

Brazil — Proportional Age Distribution of the Stable and Observed Population — 1970 and 1980

	Stable 1970	Observed 1970	Stable 1980	Observed 1980
0 — 4	16,635	14,859	13,640	13,816
5 — 9	13,816	14,480	12,030	12,428
10 — 14	11,905	12,758	10,783	11,999
15 — 19	10,274	11,030	9,658	11,420
20 — 24	8,822	8,914	8,623	9,685
25 — 29	7,527	6,997	7,674	7,943
30 — 34	6,388	6,094	6,803	6,466
35 — 39	5,390	5,475	6,001	5,344
40 — 44	4,515	4,879	5,356	4,815
45 — 49	3,744	3,815	4,557	3,915
50 — 54	3,063	3,163	3,895	3,457
55 — 59	2,456	2,462	3,250	2,642
60 — 64	1,912	1,927	2,623	2,057
65 — 69	1,425	1,309	2,016	1,707
70 +	2,128	1,838	3,191	2,306
Growth Rate	100,000 2.7*	100,000 2.8**	100,000 2.1*	100,000 2.4**

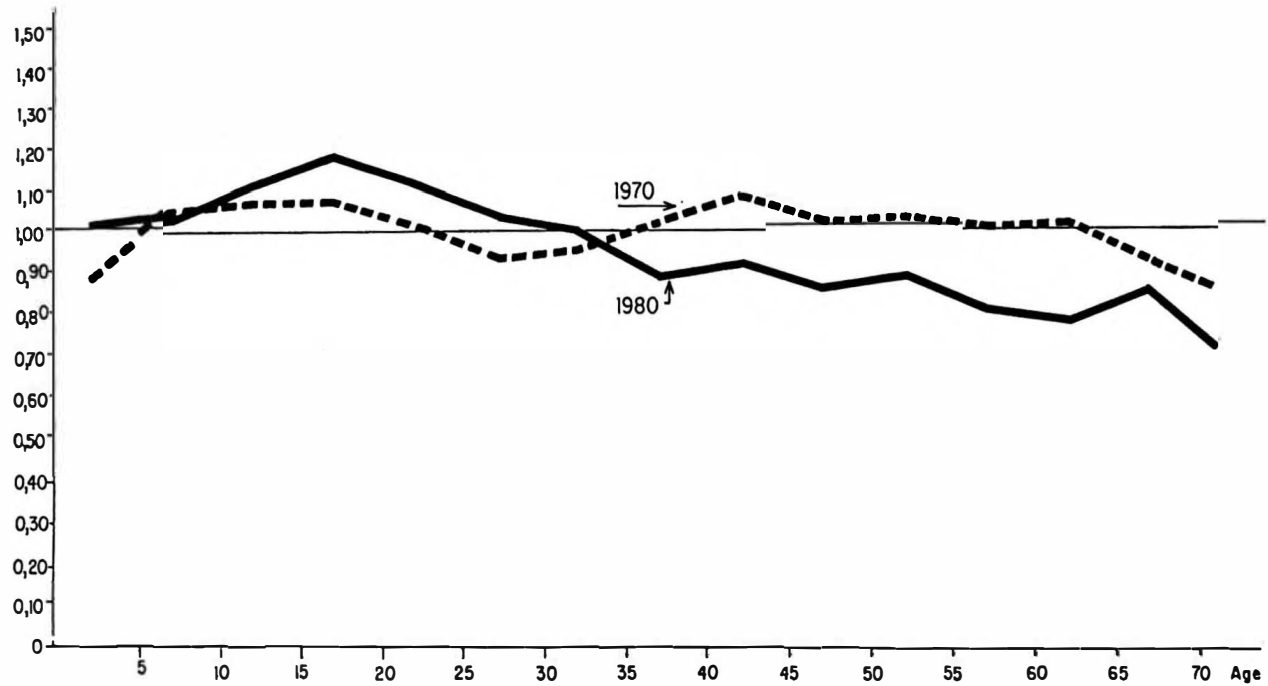
SOURCE: FIBGE, *1970 and 1980 Demographic Censuses*. Stable 1970: based on information in Carvalho (1978); stable 1980: based on information contained in the Appendix.

* Intrinsic growth Rate.

** Annual average rate for the decade.

In 1970, there was no clear pattern of divergence between the stable and observed population, which was to be expected, because until the mid-sixties there was no significant variation in fertility in Brazil, but only a reduction in mortality. As mortality only has a secondary role in age distribution, the two structures (stable and observed) should be very similar. One should also note the similarity between the intrinsic growth rate in the 1960/70 period, 2.7% and the observed rate for the same period, 2.8%.

BRAZIL: QUOTIENT BETWEEN THE PROPORTIONAL AGE DISTRIBUTION OF THE STABLE POPULATION AND THE OBSERVED POPULATION – 1970 AND 1980



The divergences between the two structures in 1970 were probably due more to errors in age declaration and undercounting in specific age groups, a common phenomenon for demographers. Thus, for example, it is known that normally the 0-4 age group is underestimated, while the 10-14 age group is overestimated. On the other hand, the decline in fertility towards the end of the sixties had probably already led to a relatively smaller number in the 0-4 age group which added to the underestimation of this group, produced a much smaller census figure than the one for the stable population.

As for the observed and stable populations in 1980, a very clear divergence pattern can be seen, with the proportion of the observed population below 30 years old consistently greater than in the stable population, with the inverse occurring above the age of 35. This divergence pattern shows what will inevitably happen with the age distribution of the Brazilian population, if it remains closed, and there is no return to the high levels of fertility of the past: the aging of the population.

The likely decline in fertility after 1980 will inevitably lead to a continuation of this aging phenomenon, which will only cease when new stable levels of fertility are reached.

The greater or lesser degree to which the growth rate and the age distribution vary will depend, from now on, on the behaviour of fertility, with the mortality rate playing only a secondary role in this respect.

Table 7 shows the forecast for the Brazilian population in the year 2000, according to three different hypotheses in relation to the behaviour of fertility from 1980 onwards: A) constant fertility, B) moderate decline in fertility, and C) rapid decline in fertility. In the three alternative, the same behaviour of mortality is presumed, with a two year gain in life expectancy at birth every five years.

Table 7 also shows, for each of the three hypotheses, the age distribution by large groups, the annual average rate of growth between 1950 and 2000, of the total population and of the three age groups 0-14, 15-64 and above 65.

As the same behaviour of mortality is assumed in the three alternatives (A, B and C), any differences between the populations projected for the year 2000 are due exclusively to the different hypotheses concerning the evolution of fertility in the 20 years, that is to say, between 1980 and 2000.

Even in hypothesis A, constant fertility, the aging process of the population is still marked, with an increase in the share of the population over 15. While the population under 15 will increase, between 1980 and 2000, at an average annual rate of 2.1%, the 15 to 65 age group will grow at 2.4% and the over 65 population at a rate of 3.3%.

Table 7

Brazil — Population Forecasts (In Thousands) — 1980-2000

Hypothesis as to Fertility	Population	1980	2000	Average Annual Rate of Growth (%)
A — Constant ¹	0 — 14	45,459	60,262	2.13
	15 — 64	68,784	111,291	2.44
	65 +	4,700	9,040	3.26
	Total	119,003	180,593	2.36
	0 — 14 (%)	38.2	30.5	
	15 — 64 (%)	57.8	58.7	
	65 + (%)	4.0	4.7	
B — Moderate Decline ²	0 — 14	45,459	57,652	1.20
	15 — 64	68,784	111,153	2.43
	65 +	4,760	9,040	3.26
	Total	119,003	177,845	2.03
	0 — 14 (%)	38.2	32.4	
	15 — 64 (%)	57.8	62.5	
	65 + (%)	4.0	5.1	
C — Rapid Decline ³	0 — 14	45,459	47,319	0.20
	15 — 64	68,784	111,050	2.44
	65 +	4,760	9,040	3.26
	Total	119,003	167,409	1.72
	0 — 14 (%)	38.2	28.1	
	15 — 64 (%)	57.8	66.5	
	65 + (%)	4.0	5.4	

SOURCE: Wood and Carvalho, *The demography of inequality in Brazil* (book in the process of publication).

¹Rate of total fertility: 1980/2000, 4.1; life expectancy at birth: 1980, 57.4 for men and 62.0 for women. Hypothesis concerning mortality: 2 year increase of life expectancy at birth every five years²

²Rate of total fertility: 1980, 4.1; 1985, 3.8; 1990, 3.5; 1995, 3.2. Hypothesis concerning mortality: same as A.

³Rate of total fertility: 1980, 4.1; 1985, 3.5; 1990, 2.8; 1995, 2.2. Hypothesis concerning mortality: same as A.

This differential rate of growth will be exclusively due to the decline that took place in fertility up to 1980, when there was an unbalancing of the Brazilian age structure, as mentioned before.

Hypothesis A can be considered unrealistic, in assuming stable fertility after 1980. Hypothesis B is much more realistic than A, assuming a moderate decline in fertility. In this hypothesis, the fertility of the Brazilian population in 1995 (3.2) would be on the same level as the State of São Paulo in 1975/80. The difference between the results of the two forecasts is basically seen only in the under-15 population, as those over the age of 20 in the year 2000 had already been born in 1980. In hypothesis B, the aging of the population is much quicker than in the previous hypothesis, as the decline in fertility results in a smaller number of children being born, all of whom will be under 20 in the year 2000. While in A the under 15 age group will grow at an average of 2.1% a year, in B the growth will average 1.2%.

Hypothesis C assumes a much more rapid decline in fertility. In 1995, the fertility in the country (2.2) would be below the fertility of the urban population of the State of Rio de Janeiro in 1975/80 (2.8), the lowest in Brazil. In this case, the under 15 group will remain practically stationary, increasing at an average yearly rate of only 0.20%. Its share in the total population would drop from 38% to 28%.

The effects of a decline of fertility on the absolute size of the population will also be significant. In the 1960s, the population grew at 2.8% a year. Maintaining this rate of growth and with a 1970 Census population figure of 93,139,000, the Brazilian population in the year 2000 would be 213,268,000. However, according to the extremely conservative hypothesis A (constant fertility after 1980), the population in the year 2000 will be 189,593,000, that is to say, with 23,675,000 persons less than the previous estimate; in hypothesis B, more realistic (moderate decline in fertility), it will be 177,845,000, 35,423,000 less, and in hypothesis C (rapid decline in fertility), it will be 167,409,000 inhabitants, with a difference of 45,859,000 less than hypothesis A.

In percentage terms, if compared with the initial forecast based on the behaviour of the Brazilian population in the 1960s, the population in the year 2000 will be 11% less, in hypothesis A; 17%, in hypothesis B; 22%, in hypothesis C.

5 — Conclusion

The rapid decline in fertility in the 1970s brought about a significant change in the demographic profile in Brazil. On the one hand, the population of the country started to grow at a slower rate and, on the other, a process of change in the age distribution got underway, leading to an aging of the population.

The lower rate of population growth will already result in a lower population in the year 2000 than was originally forecast — 23,675,000 in the conservative hypothesis concerning the decline in fertility, or by 35,423,000 according to the more realistic hypothesis. This phenomenon, still not adequately known and analysed by social scientists and planning organs, brings a new reality into play which will have to be taken into consideration in elaborating economic and political projects for the country in the final years of this century. Furthermore, it means that the debate on population policies be carried out not forgetting this fact, which unfortunately has too often been the case.

The change in the age structure, which will inevitably go through a transition phase, will require constant attention from those that formulate and carry out government policies, who, used to a situation where there is a constant age distribution, will continually have to bear in mind the changing situation in the short term and, in the long term, the trend towards a new level of stability with a relatively much less young population.

Appendix

This appendix briefly explains the type of information used in the work, as well as the methods employed to obtain the various estimates.

The fertility estimates were obtained by using the Brass fertility method [Brass *et. al.* (1968)]. To apply it, two basic sets of data are required:

- a) live born offspring in the 12 months prior to the date of the survey; and
- b) live born offspring up to the same date.

The data related to the second query were taken from the Brazilian censuses from 1940 onwards,⁹ while the data for the first just from the 1970 and 1980 censuses. Based on the estimates, using the 1970 Census, it was possible to put together the data for 1940 and 1950 [Carvalho (1974)].

The two questions are asked of all women over 15 years of age. If there were no errors in answer to the first question, one could obtain the fertility function directly from the figure for the number of live born offspring in the 12 months prior to the census date. However, there is the error relative to the "reference period", that is to say, persons do not declare the events exactly corresponding to the 12 months. In Brazil, for example, in 1970 there was an underestimate, which oscillated between 20 and 30%.

Data are used, therefore, related to live born children up to the census date (average parturition) of women from 20 to 24 years of age, or 20 to 29, to correct the error present in the answer as to the births in the previous 12 months.

The method was developed to be applied in conditions of constant fertility, which is not the Brazilian case, especially in the 1970s. However, it can be applied even in cases of declining fertility, though the result, should be interpreted as the level of fertility implicit in the average parturition used to correct the "error in the reference period", that is to say, of women from 20 – 24 or 20 – 29, according to the group chosen [Carvalho (1982)]. If the 20 – 24 age group is adopted, the estimate refers

⁹ In the 1950 and 1960 Censuses the total of births was asked, without distinguishing between live and dead births, which means making an estimate of live births.

approximately to the average for the five year period which precedes the survey date, while the 20 – 29 age group will produce an estimate around the average for the decade.

The mortality estimates were developed on the basis of data referring to the two queries discussed above, together with a third which asks for the number of living offspring on the survey date.

With the exception of the query concerning live births in the previous 12 months period, the other two are found in the censuses since 1940.

Applying Brass's infant/juvenile mortality method to this data [Brass *et al.* (1968)], estimates of 2,3 and 5% are obtained, that is to say, of the probability of death between birth and the exact ages of two, three and five. Using data from the 1970 Census, it was possible to work out the figures for the 1940 and 1950 Censuses.

The estimates of ${}_2q_0$, ${}_3q_0$ and ${}_5q_0$ are obtained, by transforming the proportion of dead offspring (which is equal to the complement of the proportion of surviving children) of women in the 20 – 24, 25 – 29 and 30 – 34 age groups, respectively, into probability of death. This is because each proportion of dead offspring is the weighted average of the probabilities of death experienced by offspring of a specific generation of women, with the weighting being given by its fertility distribution.

As in the Brazilian case there are no estimates of adult mortality, given the need for survival tables, it was decided to produce them through logital transformation,¹⁰ using, as a standard, survival tables for Mexico and the Brazil Model. The tables produced have the same standard of mortality as the standard table, though with their level defined by the values ${}_2q_0$, ${}_3q_0$ and ${}_5q_0$, observed in the population in question.¹¹

¹⁰ On logital transformation, see Brass *et alii* (1968), and Brass (1971).

¹¹ The values of ${}_4q_0$ used refer, approximately, to the average level of mortality observed in the 10 years prior to the survey date.

In the tables for Brazil and its regions for the 1930s and 1940s, the 1940 table for Mexico was used as a standard [Carvalho (1974)]; for the 1970s, the 1960 table for Mexico [Carvalho (1978)] and for the 1980s, the level 16 table for the Brazil Model [IBGE (1981)]. The probable similarity between the mortality levels in Brazil and Mexico has already been discussed in another paper [Carvalho (1973)]. The survival tables produced for the 1966/76 period are shown in Table 8.

Table 8

Brazil: Survival Table — 1970/80, by Sex

x	n	Men $e_0 = 56,8$		Women $e_0 = 63,2$	
		l_x	nL_x	l_x	nL_x
0	1	1.00000	0.93377	1.00000	0.94422
1	1	0.90539	0.89823	0.92032	0.91307
2	1	0.89346	0.89082	0.90823	0.90545
3	2	0.88818	1.77030	0.90267	1.79879
5	5	0.88212	4.39613	0.89612	4.46870
10	5	0.87633	4.37115	0.89136	4.44925
15	5	0.87213	4.34138	0.88834	4.42935
20	5	0.86442	4.29430	0.88340	4.39908
25	5	0.85330	4.23018	0.87659	4.36000
30	5	0.83877	4.14650	0.86741	4.30823
35	5	0.81983	4.03955	0.85588	4.24150
40	5	0.79599	3.90083	0.84072	4.15163
45	5	0.76434	3.71890	0.81993	4.03333
50	5	0.72322	3.47745	0.79348	3.88035
55	5	0.66776	3.15095	0.75866	3.67038
60	5	0.59262	2.72968	0.70949	3.38380
65	5	0.49925	2.22020	0.64403	2.99995
70	5	0.38883	1.63303	0.55595	2.48415
75	5	0.26438	1.01793	0.43771	1.81863
80	+	0.14279	0.65032	0.28974	1.60396

SOURCE: 1980 Demographic Census.

l_x = indicates the number of persons coming from an initial generation (l_0), who reach the exact age x , given a determinate mortality function.

nL_x = number of years lived jointly between the exact ages x and $x + n$, by persons that reach the exact age x .

e_0 = life expectancy at birth, that is to say, years of life that, on average, each person of a generation will live, when subject to a determinate mortality function.

To calculate the age distribution of the stable population, it is necessary to know the distribution of fertility and the survival table. The proportional age distribution is obtained by:

$$C(a) = \frac{n^L_x \cdot e^{-r\bar{x}}}{\sum_{x=1} n^L_x \cdot e^{-r\bar{x}}}$$

where:

n^L_x = number of persons in the age group X , $x + n$ of a stationary population, given by the survival table;

x = lower limit of age group;

n = size of age group;

e = Napierian constant;

\bar{x} = average point of the age interval; and

r = intrinsic growth rate (calculated on the basis of the n^L_x of the female sex and the distribution of fertility).

The stable population in the 1960/70 period was produced using the distribution of fertility and the survival tables for both sexes, based on data found in Carvalho [Carvalho (1978)], while that for the 1970/80 one was based on Tables 8 and 9.

Table 9

Brazil: Distribution of Fertility 1971/76 (By Women)

Age Group of Women	Specific Rate of Fertility
15 — 19	0.0649
20 — 24	0.2028
25 — 29	0.2270
30 — 34	0.1779
35 — 39	0.1219
40 — 44	0.0583
45 — 49	0.0143

SOURCE: 1980 Demographic Census.

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The Montagu Financial Mission to Brazil and the federal economic policy changes of 1924 *

Winston Fritsch **

1 — Introduction

Towards the end of 1924, President Arthur Bernardes dismissed the principal mentors of the financial reform programme adopted shortly after his inauguration, switched to a strongly deflationary financial policy,¹ and transferred the responsibility for the

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The following abbreviations were used for the most frequent references in the notes of this work:

R. S. — Archives of N. M. Rothschild & Sons, London;

FO 371 — Public Record Office; Foreign Office Files, Political;

PRO T — Public Record Office; Treasury Files;

N. S., RG-59 — The National Archives of the United States;

Records of the Department of State relating to the internal affairs of Brazil, 1910-29.

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¹ Which was to last up to the inauguration of Washington Luís as President.

defence of coffee from the federal government to São Paulo. This set of decisions is a watershed in the economic policy of his government and one of the most important moments in the history of economic policy in the First Republic.

The disastrous effects of the deflationist option of 1924 on the economic performance of the economy are well-known. A 11% reduction in the money stock carried out in 1925/26 was the immediate cause of the crisis and stagnation which marked this period. Industrial production, which had made a strong recovery since 1922 as a result of extra protection afforded by the exchange collapse at the beginning of the decade and an openly expansionist, monetary policy would stagnate during 1925/26 at the level.² Industrial investment in real terms, measured by a *quantum* index of capital goods imports for industry, which had grown continuously since 1923, witnessed a *reduction* of as much as 26% in 1926 [Villela and Suzigan (1973, Table XXI, p. 442)]. The large cotton textile industry was particularly affected, since the contraction in the money supply and the consequent revaluation of the exchange rate in 1925 came immediately after a hectic period of expansion in the sector which had created large margins of idle capacity.³

However, our knowledge of the origin and political rationale of these decisions is still very unsatisfactory. Though the visit of the Financial Mission to Brazil, at the beginning of 1924, has been suggested in the literature, the real extent of its connection with the radical changes in economic policy which occurred this year has only been explored so far in a conjectural way.⁴ Besides this, the deflationist option and the abandonment of the defence of coffee by the federal government have up to now been mistakenly treated, as independent decisions. The aim of this essay is to investigate the economic and political motives

² Cf. Villela and Suzigan (1973, Tabela XII, p. 431). Furthermore the level of industrial output in 1924 had been abnormally low.

³ On the expansion of the textile industry at the beginning of the 1920s, see Cano (1977, pp. 174 et seq.).

⁴ Cf., for example, Neubaues (1974, pp. 70-71), or the extremely superficial treatment given to the subject in Peláez (1971, p. 57).

of these decisions, and try to show the inter-relationship that existed between them.

The essay is divided into four sections, besides this introduction. The following section tries to provide the background to the initial economic programme of the Bernardes government and the difficulties encountered in trying to implement it, which led to the negotiations between the federal authorities and the English bankers and the visit of the Montagu Mission. Section 3 describes the negotiations between the government and the English mission, with the intention of showing how much the federal government was prepared to concede in order to obtain a foreign loan at the beginning of 1924, which would avoid the need to resort to a restrictive monetary policy in the face of the deterioration in Brazil's foreign position. In Section 4 the events which led to the changes in economic policy towards the end of 1924 are analysed. Finally, in the last section, the main conclusions of the paper are summarized.

2 – Background: economic policy prospects in 1923

“A trail of devastation” was how the late Professor Joslin correctly described the effects of the international boom and slump of the immediate post-war years on the Latin American economies.⁵ An examination of Table 1, below, gives an indication of the size of the foreign trade disequilibrium in the Brazilian case, when the rapid growth of exports lost momentum in the second quarter of 1920.

The effects of exogenous crises, such as this one on the economy's performance are well-known. The immediate effects, which give rise to the internal crisis, are the result of a fall in the price of export products – which is the root cause of the foreign trade disequilibrium – and the credit squeeze caused by the sudden variation in the banking system's liquidity preference, which is expressed in an increase in its cash holdings. The longer

⁵ Joslin (1963, p. 217). For a fuller account of the events briefly described in this section, see Fritsch (1982 and 1983).

Table 1

Brazil: Foreign Trade and Exchange Rate — 1918/21
(Quarterly Figures)

Year/Quarter	Exports	Imports	Trade Balance ^a	Exchange Rate ^b	
1918	I	13.2	11.1	2.1	13.50
	II	14.4	12.0	2.4	13.04
	III	14.7	14.9	-0.2	12.21
	IV	18.8	14.8	4.0	13.24
1919	I	30.6	19.3	11.3	13.15
	II	30.7	18.4	12.1	14.16
	III	32.9	19.6	13.3	14.47
	IV	36.0	20.7	15.3	16.27
1920	I	37.0	22.8	14.2	17.82
	II	29.6	28.8	0.8	15.91
	III	21.8	36.2	-14.4	13.44
	IV	18.9	37.1	-18.2	11.38
1921	I	14.6	24.2	-9.6	9.61
	II	12.0	14.2	-2.2	8.21
	III	15.7	11.7	4.0	7.78
	IV	16.1	10.4	5.7	7.88

^a In millions of pounds. Source: *Comércio Exterior do Brasil*. Rio de Janeiro, Imprensa Nacional, several issues.

^b Average daily rates at 90 days sight on London, in pence per mil-réis. Source: *Relatório do Síndico da Junta dos Corretores de Fundos Públicos*. Rio de Janeiro, Imprensa Nacional, several issues.

term effects, stemming from the exchange rate collapse which follows the foreign trade disequilibrium are (a) a severe disequilibrium in the federal government's budget, due to the rigidity of its foreign currency commitments and the great dependence of fiscal revenues on imports; (b) an increase in inflationary pressures, sustained by the federal government's financing a growing current budget deficit by increasing the money supply; and (c) a transfer of real income from workers and rentiers to entrepreneurs. Given the purpose of this essay, the emphasis, in this section, will fall exclusively on the inter-relationship

between the economic policy measures adopted with the start of the crisis and the (a) and (b) type effects mentioned above.

The initial response by the Epiitácio Pessoa government to the foreign trade disequilibrium was limited — except for some special emergency measures ⁶ — to taking advantage of the access to the New York capital market then obtained and to the reluctant financial support — conceded only in March 1921 through the recently created Banco do Brasil Rediscount Department — to a plan for defending international coffee prices devised by private interests in São Paulo [Rowe (1932, pp. 22-5) and Delfim Netto (1959, pp. 97 et seq.)] The intervention in the coffee market had the immediate desired effects. The prices of the product, that had fallen continuously from more than 25 to a little over 9 cents (US\$) per bag between the beginning of 1920 and March 1921, recovered by more than 25% by the end of the year [Rowe (1932, Table IV, p. 86)].

This recovery of coffee prices, the foreign loans, and the drastic reduction of imports caused by the exchange slump of 1920 diminished the speed which the exchange rate depreciated from mid-1921 on. However, the budgetary deficit, which had witnessed a sharp increase in 1919, as a result of stagnating revenues ⁷ and the starting up of the large scale program of public works by the new administration, remained extremely high.

As at the time, the Rediscount Department of the Banco do Brasil was the only instrument for the primary issuing money and as public bonds were not accepted by the Department, the federal government found itself in great difficulties to finance these deficits. Thus, besides utilizing foreign credits obtained in 1921, the “financing” was increasingly carried out by accumulative payment arrears and issuing a large number of Treasury Bills, practically unnegotiable, in favour of part of its creditors,

⁶ On those measures see Decree n.º 4.315 of August 28, 1921.

⁷ The main reason for this was the low level of imports due to supply difficulties in the immediate post-war years and the effects of the great exchange appreciation which occurred this year on the revenues in mil-réis coming from the gold tariff.

Table 2

Brazil: Federal Government Budget — 1918/22
(In Thous of Contos)

Years	Revenue	Expenditure	Balance
1918	619	738	—119
1919	626	932	—306
1920	922	1 226	—304
1921	891	1 428	—456

SOURCE: [Vilela and Suzigan (1973, Table IV.2, p. 140, and Table V.I, p. 150)].

especially during the first half of 1922.⁸ However, the accumulation of these Bills in the private sector led to mounting pressures that forced the government to contract with Banco do Brasil, towards the end of July of that year, a special line of credit of up to 500 thousand contos against the issue for promissory notes payable in one year. But it was clear that the Banco do Brasil was very unlikely to be in a position to discount such a sum in the short term without risking its normal operations or even its liquidity.⁹ Thus, in October, when the Treasury had already withdrawn 300 thousand contos of these special credits, the government had no other option but to push for the abolition of the statutory restriction on presenting public bonds to the Rediscount Department with the aim of permitting the Bank to rediscount these papers.

The way in which the federal government chose to tackle the budgetary disequilibrium, as described above, was to have

⁸ Report of the British Financial Mission to Brazil to N. M. Rothschild & Sons, Messrs. Baring Brothers & Co. Ltd. and Messrs. J. Henry Schroder & Co., Appendix C: *Republic of Brazil — Balance Sheet as at 31-12-1923 with Relative Schedules of Liabilities and Assets*, by Sir William McLintock, in R. A. 111/220.

⁹ The total value of bills discounted by Banco do Brasil by December 31, 1921 amounted to 457 thousand contos. See *Relatório do Banco do Brasil (1922)*, p. 7.

two main consequences: the first, resulting from the massive entry of public bonds into the Rediscount Department in October and November 1922, was the explosive increase in liquidity up to the *de facto* closing date of the Department at the beginning of 1923, a phenomenon which was the immediate cause of the increase in inflation which occurred in this year;¹⁰ the second was the creation of an enormous short term debt of the Treasury with Banco do Brasil, in the form of public bonds frozen in the Bank's portfolio and estimated at the beginning of 1923 at 800 thousand contos,¹¹ whose redemption would be a cause for concern to the Federal Government for the next five years.

The Arthur Bernardes government, which took office in November 1922, inherited, therefore, a most undersirable legacy. The new administration would base its programme of economic policy on three main points: liquidating the debt with the Banco do Brasil, implementing the plan for Permanent Defence of Coffee, recently approved by Congress, and the establishment of a central bank which would manage the return to the gold standard at a parity of 12 d, below, therefore, the pre-war level, but substantially revalued in relation to the current exchange rate.

The problem of the short term debt the Banco do Brasil was viewed by the Government as the most pressing.¹² Its

¹⁰ The monetary base grew more than 16% in the final quarter of 1922, according to figures from the Balancetes Semanais da Carteira de Redescontos, published in the *Diário Oficial*, various issues.

¹¹ Pires do Rio (s.d., p. 204). To gauge the size of these obligations, one should remember that revenues in the Federal Budget for 1922, had amounted to 972 thousand contos.

¹² In the words of the new Finance Minister, the Paulista Sampaio Vida: "... there is in the present situation, in fact, a pressing problem — it is the short term debt above 700 thousand contos de réis. We cannot calmly get on with the task of administrating with such a load on our shoulders. It is a formidable monolith which weghs and hampers every movement of the administrative machine". Report given to the President of the Republic by the Minister of Finance on November 30, 1922, in *Relatório do Ministro da Fazenda* (1923), pp. XII-XIII.

liquidation was to be carried out, according to initial projections, through a restrictive fiscal policy which would reverse the deficit tendency of the federal budget. While accepting the need to bring various public works to a halt,¹³ the Government played down the social costs of such a policy, arguing that the greatest contribution in terms of reducing the deficit would come from carrying out a reform of the operational control mechanisms for implementing the budget.¹⁴

The plan for the Permanent Defence of Coffee — for which the new Finance Minister had been struggling relentlessly since he was a congressman in 1921, which probably explains his ministerial appointment after the decisive support given by São Paulo to Bernardes's candidacy — institutionalized federal intervention in supporting coffee prices by controlling visible stock levels in Santos, through a system of retaining surpluses in regulating warehouses to be built in the interior of the State of São Paulo. However, the viability of the scheme depended basically on defining the sources of financing for the retained stocks which was get to be done.

Finally, the idea of creating a central bank and returning to the gold standard was, to a greater extent, a reflection of the international economic orthodoxy of the time, a product of the accentuated situation of monetary disequilibrium which practically every country had been experiencing since the beginning of the war. However, if it is true that, in the twenties, to contest the belief that a central bank was a panacea for the control of cyclical fluctuations and of the fixed idea of returning to exchange

¹³ The figures available, though of highly dubious quality, show a reduction from 25.7 in 1922 to 3.7 in 1923 in the gross formation of fixed capital by the federal government as a percentage of total government expenditure. See Villela and Suzigan (1973, Table V. 2, p. 157).

¹⁴ *Relatório do Ministro da Fazenda* (1923), *passim*. Another important fiscal measure introduced right away by the Government was to increase the percentage levy of the gold-tariff.

stability was the pursuit of heretics,¹⁶ in the Brazilian case, the project of setting up a central bank was an extremely ingenious solution for carrying out the other two lines of the Government program. In its general lines, the project¹⁶ consisted in quanting exclusive powers in issuing money to the Banco do Brasil, the issues to be backed partly by gold — one third in value — and partly by commercial bills. On the one hand, the scheme helped to reduce the Government's debt with the Banco do Brasil, as the gold backing of the issues would be made up of the Treasury gold reserves, valued at 300 thousand contos, to be transferred to the Bank as part payment of the debt. On the other hand the project made the plan for the defence of coffee financially viable, since the deposit certificates issued by the regulatory warehouses could, as commercial bills, be accepted as a backing for the issue of notes by Banco do Brasil, whenever necessary. This aspect of the Bank reform was politically crucial, since — as will be discussed in detail in Section 4 — it was unlikely that Brazil would manage at the time to finance coffee valorization with foreign loans and, given the limitations of the Brazilian capital market which limited the internal borrowing capacity of the government, the hypothesis of financing the coffee by resorting to domestic public indebtedness was not considered.

It should be noted, however, that the economic programme announced by the government had serious limitations to liquidate the floating debt in the short term and to strengthen the foreign position of the economy, as was necessary to achieve exchange rate appreciation. In fact, the scale of the fiscal disequilibrium was such that liquidating the debt with the

15 Cf. Triffin (1940, p. 93) and Brown Jr. (1940, pp. 800 et seq.). Furtado's critical comment about "The Brazilian public figure of the First Republic, in his "mental inhibition to capture reality from the critical — scientific point of view... Which is particularly obvious when related to monetary problems", although illustrative, is, in this context unjust. At least in the 1920s, this inhibition was not a privilege of Brazilians. The quotation is from Furtado (1971, p. 160).

16 Decree N.º 4.635-A, January 8, 1923. The project was elaborated by Paulista Congressman Cincinato Braga, who was shortly afterwards nominated President of Banco do Brasil by Bernardes.

Banco do Brasil through budget surpluses was not feasible without the government being subjected to political strains. As for the balance of payments, given the extremely low level that the value of imports had reached, the only hope of avoiding possible uncontrollable pressures on the rate of exchange rested on the expectation of a favourable evolution of coffee prices, once the defence program get under way.

In these circumstances, though the authorities initially denied any intention to liquidate the short term debt through a long term foreign loan,¹⁷ it is difficult to believe that this had not been contemplated all along for, as the bulk of the government liabilities belonged to the Banco do Brasil, their cancellation through a foreign loan would provide the Bank with ample ammunition to carry out the intended exchange policy. In any case, the renewal of strong pressures on the rate of exchange in the middle of 1923 ended up by inducing the authorities to consider a large foreign loan as the only way of preventing the premature discredit of its reformist programme.

Accordingly, in September, to avoid the painful alternative of deflationary readjustment which could not only cut short the recovery in activity levels began in 1922 and seriously impair the political feasibility of its coffee price support programme, the Brazilian government approached Rothschilds for a £25 million long-term loan to "liquidate the [Treasury] floating debt and set Brazilian finances in order".¹⁸ Although the bankers agreed to study the Brazilian proposal, they felt that "it was almost impossible to carry out the wishes of the Brazilian Government until they had satisfied the public that the reforms and economies which they understand the present Brazilian administration is putting into practice are effective".¹⁹ So, taking advantage of their very strong bargaining position, and arguing that the federal

¹⁷ According to the Minister of Finance "This problem... should be solved... without a foreign loan, at least for the meantime". *Relatório do Ministro da Fazenda* (1923), p. XIII.

¹⁸ *Memorandum on the Terms of Reference, Financial Mission to Brazil*, in R.A., Box III/220, file no. 6.

¹⁹ *Idem*.

government's foreign debt was already very large and the current low quotations of Brazilian bonds in international capital markets would render the operation difficult, the bankers adopted the firm position that the loan should be made conditional upon the bankers' appraisal of the recommendations of a mission of financial experts nominated by Rothschilds which would visit Brazil to assess *in loco* the actual state of federal finances.²⁰ As it will be shown below, the banker's intention was to try and make the granting of financial accommodation depend upon the Brazilian government's enforcement of the mission's recommendations on whatever changes should be made in the institutional and operational framework of monetary, fiscal and coffee policy in Brazil so as to strengthen the country's capacity to pay, particularly with a view to the resumption, in 1927, of amortization payments on the foreign debt as agreed in the funding scheme of 1914.²¹

Following the Brazilian government's acceptance of these general terms, the bankers began to recruit their team of experts. Their choice of the senior members of the financial mission fell upon men with no particular competence on Brazilian affairs but who came from highly influential circles within the City. The Mission was to be led by Edwin Samuel Montagu, former Liberal M. P., Financial Secretary to the Treasury and famous for the co-autor-ship of the Indian post-war constitutional reforms while Secretary of State for India.²²

²⁰ *Idem.*

²¹ As concisely put in the Mission's terms of reference, as distributed later to its senior members: ... "the real aim of the Mission is to furnish the Bankers with information so that with due regard to their own responsibility towards investors here they may be able to assist the Brazilian government".
Idem.

²² Montagu came from a City family, had a considerable experience in financial matters, was close to Lionel de Rothschild, had recently retired from politics to take business posts in the City and was an experienced negotiator. See Waley (1964). A brief psychological portrait of Montagu was drawn by Keynes who, incidentally, was approached by Montagu as a possible member of the mission. See Keynes (1972). I thank Dr. D. E. Moggridge for calling my attention to this letter.

The other four senior members were Sir Charles Addis, a Director and member of the Committee of Treasury of the Bank of England and Chairman of the Hong-Kong and Shanghai Bank; Lord Lovat, a man with large interest in real estate and cotton plantation overseas; Hartley Withers, former editor of the London *Economist*; and Sir William McLintock, partner of one of the largest British accounting and auditing firms.²³ Sir Henry Lynch, a British manufacturer and Rothschilds' permanent representative in Rio was to serve as liaison between the mission and the Brazilian government, acting as interpreter during the negotiations.

Until November the secrecy with which the real purposes of the financial mission were surrounded worked to perfection. By late November, however, as "exaggerated gossip" was growing in the City,²⁴ Rothschilds notified the British Foreign office of their intentions and, at the Brazilian government's request, issued an evasive statement to the press concerning the mission's purposes. This smokescreen communiqué, issued as the bankers confidentially put it "in order to conciliate public opinion in Brazil",²⁵ presented the mission as being "a visit to Brazil on the part of gentlemen eminent in the world of industry, finance, economics and literature in order that their direct knowledge of the affairs of the country . . . may result in freer application of English capital to the prosperity of the Republic" and prompted by the Brazilian government's wishes to carry out "a general plan of financial restoration".²⁶

²³ *Who's Who*, 1931, pp. 17, 1939, 2051 and 3446.

²⁴ Lionel de Rothschild to Sperling (Foreign Office), 27.11.1923, in FO 371/8430, A 7012/818/6.

²⁵ See the enclosure in N. M. Rothschild & Sons to Sperling (Foreign Office), 12.12.1923, in FO 371/8430, A 7294/818/6.

²⁶ Foreign Office to Tilley (telegram), 27.11.1923, in FO 371/8430, A 7012/818/6. This was the version publicly sustained throughout the negotiations by the Brazilian Executive. Cf. President Bernardes' message to Congress in *DOU*, 4.5.1924, or the news appearing in the quasi-official *Jornal do Comércio*, 2.1.1924.

Though this version for public consumption was not generally taken at face value in Brazil,²⁷ the reaction of informed opinion was not altogether hostile to the mission probably because the loan was seen as the only painless solution to the current economic policy problem in the short run. There certainly were fears that the mission was to put forward unpalatable proposals as conditions for granting financial accommodation. However, the extent of these proposals would be a matter for negotiations with the Brazilian government. Nevertheless for those who took a less orthodox or a more nationalistic view on economic policy the latter's extremely weak negotiating position was a cause for concern. For, in fact, as the British Ambassador bluntly summed up the position to London: "... if [Bernardes] is forced to beg for money he may have to swallow the pill of foreign advice".²⁸

3 — The Montagu Mission

The mission left Britain in the second half of December. As none of its members had any close acquaintance with Brazilian affairs, the preparatory discussions they had on board, based on information provided by the bankers, convinced them that much work would have to be done on the spot before they could have a firm grasp of the position on various issues, and only served to cement general opinions already held in London that budgetary discipline was of the essence and that some means through which the bankers could in the future influence financial policy in Brazil would have to be devised.²⁹

²⁷ See, for instance, the informed article on the British mission appearing in the *Monitor Mercantil*, 14-12-1923.

²⁸ Tilley to Curzon, 17.12.1923, in FO 371/9508, A 90/70/6.

²⁹ Montagu's summing up of these discussions, written when the ship first reached northeastern Brazil, is an enlightening account of their early views: "The extraordinary difficulties of the Constitution — he wrote to London — and the relations between the Federal Government and the States; the conflict of interest between the States and the Federal Government and, therefore, between parts of the Federal Government; the natural divergence of the short-sighted view between the exporter and the importer — all these and many more, add interesting perplexities to the problem the first facet

On December 30 they finally arrived in Rio and were received by a government party led by the Finance Minister and by Lynch. The first days were taken up with informal meetings with Vidal in which no clear pattern emerged as to the way the negotiations would go except for Montagu's impression of the "eager desire of the Minister of Finance to help".³⁰ Vidal presented the mission with some statistics and voluminous material on the reforms of public accounting and budgetary control methods which he described as the "consummation of his life's work".³¹ He tried to impress the idea that the government's financial difficulties were due to the previous administration's management³² and expressed his desire to take the mission on a visit to São Paulo to appease political opinion there as to their intentions regarding coffee policy, appearing to be anxious to avoid the Rio press.³³

Formal negotiations, however, would not start until three weeks later. The reasons for this delay were twofold. Firstly, nothing appears to have been decided beforehand on the form in which the negotiations would take place, neither as to the shape

of which is Budget-balancing ... We all incline a little to find some palatable form of foreign financial control or advice, and, at the same time, we find it extremely difficult to devise one ... I think our first problem on shore will be to try and understand in detail the nature of the internal floating debt held in Brazil, the funding of which was apparently the main reason for the desire of the Brazilians for that vast loan which led to our appointment". Montagu to Lionel de Rothschild, 26.12.1923, in *RA* 111/220, file no. 2.

³⁰ Private Diary of the Rt. Hon. Edwin S. Montagu, P. C. (Chairman of the Mission), p. 2, in *RA* 111/220. This source is thereafter referred to as *Montagu Diary*.

³¹ *Idem*, p. 2.

³² According to him these were "entirely due to two illegal and disgraceful transactions, one amounting to £15 m wasted upon the construction of irrigation dams in the NE and the other for the purchase of French railways in Rio Grande do Sul which could have been bought with Bonds if they wished them at all". *Ibidem*, p. 4.

³³ *Ibidem*, p. 5. In fact, he soon decided not to meet the British at their hotel nor at the Treasury and in the future negotiations would take place mostly either at his or Lynch's residences.

the mission's proposals to the Brazilian government would assume, nor, indeed, whether these would be made at all.³⁴ Secondly, and perhaps a more important reason, the mission was aware, as pointed out above, that they would need some time to get a first-hand account of the position and, as Montagu put it, "there would be a lot of work to do on figures".³⁵

So, as soon as they could, the British were digging for facts. McLintock and an assistant started full-time work at the Treasury "trying to get the hang of the figures", Addis went to the Banco do Brasil with the task of trying to estimate Brazilian non-federal foreign indebtedness and a junior member of the mission was designated to "try to get to the bottom of the grievances of British companies in Brazil with a view to seeing if they and the mission cannot arrive at some common principle". Meanwhile Montagu spent his time having exploratory interviews with a large number of top-ranking government officials, politicians, businessmen and representatives of British interest in Brazil and, of course, coordinating the team.³⁶

The nearest approach to business the mission had in their first month in Rio, before going to São Paulo, were two interviews with President Bernardes on the 4th and 31st of January and a first formal negotiation with Vidal on the 17th. In their first interview with Bernardes they were asked whether they proposed to make any recommendations to the government. Although the British had not settled this point, Montagu answered that they would do so after ending the investigations. The President stressed that he "wanted any recommendations to be made to him and

³⁴ An amusing instance of the looseness with which organizational aspects had been treated is provided by an incident involving the payment of the mission's expenses. During the second week after their arrival, Vidal pressed Lynch to let him know their hotel expenses as he said he was anxious to pay them; this was considered by Montagu as "one of the most difficult things that happened", as he gathered "the poor old boy does not realize that he is paying for them already ...". *Ibidem*, p. 47.

³⁵ *Ibidem*, p. 2. The Treasury only provided the first approximate estimates of the floating debt on January 14.

³⁶ Montagu to Lionel de Rothschild, 08.01.1924, in *RA* 111/220, file no. 2.

verbally discussed with him",³⁷ asked for advice to prevent exchange rate speculation and tactfully presented his plans for exploiting Brazil's iron deposits and developing a domestic steel industry with the help of national capital not "from any anti-foreign sentiment, but because he did not want to increase the sterling liabilities of Brazil".³⁸ Montagu left this first meeting worried about Bernardes' concern with exchange rate fluctuations, which he interpreted as being "quite obvious that he contemplates government interference on exchange operations",³⁹ and determined to dissuade him of going ahead with the iron and steel plans.⁴⁰

Some days later, as soon as rough up-to-date figures on the floating debt had been compiled, a first formal meeting was

³⁷ *Idem*, p. 22. Some days later Montagu informed Rothschilds that Vidal had requested "a written report which shall be frank, but he hopes that if we have anything critical to say we shall not publish it", and that he replied that "we are anxious to suit the wishes of the Brazilian government as to the form of our report but that we propose to furnish two reports — one to the Government of Brazil and one to the Bankers ... It is not for us but for the Bankers to say whether this second report will ever be shown to the Government". Montagu to Lionel de Rothschild, 19.1.1924, in RA 111/220, file no. 2. This settled the issue and from then on Montagu tended to see the drafting of this report to the President as his most important objective during the negotiations. In fact these were conducted with a view to including in this report the maximum number of politically feasible concessions from the government since its final draft would have the President's sanction and thus commit him to putting its proposals into effect. The publication of this report was not decided, however, until much after the mission had left Brazil and then in a slightly revised form, as shown below.

³⁸ *Montagu Diary*, pp. 23-24. The Government's iron and steel plan consisted in granting subsidies, mainly in the form of sponsoring the infra-structural investments required, to Brazilian capitalists interested in investing in the industry. It was seen as an alternative to the two existing foreign-sponsored projects: those of the American Itabira Iron Ore Co., mainly geared to ore exports as the company owned large high-grade deposits in Brazil, and of the Anglo-Brazilian Steel Syndicate, which planned the construction of steel mills near Rio. The former, actually a British-owned concession, but over which an American group had an option of purchase, had been blocked by Bernardes him-self at the time he was Governor of Minas Gerais, where the deposits were located, by the imposition of a prohibitive tax on ore exports.

³⁹ *Idem*, p. 23.

⁴⁰ *Ibidem*, p. 24.

arranged with the Finance Minister. The government short-term liabilities were put at over 800,000 contos – around £25 million⁴¹ – and the discussion centered on the net amount required from the bankers and the security to be offered. The possibility of selling the state-owned railways was discussed but Vidal was vague and doubted that there would be interest in buying them, pointing out that the “Leopoldina and the Great Western – two of the three large British-owned railways – were anxious to be taken over by the government”.⁴² When asked about the possibility of raising some of the money through the issue of domestic government bonds the Minister replied that “there was no money in Brazil for the liquidation of anything like this enormous debt; indeed *apólices* were unsaleable in Brazil, except in very small dribbles”.⁴³ After the discussion had drifted to the question of the security for the loan and the British were told that it would have to be mil-réis revenue (as opposed to the gold-indexed tariff revenue already pledged as security for previous loans), Montagu assumed a tougher stand and warned that he would have to consider the request for the loan in the light of “these very grave matters” presented by Vidal and went on to deprecate the government iron and steel plan on the grounds that it would further strain the already serious federal budgetary position.⁴⁴ Finally, despite the assurances that the plan the President had signed was just an authorization to make contracts

41 *Ibidem*, p. 58. When definitive figures were arrived at later, the total of the debt was found to be 884,000 contos of which 451,000 contos represented Treasury Bills and Promissory Notes owing to the Banco do Brasil and 77,000 contos of Treasury Bills owing to the public, mostly arising out of the 1922 transactions described in Chapter IV. The balance of 355,000 contos represented debts to contractors, suppliers, and arrears of several Ministries relating to fiscal years 1922 and 1923. The stated debt to the Bank already excluded 400,000 contos of Treasury Promissory Notes accepted by the old Rediscount Department, which the President envisaged cancelling against the debt formally owed by the Bank to the Treasury on account of the Rediscount Department’s issuing of Treasury currency notes. This detail will be further discussed below.

42 *Ibidem*, p. 60.

43 *Ibidem*, p. 61.

44 *Ibidem*, p. 62.

and that the government had not “the slightest intention of carrying out the law to the extent indicated”,⁴⁵ Montagu still objected on the grounds that he could not be sure that the present administration's pledges would not be broken by the next. The Minister was then stirred into making a startling confession of the political arrangements made at the time of Bernardes' election. These revelations — made, as stressed by Vidal during the interview, “within these four walls” and later on in writing — amounted to this: “In order to guarantee the continuance of the financial policy of this government [the President] has made important provisions. In view of the precarious conditions of the finances of Brazil, the States of São Paulo and Minas Gerais, the greatest and most weighty in political influence, made a strong alliance into the federal administration. A complete study of the economic and financial conditions of the country was made jointly by the Presidents of the two States, Dr. Washington Luis, of São Paulo, and Dr. Arthur Bernardes, then of Minas Gerais. A general program was drawn up for execution — consolidation of the floating debt, banking organization (bank of issue), defence of coffee, reform of all federal departments, branch offices, custom houses, alteration of all directors of these departments, creation of a strong general inspectorship for the control of revenue, organization of a perfect system of public accountancy. São Paulo and Minas concluded the compact for improving the credit of Brazil . . . [bringing all state Presidents] . . . absolutely solid on the side of the financial policy of the present government. This being so, the President holds in his hand decisive political forces for securing a succession which offers all guarantees for the continuance of the present financial policy”.⁴⁶

Vidal's confession undoubtedly impressed Montagu. Although he then registered in his Diary that they were tantamount to asking him “to believe in the permanency of a new regime founded

⁴⁵ *Ibidem*, p. 63.

⁴⁶ Vidal to Montagu, 03.03.1924, in RA 111/220, file no. 5. Even the states which had not lent their support to Bernardes' candidacy were explicitly mentioned by Vidal as being now under control.

admittedly on political intrigue",⁴⁷ this and the fact the March congressional elections returned a comfortable majority to the government's faction were the only assurances he could present later in his report to the bankers that the Brazilians would carry out the mission's recommendations as agreed in Rio.

Although this meeting marked the beginning of formal talks, it would not be followed up until after Montagu's return from São Paulo in mid-February. The evidence from the mission's records clearly shows, however, that by the end of this first fact-finding and exploratory spell in Rio the mission's views on the various issues they were to tackle had already taken shape. Thus, before the narrative plunges into the final round of negotiations conducted during the second-half of February, an account of the evolution of their opinions will be attempted here as it is thought this will provide an organized framework for the understanding of the eight basic issues involved in these final talks.

Firstly, the mission found it essential to reform federal budgeting techniques so as to allow the government effectively to implement a more restrictive fiscal policy. Even though Montagu very soon came to the conclusion that the new machinery for the enforcement and control of the budget built by the government "seemed to be perfect"⁴⁸ and fully endorsed what he thought was a general acknowledgment that "the government is trying to get its financial house in order [and] has certainly improved tax-collection and accountancy beyond belief",⁴⁹ the mission was very critical of budgetary procedures themselves. In their opinion, in the prevailing circumstances "what is called a Budget is an *olla podrida* of votes of supply, authorizations for expenditure and for borrowing, and taxation proposals ... [which moreover] jumbled up capital expenditure and revenue expenditure".⁵⁰

⁴⁷ *Montagu Diary*, p. 65.

⁴⁸ *Idem*, p. 13.

⁴⁹ Montagu to Lionel de Rothschild, 08.01.1924, in *RA* 111/220, file no. 2.

⁵⁰ "Report by the British Financial Mission to Brazil to Messrs. N. M. Rothschild and Sons, Messrs. Baring Brothers and Co. Ltd. and Messrs. J. Henry Schroder and Co.", in *RA* 111/309. From now on this source will be referred to as *Report to the Bankers*.

This judgement was far from inaccurate. Indeed in Brazilian budgetary procedures there was no mechanism — except the political muscle of the government of the day — to guarantee that expenditure in a given year could be kept in line with voted revenue and credit operations, or to ensure the expenditure of borrowed funds to the ends they had been earmarked for. The main reason for this, quite apart from errors in the estimates, was the authority traditionally granted in the budget for the opening of “Additional Credits” — over and above budgeted expenditures, for which either inadequate provision had been made or no revenue at all provided and often without indication of their amount — which were usually voted at a large stage of the budget’s passage in Congress and hurriedly approved, often for petty political reasons.⁵¹

Besides, still on the budget front, it was thought important to achieve some once-and-for-all reduction in public expenditure. Not surprisingly the mission struck upon the idea of advising the creation of a committee of eminent persons from outside public service which would investigate the various departmental expenditure proposals and advise on possible cuts, specially the reduction of personnel, on the lines of the British Geddes Committee.⁵²

Thus, on fiscal policy issues, the mission had two aims: to introduce a new system of budgetary procedures — basically aimed at eliminating the “budget tail”, restricting current expenditure to the limit set by approved revenue and limiting

⁵¹ These additional credits were what in the contemporary Brazilian literature on public finance was referred to as the *cauda do orçamento*, or “budget tail”.

⁵² This was how a British government committee on public expenditure presided by Sir Eric Geddes, which proposed wide ranging cuts in February 1922, became known. This proposal was to be put to the Brazilian government in spite of Lynch’s misgivings that “a Geddes Committee is out of the question in this country because there are no impartial Brazilians”. *Montagu Diary*, p. 56. However, Vidal had himself in November 1922 made a speech advocating the creation of a Brazilian simile of the Geddes Committee, although this was apparently unknown to the mission. See Vidal (1923, p. 13).

borrowing except for capital expenditure items — and to ensure the creation of the expenditure watchdog committee.

The second problem the British were concerned with was how to curb excessive foreign borrowing by the states and municipalities. The reason for this concern was the depressing effect the default by some states, which had borrowed freely during the pre-war boom, was having on the quotations of federal bonds issued through Rothschilds and held in London. It was a long standing desire of the bankers that the Brazilian government submitted non-federal public foreign borrowing to some form of control and, as noted in Chapter II, the federal authorities had in 1912 unsuccessfully attempted to pass legislation to that effect. Since then the government had resigned itself to issuing public warnings from time to time — usually at the bankers' instance — denying any responsibility in relation to non-federal obligations. However, the mission was committed to finding a final solution to this problem even though it would require the amendment of the Constitution of 1891 and meet fierce opposition from state governments.⁶³

The third point was Brazilian coffee policy. Rothschilds had traditionally been no sympathizers of government price support schemes except in very special circumstances and would certainly not approve of any commitment of federal resources to a permanent scheme now, given the government's shaky financial position and with the beginning of the amortization payments to the 1914 funding loan looming just three years ahead. In spite of early strong assurances by Vidal that the government was not

⁶³ On January 5, in an interview with the Minister of Justice, Montagu was plainly told that Congress had for many years discussed a Bill submitting state borrowing to federal authorization but that it was "a very difficult project to carry into law, because the representatives of each state were inclined to believe that if they were at the moment politically unpopular with the government of the day the loans of their states would not be authorized". *Montagu Diary*, p. 27.

presently buying coffee,⁶⁴ Montagu was soon to learn that the new coffee price support system, based on the retention of surplus stocks in the recently built government regulating warehouses and successfully tried in the second half of 1923, was to be made permanent.⁶⁵ To finance the new scheme the government proposed to raise a foreign loan to be repaid out of the proceeds of a gold-indexed tax, charged on each bag carried by the railways collecting the coffee for delivery to the government warehouses, to be paid by the farmers into a special account at the Banco do Brasil. Although Montagu's initial impression was that the new scheme "was dear to the heart of Vidal"⁶⁶ and that "the government will not, and perhaps cannot, keep out of coffee transactions owing to the enormous influence of São Paulo",⁶⁷ he was convinced that "these coffee transactions . . . run definite risks of inflation and stock accumulation"⁶⁸ and these fears would lead him to press the Brazilian authorities to avoid any involvement with the Coffee Institute. Moreover, his negotiating position on this issue was very strong for some details of the plan were still not settled as opinion in Brazil was divided on the question of whether the new Institute should be controlled by the federal government or by the coffee interests themselves and, as Brazilian loans for coffee valorization could not be raised in New York at the time, owing to Department of Commerce opposition, its financial feasibility depended upon support from London which the mission could decisively influence.

The fourth issue the mission was to deal with was the possibility of an Anglo-Brazilian most-favoured-nation commercial treaty, consistently refused by Brazil and dear to the British Foreign Office. Although this question led Montagu to a little

⁶⁴ *Idem*, p. 10.

⁶⁵ The provisions formally creating the Institute for Permanent Defence of Coffee had been part of the budget law for 1924.

⁶⁶ *Montagu Diary*, p. 33.

⁶⁷ Montagu to Lionel de Rothschild, 8.1.1924, in *RA* 111/220, file no. 2.

⁶⁸ *Idem*.

soul-searching,⁵⁹ the classic City view prevailed in the end and the issue was not pressed.⁶⁰

The fifth problem was how to minimize the total sum of the proposed London bond issue, given the amount required by the Brazilian government. The answer to that was, naturally, to induce the government to raise what it could both by a concurrent internal issue of mil-réis bonds, and by disposing of some of its marketable assets.

These two possibilities were to be pursued, though not without serious obstacles. The former, as already shown, would be restricted by the size of the Brazilian capital markets. The latter would be resisted since the government could not sell, or lease for a long period, the two public companies to which the mission's attention was attracted — the Lloyd Brasileiro shipping company and the Central Railway — without surmounting a not inconsiderable political opposition.

Nevertheless, even though Montagu was told on January 15 by the Brazilian Minister of Transports and Public Works that the government would lease all its railways but not the Central, as this was "politically difficult",⁶¹ the point would be brought back during the February round of negotiations since the British-owned São Paulo Railway had an interest in acquiring the Central.⁶² As to Lloyd Brasileiro, besides the fact that a

⁵⁹ "It does not seem to me good to mix up business with politics. On the other hand what argument is there against suggesting to the Brazilian Government that is might be a good thing to accord to British merchandise most-favoured treatment? Of course Addis would say the City has nothing to do with manufacturers, but it is not the time coming when the City would do well to protect itself by showing some identity of interest with the industrial classes?". *Montagu Diary*, p. 36.

⁶⁰ Also note that the end of the American and Belgian preferential tariff agreements in 1923 greatly diminished the importance of this issue.

⁶¹ *Montagu Diary*, p. 54.

⁶² *Idem*, p. 26. The São Paulo Railway was certainly the most profitable railway company in Brazil and owned the only line linking the city of São Paulo, to where nearly all the state network converged, to the port of Santos, thus having the monopoly of the transport of São Paulo's coffee crop except for part of the marginal amounts produced in the state's northeastern region which were taken by the Central to be shipped from Rio.

previous attempt to sell it before the war had been blocked in Congress, Brazilian law forbade the operation of foreign flags in Brazilian coastal lines, which were the company's most important services by far.

The sixth point of concern to the mission arose from its endorsement of the British railway's complaints that the government control of freight rates had not allowed them to rise to the extent required to compensate for the squeeze in their sterling profits caused by the large post-war exchange rate depreciation.⁶³ The solution envisaged here was to propose the creation of an "independent" Railway Tribunal, with British representation on it, to frame and control federal railway policy. To sweeten the proposal, Montagu persuaded other members of the mission to back the issue of a special £5 million railway development loan in London.⁶⁴

The penultimate problem the mission had to face was how to dissuade the President from going ahead with his iron and steel plan. As mentioned above, Montagu strongly objected to the government's plan from the outset. However, it should be stressed that his objections resulted from apprehensions that its implementation would cause an undesirable expansion of the public sector and require an unwarranted increase in public expenditure, and not from any intention to curb the development of a steel industry in Brazil.⁶⁵ However, no effective way of inducing the government to shelve the plan was found until the mission returned from São Paulo.

⁶³ These complaints were being loudly voiced by the English financial press. See, for instance, the leader on "The British Mission to Brazil", in *SAJ*, 01.12.1923.

⁶⁴ *Montagu Diary*, p. 80.

⁶⁵ As he wrote to London: "The Government seems to be bent on an increase rather than a diminution of Government trading. They have a project now for the erection of steel factories, from which it will take us all our time to dissuade them, and which will involve them in liabilities the dimensions of which have never been properly calculated, and are perhaps incalculable". Montagu to Lionel de Rothschild, 8.1.1924, in *RA* 111/220, file no. 2.

Last but not least, there was the delicate task of securing what Montagu called "some palatable form of foreign financial control".⁶⁶ This matter had been raised in London and before their arrival in Rio the British were unanimous that some form of control by the bankers over Brazilian financial policy should be devised. This view was strengthened as work progressed in Brazil but, nevertheless, as late as January 21 they had not yet decided upon any concrete proposal.⁶⁷

Even though the bankers view — and, by implication, the early views of the mission — attempted to favour "the employment of a representative of the bankers by the government for the purpose of watching the progress of the [proposed] reforms . . . , and of using his influence to prevent a recurrence of the present situation",⁶⁸ towards the end of January the mission's attention started to be drawn instead towards the possibility of securing British influence over the Banco do Brasil.

Ironically, the idea of proposing the sale of the government's 52 percent stake in the Bank had been conceived early in January on the consideration that this was just another public asset eligible for sale or, as Montagu then put it, "another method of finding money for the Brazilian Government".⁶⁹ However, as their understanding of Brazilian institutions and instruments of economic policy grew it did not escape their attention that the 1923 monetary reform had formally transferred the control over monetary policy to the Banco do Brasil and that if the influence still exerted by the government over the Bank's policies could

⁶⁶ Montagu to Lionel de Rothschild, 26.12.1923, in *RA* 111/220, file no. 2.

⁶⁷ "Everything points to the crux of the question turning upon some form of control of the finances. How far we shall succeed in getting this I do not know". Montagu to Lionel de Rothschild, 21.1.1924, in *RA* 111/220, file no. 2.

⁶⁸ *Report to the Bankers*, p. 20.

⁶⁹ *Montagu Diary*, p. 38. The British were not unaware that this proposal, like many others would be resisted. Nevertheless on January 11, Addis' moderate suggestion to propose the reduction of the government shareholding at the Bank and an increase in the number of directors elected by private shareholders was turned down by Montagu as "very timid". *Idem*, p. 49.

be eliminated, the Bank could effectively be used to impose budgetary discipline. Besides, the mission had been explicitly instructed by the London bankers to try and devise means to prevent further exchange rate depreciation⁷⁰ and since the Bank was, in normal times, the controlling influence on Brazilian foreign exchange market, it was the natural instrument through which this aim could be realized. Furthermore, a large part of the liabilities the Brazilian government wished to fund were due to the Bank, and it could easily be suggested that the proceeds of the sale of the government shares should be used to settle these liabilities,⁷¹ so that if London had an interest in acquiring the shares it could be done without increasing the total amount of the proposed London issue, for the government liabilities would be reduced *pro tanto*.⁷² Finally, the mission may not have overlooked the fact that the Bank had in recent years distributed dividends of 20 percent — the maximum allowed by the statutes — on top of sizeable increases in its reserves.⁷³

So, when these considerations matured, Montagu telegraphed to London saying that the mission was considering including the sale of the government shares at the Bank as one of their proposals and asked whether Rothschilds “or their friends” would be interested in buying them.⁷⁴ The bankers answer was as realistic as it was prompt: “We’ — they said — ‘have discussed the question of the Banco do Brasil with our friends and we have unaminously (sic) come to the conclusion that while we agree with you that it would be an excellent thing for the Banco do Brasil to be independent of the Brazilian Government we think it would be most unpopular in Brazil for the national bank to be owned by foreigners, nor do we think it would be advisable for us to control such an institution as it might lead

⁷⁰ Mission's Terms of Reference, in *RA* 111/220.

⁷¹ As was, in fact, eventually suggested. See *Report to the President*, p. 20.

⁷² The government shareholding at the Bank, valued at market prices, was then less than the government's liabilities to it.

⁷³ *BBR*, 1922, p. 11, and *BBR*, 1923, p. 44.

⁷⁴ Montagu to N. M. Rothschild and Sons (telegram), 24.1.1924, in *RA* 111/220. file no. 4.

to grave difficulties between the government and ourselves. Under these conditions we think that if you advise the Brazilian Government to dispose of its shares it should do so to its own nationals".⁷⁵

Montagu was surprised by this reply and in a strong defence of his position immediately reminded Rothschilds that their views when he left London, and the only firm conviction the mission had formed, was that the only guarantee of a sound financial policy in Brazil "is that there would be some foreign, that is British, element in [the] financial system", and concluded unambiguously that the "best places for this element would be first in the Board of Directors [of the] Bank of Brazil and secondly in the Tribunal of Accounts."⁷⁶ Rothschilds answered back, making clear they concurred with the point that the implementation of the mission's recommendations would require "British supervision", but reaffirmed their opinion that the Bank should be sold to Brazilians.⁷⁷ Montagu, however, was already strongly attached to his own alternative which he would pursue even against the bankers' advice, though not altogether abandoning attempts to include London's representation in the Brazilian executive as preferred by them.

Broadly, this was how the mission's views stood at the end of their first month in Rio. Summing up his own feelings on the all-embracing question of the loan Montagu, though expressing irritation with what he called the "peculiar and precarious" Brazilian government personnel, would conclude that he himself was "fast inclining to the idea to give them what they ask on

⁷⁵ N. M. Rothschild and Sons to Montagu (telegram), 25.01.1924, in *RA* 111/220, file no. 4.

⁷⁶ Montagu to N. M. Rothschild and Sons (telegram), 26.01.1924, in *RA* 111/220, file no. 4. The Tribunal of Accounts was a body formed by nine members nominated for life by the President *ad referendum* of the Senate, plus six other auditors and representatives of Ministries, also directly appointed by the President, whose duty was to control and authorize public expenditure. Its decisions could, however, still be overruled by the President.

⁷⁷ N. M. Rothschild and Sons to Montagu (telegram), 01.02.1924, in *RA* 111/220, file no. 4.

conditions".⁷⁸ On January 31, two days after a short interview with the President in which the mission handed in an *aide-memoire* containing a summary of what they proposed to recommend on most of the issues, they left for São Paulo. "After this interview, Montagu optimistically wrote, 'we have no secrets except the one on financial influence and we shall be able to peg away'.⁷⁹

The visit to São Paulo consisted solely of public appearances, visits to coffee plantations and the like and was of no consequence for the issues being discussed.⁸⁰ On February 12 they were back in Rio and the memorandum left with the government on their departure had already been digested by the cabinet. From then on the pace of the negotiations quickened.

On February 19, Montagu met Francisco Sá, Minister of Transport and Public Works, for a discussion of the proposals relating to railway policy and the sale of public companies. The Minister pointed out that the difficulties in the railway system were due to shortage of rolling stock caused by the war and that although he agreed that foreign capital was necessary to put it right, it was politically impossible to raise railways fares, particularly those of the Central.⁸¹ Montagu replied that the suggested Railway Tribunal would get political considerations out of the way and proposed foreign representation in it to make the flotation of the special railway loan easier.⁸² Discussion followed and Sá ended up agreeing, "as Brazil needed foreign investment", warning, however, that "no Government could" sell the Central.⁸³ As to Lloyd, Montagu was plainly told that the government would sell it forthwith.⁸⁴

⁷⁸ *Montagu Diary*, pp. 82-83.

⁷⁹ *Idem*, p. 79.

⁸⁰ Montagu to Lionel de Rothschild, 31.1.1924, in RA 111/220, file no. 2. What this visit amounted to was succinctly described by Montagu: "We had dinner parties, luncheon parties and endless talk: 'How do you like Brazil? What will you do for the exchange? Do not put it too high!'" *Montagu Diary*, p. 198.

⁸¹ *Idem*, p. 84.

⁸² *Ibidem*, p. 84.

⁸³ *Ibidem*, p. 85.

⁸⁴ *Ibidem*, p. 86.

On the evening of the same day, the first of a series of meetings with Vidal took place. The first point to be touched on was the iron and steel plan. The Minister reaffirmed that the government project would not lead to any large expenditure, adding that Bernardes thought that for defense reasons he must have steel in Brazil, and that the two foreign projects available were not satisfactory for Itabira, as a wholly foreign-owned enterprise would "export all the profits" and the Anglo-Brazilian Steel Syndicate wanted an interest guarantee which the authorities were not prepared to give. However, when Montagu proposed delaying action on the project until his return to London, when he would try and get financial support for it and couple it with Vidal's request for long-term coal supply contracts, the Minister agreed and they passed to the sensitive issue of coffee policy.⁸⁵

Vidal considered Montagu's suggestion to turn the management of the price support scheme into some sort of planter's association to be utterly unrealistic on the grounds that they lacked both the organization and the skills needed and dismissed as unwarranted the usual criticisms that valorization would encourage foreign competition and lead to over-planting in Brazil. After a long debate it became clear that Brazil would not leave coffee prices at the mercy of market forces, but Montagu was satisfied by the assurances the Minister gave as to the role the federal government was planning to play in their control. According to Vidal, although a dispute still existed over whether the five members of the Coffee Institute board of directors were to be appointed by the government or elected by the coffee interests, the government was intent on carrying into effect the law creating the Institute, but he gave his assurance that the government would not guarantee the foreign loan to be raised to put the scheme into operation, limiting its involvement to the supervision of the collection of the special tax by the federal railways. When, finally, Montagu asked directly whether he "could go home and say that the government was under no circumstance ever going to buy coffee

⁸⁵ *Ibidem*, p. 89.

again?", Vidal's answer was affirmative that they "did not intend to, but the Institute would buy coffee".⁸⁶

From coffee they moved on to the possibility of sale of public assets. The Finance Minister repeated Francisco Sá's words that the government would sell Lloyd, with the proviso that it would have to keep the coastal lines under Brazilian flag, but that the sale of the Central was "politically impossible".⁸⁷ Montagu did not press the point of the Central but carefully mentioned for the first time the sale of Banco do Brasil shares as another possibility.⁸⁸ The Minister took no offence at this suggestion saying however that "the government was very anxious to separate the Banco do Brasil from the State . . . but they did not consider that the present was an opportune time for accomplishing that change. Opinion in Brazil was very divided as to whether there should be a Banco do Brasil at all as a central bank of emission, and until they had firmly established their view that it should so act they ought to be in a position to protect the Bank. After all the President of the Federal Reserve Board was the Secretary to the [U.S.] Treasury, the President of the Bank of France was appointed by the Government, the President of the Reichsbank before the war was appointed by the Government . . .".⁸⁹ Vidal's argument did not fail to impress Montagu. However, after some admittedly feeble remarks the latter expressed his disgust with what he considered was the government's non-committal attitude during the negotiations,⁹⁰ and these stronger words led the Minister as far as to say that he "was not at all averse to the sale of the Banco do Brasil shares; he was quite prepared to do it if [the mission] pressed it. All he asked [them] to consider was whether . . . it ought to be done now — at once. Was it wise in a new country like this to leave to private bankers in this country

⁸⁶ *Ibidem*, pp. 90-91.

⁸⁷ *Ibidem*, p. 92.

⁸⁸ As his personal diary registers, "I just mentioned it as the third asset which we had discovered which might be disposed of to provide the government with funds". *Ibidem*, p. 93.

⁸⁹ *Ibidem*, p. 93.

⁹⁰ *Ibidem*, p. 93.

the total control of the bank of issue and of the money?".⁹¹ Montagu gave no answer to this question, they agreed to pursue the matter further and the meeting adjourned.

Negotiations between Vidal and Montagu continued the following day but there is no evidence that the question of the sale of the Bank was raised again on this occasion. This meeting was entirely devoted to the debate of the proposed budgetary reform and the question of federal control of non-federal public foreign loans. Again, on these issues, there was little opposition to the British proposals. The government had nothing in principle against a tight fiscal policy and in fact the pledge to pursue one figured prominently in Bernardes' electoral platform. So, although the proposed budgetary reform was probably more radical than the government would have undertaken on its own initiative,⁹² the Finance Minister agreed to try and implement it, implying however that this was understood as guaranteeing that the loan would be floated.⁹³ The "Geddes Committee" recommendation was also firmly supported by Vidal⁹⁴ and on the question of the state and municipal loans he assured Montagu that the government was "negotiating with the new Presidents of all States with a view to seeing if they could not arrange outside the Constitution that any attempts of the States and Municipalities to borrow should be approved by the Federal Government".⁹⁵

On Monday, February 18, the negotiations continued and Braga, the President of the Banco do Brasil joined in to discuss technical details of the Bank-Treasury agreement of 1923 and exchange rate policy. Montagu did not hide his appreciation of the 1923 monetary reform but after comments from the Brazilians

⁹¹ *Ibidem*, pp. 93-94.

⁹² The abolition of the "budget tail", for instance, was unconstitutional.

⁹³ As Montagu saw it, the Minister implied that the reforms "were conditional on his being able to consolidate the [floating] debt". *Montagu Diary*, p. 99.

⁹⁴ *Idem*, p. 100.

⁹⁵ *Ibidem*, pp. 101-102.

on the difficulties they were still having in passing it into law,⁹⁶ he hinted at having heard rumours that these difficulties were in fact due to fears that the agreement as it stood would not suffice to make the Bank independent from the Treasury. Whether this remark was meant to be provocative or not, it led the President of the Bank to make a long – and, in the circumstances, quite untimely – statement that he and Vidal shared these misgivings and “were very anxious as soon as may be to assure the complete independence of the Bank of Brazil from the Government” and that the solution he personally favoured “if the elections produced a result which would make it possible to get through such a law, was the selling of the shares of the Government in the Bank of Brazil to the other banks in Brazil, both national and foreign, and to model the bank of issue on the lines of the Federal Reserve Bank in New York”, with the President of the Bank still appointed by the government but with no powers to overrule the directors as it had now.⁹⁷

Montagu could not have wished to hear a statement more in line with his own views and after telling Braga that this was “exactly the scheme we would recommend”, asked whether it would help him if the mission said so in their report to Bernardes.⁹⁸ At this point, according to Montagu, Braga “appeared to be afraid he had gone too far” and backed down by saying that

⁹⁶ The agreement was already operative but had not yet been fully legalized owing to disagreements over whether the Treasury or the Bank should accept the liability represented by the outstanding 400,000 contos of currency notes issued by the extinct Rediscount Department. Bernardes favoured what Brazilian government officials called a “cross-entry operation”, which would cancel the Bank’s liability to the Treasury which these notes legally represented against an equal sum of Treasury short-term debt to the Bank, and consider the notes as part of the total Treasury note liability transferred to the Bank by the 1925 agreement. Vidal and Braga upheld the opposing view that the Treasury should honour its debt to the Bank in full, pointing to the fact that the 1925 agreement did not consider the Rediscount Department notes as part of the Treasury note issue. This issue interested the mission since its outcome would affect the value of the government indebtedness to the Bank. On this, see *Montagu Diary*, p. 104.

⁹⁷ *Idem*, p. 104.

⁹⁸ *Ibidem*, p. 104.

the question had not been discussed with Vidal and that he hoped that if the mission wanted to recommend anything it would do so "on general lines".⁹⁹ His slip, however, renewed Montagu's hopes — somewhat shattered since the Finance Minister's reaction a few days before — that it could be feasible to secure the Bank's control.¹⁰⁰

On the following day Vidal and Montagu met again to settle the final point, viz., the net amount of financial assistance immediately required by the government. The Minister brought definitive estimates of the floating debt and again emphasized that there was no alternative to a foreign loan as "the issue of even 500 *apólices* upsets the market".¹⁰¹ Montagu suggested that some of the Brazilian creditors could accept payment in *apólices* but this was rejected on grounds that they too had liabilities to meet and were pressing for cash. However, it was finally agreed that 100,000 to 150,000 contos could be raised internally, not in *apólices* but in "7 or 7 1/2 percent fairly long bonds".¹⁰²

Since this meeting concluded the discussion of all the issues raised by the mission, Vidal took the results of the negotiations to Bernardes for his consideration and on February 21 informally told Montagu that the President was in complete agreement with them: the railways and Lloyd, with the negotiated provisos, could be sold; an internal loan up to a limit of 150,000 contos should be raised; he would wait for Montagu's proposal on steel; constitutional amendments would be introduced to control non-federal foreign borrowing and meanwhile moral suasion would be used to curb it; the budget reform proposals were

⁹⁹ *Ibidem*, p. 104.

¹⁰⁰ He left the meeting feeling that he " must press them to carry out the scheme and press the Banks in London to accept it". *Ibidem*, p. 105. On the same day he wrote to London informing of Vidal and Braga's "agreement" that it was desirable to sell the Bank. Montagu to Lionel de Rothschild, 18.02.1924, in *RA* 111/220, file no. 2.

¹⁰¹ *Idem*, p. 110.

¹⁰² *Ibidem*, pp. 110-11. Because inflation and overissue had put the usual 5 percent *apólices* — *de facto* perpetuities — at a heavy discount, this new kind of higher nominal interest bonds with definite maturity dates had already been recently issued.

accepted and the President was "enthusiastic" with the Geddes Committee idea.¹⁰³

With these assurances the mission sat down to draft their report to the President, which was meant to embody the proposals to which Bernardes' formal pledge would be requested in a final interview before their departure. It should be noted, however, that the acceptance of any of the two alternative ways envisaged by the mission as means to secure influence on Brazilian economic management had not up to now been guaranteed. On the two occasions the sale of the Banco do Brasil was mentioned, the Brazilian position – though in principle more favourable than one would *a priori* have thought – was eventually non-committal. Besides, the matter had not been clearly pressed by the British as an urgent or necessary condition for the loan, and neither was it among the proposals mentioned by Vidal as having had the President's approval; and the alternative of arranging for the bankers' representation in some important government position had not even been mentioned to the Brazilians.

Thus, probably because of that, during the process of drafting the report, the mission agreed with Sir Henry Lynch's opinion that they should "volunteer a proposal that the Bankers should appoint a man who would be able to satisfy them that the reforms were being carried out and that the loan was being properly spent",¹⁰⁴ and on February 22 he went to see Vidal to press a proposal for a Treasury "advisor".¹⁰⁵ Although the suggestion was put forward with great care and after a long preparation, it was strongly objected by the Finance Minister. In Lynch's own words "Vidal went every colour of the rainbow and completely out his head"¹⁰⁶ and, as later reported to the bankers, "went as far as to say that he would rather abandon all hope of restoring the financial position of Brazil than consent with fiscalization of the Treasury; that [the mission] had secured

¹⁰³ *Ibidem*, pp. 113-114.

¹⁰⁴ *Ibidem*, p. 116.

¹⁰⁵ *Ibidem*, p. 116.

¹⁰⁶ *Ibidem*, p. 116.

from him his consent, and he was hopeful that [they] should receive that of the President to [their] other proposals, but he could never put this proposal to the President: that if he did it would never be accepted, and no Government that consented to it could live".¹⁰⁷

Vidal's reaction was discussed by the members of the mission on the evening of the same day and they came to the conclusion that they "were asking a great deal".¹⁰⁸ Despite Lord Lovat's reminder that "Rothschilds gave [this concession] great importance", they agreed "to leave it to them to raise it again from London".¹⁰⁹ Montagu would, however, include the sale of the Banco do Brasil on the lines suggested by the Bank's president among the proposals in the report to the President and personally press Bernardes for a definition on the issue at their last meeting.

The draft report was signed by the British on Saturday, February 23, copies handed to Bernardes and Vidal, and the final interview with the President arranged for the following weekend. In the intervening week, although Vidal met Montagu on occasion, nothing of importance was discussed.¹¹⁰ Finally, on March 2, two days before the mission was due to leave the country, the decisive meeting with the President took place.

As soon as the initial formalities were out of the way Montagu asked Bernardes whether he was to receive a formal answer to the report as, he argued, they needed to tell the bankers what

¹⁰⁷ *Report to the Bankers*, p. 21.

¹⁰⁸ *Montagu Diary*, p. 116.

¹⁰⁹ *Idem*, p. 117. In their final report to the bankers, although agreeing that "it should be useful to get such a representative" the mission would, however, state that it was satisfied that this could not be obtained and that to press the issue "might have prevented the acceptance of our other proposals". *Report to the Bankers*, p. 21.

¹¹⁰ The records on the period show, however, that because the government considered the report a highly sensitive political document the decision to publish it had yet been taken; on February 27, on the eve of a ceremony in which Montagu was due to make a speech, Vidal asked him not even to mention the report. *Montagu Diary*, pp. 119-120. This zeal for secrecy was probably enhanced by the fact that parliamentary elections would take place early in March.

his attitude was.¹¹¹ In spite of the President's answer that "... he was so much in sympathy with the report that he found he had made no notes", it was decided, at Montagu's suggestion, that they should go through all the individual points raised in the report.¹¹²

Bernardes agreed, as expected, with the budget reform recommendations, with the simultaneous domestic bond issue, and emphatically assured the British that there would be no "indiscriminate borrowing abroad" — a point which the report warned in passing¹¹³ — adding that Brazil "was not going to borrow from any other source but them".¹¹⁴ However, when the proposal of the sale of the Banco do Brasil was reached the President would only go as far as to state his agreement "in principle" as he was not sure it was the moment to do it".¹¹⁵ His vagueness on this all important issue was at once deprecated by Montagu who pressed for a clear definition, threatening that the bankers "would not be happy with agreement in principle".¹¹⁶ Although the sharpness of this intervention shocked Bernardes,¹¹⁷ Montagu remained deliberately impassive, trying to create the impression that a fundamental deadlock had been reached and to force the President to make the next move.¹¹⁸ The bluff succeeded and after a long conversation with Vidal, Bernardes put forward a compromise proposal to sell half of the public share-holding, arguing that he would not like to leave the Bank without government influence "in case the Directors

¹¹¹ *Idem*, p. 130.

¹¹² *Ibidem*, pp. 130-131.

¹¹³ *Report to the President*, p. 19.

¹¹⁴ *Montagu Diary*, p. 131.

¹¹⁵ *Idem*, p. 132.

¹¹⁶ *Ibidem*, p. 132.

¹¹⁷ "When Lynch began to interpret, [Bernardes] turned very red, moved uneasily in his chair, and grinned at me that they were only trying a way for something on which we were in agreement". *Ibidem*, p. 132.

¹¹⁸ "I did not move a muscle because I felt that if in this bluff we did not succeed, the situation was really hopeless". *Ibidem*, p. 132.

were making a mess of things".¹¹⁹ The justification of this counterproposal was, however, in direct contradiction with the government's avowed intention to part with powers over the Bank and Montagu was not slow to complain that it showed that there was "not even an agreement in principle which the President alleged, for he desires to part with effective control and maintain a connection which meant that the Bank of Brazil's liberty might always be interfered with by the Government for political purposes . . . and now whilst pretending to agree with us in principle he was attempting to preserve the Government's influence" and, feeling the strength of his position, concluded by demanding unambiguously "a definitive answer to our question: Did he intend or did he not intend to carry out our recommendations?".¹²⁰ After another long consultation with his Finance Minister the President finally asked whether the mission "had any objection to a President appointed by the government, provided that the President had no executive power and was merely there to preside at meetings".¹²¹ This question was unnecessary, however, for this was the very idea put forward to the British by the President of the Bank a few days before, and which they had included in the report!¹²² Agreement having been reached, Bernardes solemnly declared that the mission "could tell the Bankers, and accept his assurance, that he would do everything in his power to persuade Congress to pass the necessary legislation to carry out [the] Report".¹²³ Finally, as the other recommendations came up for consideration they were all approved with little discussion.¹²⁴

¹¹⁹ *Ibidem*, pp. 132-133.

¹²⁰ *Ibidem*, p. 133.

¹²¹ *Ibidem*, p. 133.

¹²² *Ibidem*, p. 133 Cf. *Report to the President*, p. 20.

¹²³ *Montagu Diary*, p. 133.

¹²⁴ *Idem*, pp. 133-135. The President even agreed with the sale of the Central Railway "if it could be done". Curiously enough, after the formal negotiations were wound up, he approached Montagu for financial support for a plan to move the Brazilian capital to the hinterland; the latter politely replied that he would look into the matter in London . . .". *Idem*, p. 135.

On the following morning, the British party called for the last time on Vidal. The Minister, when reminded of the importance of implementing the proposed measures at once “to influence opinion in London”, gave the additional assurance that the passage of legislation would not be difficult as the parliamentary elections had returned a large government majority in both houses.¹²⁵ Indeed, as Montagu's graphic recording of this last encounter with Vidal shows, he was left in little doubt that the finance Minister meant what he said: “We arrived at the Treasury . . . to find the usually crowded entrance empty. As we entered from the lift into Vidal's own room, I saw what really amounted to the most pathetic sight I have ever seen — poor Vidal alone and unattended (for the whole Treasury was Carnavalling), sitting at a typewriter laboriously thumping and fingering on the instrument his own answer to our Report. Can one want a more convincing picture of determination and earnestness?”.¹²⁶

4 — Narrowing options and deflationary readjustment

When the British mission left Brazil, the crucial decision regarding the loan came to depend solely on the bankers' reaction to its advice. Interviewed by *The Times* on arrival at Southampton on March 21, Montagu admitted having submitted a report to the Brazilian government, but avoided discussing its contents, limiting himself to comment that “Brazil needed four things, viz. balanced budgets, continuity of prudent government, a stable currency and fresh capital which must be given an opportunity of earning a fair return”.¹²⁷

¹²⁵ *Ibidem*, pp. 143-144.

¹²⁶ *Ibidem*, p. 137.

¹²⁷ *The Times*, 22.03.1924. Asked whether a loan would be necessary he characteristically added: “I think they can balance the Budget by making the needed reductions in expenditure, and can improve their revenue sufficiently with determination and courage to balance the future budgets, but they will still be left with a very large short-term floating debt of a kind we do not use in this country. This is in the form of bills for services rendered which have not been paid”. *Idem*.

At that point, however, the main part of the *Report to the Bankers* was already finished.¹²⁸ Although dedicating about two-thirds of its length to superficial comments on Brazilian geography, institutions, public administration practices, etc., and even references to the Brazilians' "marked intelligence and great charm",¹²⁹ the final section of this document is entirely devoted to discussing the central question facing the mission, that is to give or not to give the financial assistance requested by the Brazilian government in the light of the concessions and assurances obtained during the negotiations in Rio. On this issue, the report was unambiguous: after exhaustively pointing out the difficulties facing Brazil, the mission concluded it was "satisfied of the good intentions of the Government and that it intends to do everything in its power to effect economies in expenditure and carry out the other reforms that have been suggested and strongly recommend that a loan should be started with as little delay as possible".¹³⁰

However, it was unlikely that a loan could be floated soon. Despite the rumours about a loan to Brazil which started appearing almost at once in the financial press,¹³¹ there was a need to reassure investors that the government was really moving towards implementing fundamental financial reforms, a move which demanded a good deal of political skill as well as time to be carried through, for Congress — on which several of the

¹²⁸ Besides this part, the Report contains, in its final form, several technical appendices mostly written by McLintock on budgetary procedures and the fiscal system then in force, the composition of the short and long-term public debt, etc. A very brief and superficial account of the organization and functions of the Banco do Brasil, prepared by Addis, and a longer report on "The Agricultural and Industrial Situation in Brazil", by Withers and Lord Lovat, were also added. RA 111/309. None of these were shown to the Brazilian government. Cf. Lionel de Rothschild to Sir W. Tyrell, 15.04.1924, in FO 371/9508 A 2427/70/6.

¹²⁹ *Report to the Bankers*, p. 6.

¹³⁰ *Idem*, pp. 34-35.

¹³¹ The *South American Journal*, for instance, reported that "there are reasons to believe that a big loan for Brazil will be arranged in the near future". See SAJ, 29.3.1924.

proposed reforms ultimately depended — would not reconvene until early May.

The first concrete steps came with a series of government acts and declarations on the lines of the Rio agreements and with the opening of an exchange of telegrams between the Minister of Finance and Montagu regarding the final form of the report to the President with a view to its eventual publication.

The former started in late April at the shareholders meeting of the Banco do Brasil. There was an announcement of the arrangement to cancel the 400 thousand contos due to the Treasury on account of the Rediscount Department issue against the debt the Treasury owed the Bank — the “crossy entry” operation — and Braga’s report ends with the cryptic suggestion that the Bank’s internal organization might be changed to make it less dependent on the government and for that purpose an extraordinary meeting could be called.¹³² At the beginning of May, Bernardes opened the congressional session with a speech which brought up, at the start, the issue of Constitutional revision, stressing the necessity of making “budget-tail” credits unconstitutional as a condition to balance the federal budget and advocating, among other things, greater federal control over the states’ financial affairs.¹³³ The need to balance the budget and cut the additional credits was further emphasized in the budget draft Bill, presented soon afterwards by Vidal, and the “Geddes Committee” was appointed on June 3. A few days later, a telegram from Rothschilds congratulating the government on the outlined reforms received great publicity in the Rio press and was, according to the British Ambassador, “widely taken here as indicating that a loan is imminent”.¹³⁴

As mentioned above, parallel to these manifestations of intent, the Brazilians also started negotiations with Montagu towards agreement on the terms of a final publishable version of the

¹³² *BBR*, 1924, pp. 31-32.

¹³³ *Mensagem Presidencial de 1924*, in *DOU*, 3.5.1924.

¹³⁴ *SAJ*, 7.6.1924, and Tilley to McDonald, 14.6.1924, in FO 371/9508 A 4050/70/6.

mission's report to the President.¹³⁵ As a result of these consultations many minor points and even some important safeguards were conceded by the bankers.¹³⁶ However, where the Brazilian requests for changes in the draft touched on passages concerning possible monetary consequences of coffee valorization policy, the British position was adamant. The Minister's proposal to delete a sentence pointing to inflationary dangers of government participation in coffee prices support schemes¹³⁷ was not only rejected, but led Montagu to remark that "unless the public in this country were satisfied that there had been a radical alteration in the government policy in regard to the valorization of coffee it would be impossible to raise a loan in this country".¹³⁸ As will be shown below, the stiffness of the bankers' position on this issue would strongly influence the radical policy changes that were to take place later in 1924.

A mutually acceptable wording for the final draft of the report was finally ready before mid-June. Since the draft bill on the constitutional reform had already been sent to Congress it was now the moment to back it up by publishing the "independent" report. The latter, apart from helping to show the proposed reforms as fundamental for greater financial stability, was

¹³⁵ The first proposals to London were made by Vidal on April 16. Agreement on a final draft was reached after the second reply with counterproposals from Montagu, undated, but most probably of early June. See *RA* 111/220, file no. 3.

¹³⁶ An instance of the latter was the acceptance of Vidal's request to suppress an explicit reference to the Minister of Transport and Public Works' agreement to choosing one of the members of the proposed Railway Tribunal from Great Britain. This was accepted even though Montagu had, in fact, quoted the Minister on page 22 of the Report to the Bankers as asking whether he would like two Englishmen in the five-member Tribunal. See *RA* 111/309.

¹³⁷ The passage reads: "We confess ... that we have not been able to convince our-selves that the share of the government in in [coffee] operations is not attended with serious risks which may result in considerable loss or temptation to inflate the currency, or contract new and heavy liabilities in order to help the coffee producers". *Report to the President*, p. 34.

¹³⁸ Telegram of N. M. Rothschild and Sons to Vidal, undated, but probably of late April, in *RA* 111/220, file no. 3.

certainly to be read by informed opinion as a set of conditions the fulfilment of which the loan depended upon, thus softening the opposition to the reforms. This move tacitly placed the government in the position of a mediator between the wishes of the foreign creditors and those of the Brazilian Congress, from which concessions could be induced from both sides. Indeed, the motive of a much publicized interview Bernardes gave to João Lage, director of the pro-government newspaper *O Paiz*, on June 24, was no other than to try and strengthen this position. In it, for the first time, the President publicly linked the possibility of British financial assistance to the proposed constitutional reform, preparing the ground for the publication of the report.¹³⁹ Four days later the document was released to the press in Rio and London.¹⁴⁰

As was to be expected the report was praised by the pro-Bernardes and the British papers.¹⁴¹ The opposition press, on the other hand, although starting from a position which, by and large, centered on superficial remarks on the "humiliation" Brazil was being submitted to by the government and on the "arrogant" tone of the report, rapidly evolved towards exploiting the sensitive issues with an attack on the proposals to sell the public companies and the Banco do Brasil, "beginning, as the British Ambassador put it, to take the line that [the report] is an attempt to turn Brazil into a British colony".¹⁴²

¹³⁹ After stressing the problems posed by the weak financial position he continued: "It is not possible to govern in such a situation. How can we pay what we owe? Budget surpluses do not exist. Domestic resources, such as to enable us to resort to borrowing within the country, we do not have either. It is unavoidable to resort to foreign credit but the foreign creditor ponders, with reason: 'How come Brazil wishes that we — who have sought to help her by granting credits which she has misused to the point of asking for two moratoria — could still grant her fresh credits without the guarantee that she will not go on with the improvidence which has placed her in such a desperate situation?'. The argument of the foreign creditors is reasonable", and went on to defend the proposed reforms. *O Paiz*, 24.6.1924.

¹⁴⁰ See, for instance, *Jornal do Comércio*, 28.6.1924.

¹⁴¹ *Idem*. For a British view see *The Times*, 30.6.1924.

¹⁴² Tilley to McDonald, 5.7.1924, in FO 371/9509 A 4650/70/6. For the opposition view, see *O Jornal*, 29.6.1924.

Ironically, however, it was at this stage — when its almost year-long efforts neared fruition — that the government's strategy received a mortal blow. And it was probably Bernardes' greatest misfortune that the loan was to be blocked not as a result of a political deadlock in Brazil over the issues at stake, but as an indirect consequence of a domestic policy decision taken by the British government, viz., the embargo on foreign government issues in London, imposed with a view to strengthening the paper pound towards the return to gold at pre-war parity.

The British embargo on foreign government loans was prompted by the rapid worsening of the United Kingdom's trade balance deficit [Brown Jr. (1929, p. 223)] and by the alarm caused by the growth of overseas lending in the early part of 1924 following the substantial freedom regained by the London overseas issues market in January, in a situation in which to try and deal with the imbalance through a tightening of monetary conditions "would have raised a political storm" [Moggridge (1971, p. 120)]. Probably because the embargo was not a formal official act, it has been mistakenly dated as effective from November 1924, even by such an authority as Brown.¹⁴³ More recently, however, it has been suggested by Moggridge that "it would seem that the Bank [of England] became much stricter in its treatment of applications for foreign government new issues from mid-1924" [Moggridge (1971, p. 120)], an assertion based on evidence from an extract from the private diary of the Bank of England's Governor, as published by Sir Henry Clay, showing the very poor opinion Lord Norman had of foreign loans by April 1924, as well as on the observation that "after 24 May there were no no-league of Nations, non-Reparations loans for foreign governments or municipalities until January 1926".¹⁴⁴ In fact the importance of Norman's opinion in the imposition of the embargo cannot be overestimated. The method of imposing

¹⁴³ Cf. Brown Jr. (1929, p. 224). The mistake is repeated in a recent, thorough, study on British overseas investment. Cf. Atkin (1968, p. 49).

¹⁴⁴ Moggridge (p. 120). It should be noted that, according to British usage, Colonial and Dominion governments were not classified as "foreign" and the restrictive measures did not apply to their loans.

the embargo was, according to Brown, "quite unobtrusive, informal and characteristically English ... It was merely made known to those considering such issues that they would not meet with the approval of the Bank of England. This was sufficient. Though it was without a shred of legal or legislative justification, the embargo was exceedingly effective" [Brown Jr. (1929, p. 24)], and it is suggestive that top-ranking British Treasury officials referred to the embargo as "the Governor's polite blackmail against foreign issues".¹⁴⁵

In the light of these remarks, some documents recently published by Professor Sayers (1976, p. 289) lend further support to the notion that the embargo was enacted by mid-1924. In a minute of April 9, Norman is quoted as informing the Bank's Committee of Treasury that "he was strongly of the opinion that only applications on behalf of those countries which were in need of money for reconstruction purpose deserved consideration" and in a similar document dated October 22 he informs that "having been approached, since the closing of the German loan, as to the issue of foreign loans in London, he had *again* replied that all such issues were, and were likely to be, undesirable under present Exchange conditions ...".¹⁴⁶ Indeed, as far as the Brazilian loan was concerned, the usually well-informed *South American Journal* was telling its readers as early as July 5, in an editorial on the British mission to Brazil, that "it looks as though the mission realizes that any loan to be of value to that country must be so large that its chance of success is problematical. At any rate, this matter seems to have been postponed for the moment".¹⁴⁷

To assess the consequences of the British decision on Brazil it is worth recalling that the joint achievement of the basic goals in the government's economic programme — namely, the funding of the floating debt and the creation of a central bank designed to drive the mil-réis back to gold at a substantially

¹⁴⁵ See PRO T 175/4, Niemeyer to Chancellor, 5.3.1925, and Niemeyer Memorandum, 29.11.1924, quoted in Moggridge (1971, p. 121).

¹⁴⁶ Sayers *op. cit.*, p. 289. Emphasis added.

¹⁴⁷ *SAJ*, 5.7.1924.

revalued exchange rate — had been made to depend crucially on the successful conclusion of the British loan, and that since the first contacts with Rothschilds were made the domestic economic outlook had shown little change.

The domestic price level, which after having fallen by 3 percent in 1922 rose by not less than 35 percent in the first year of Bernardes' government,¹⁴⁸ showed no signs of stabilizing, and a sentiment had been growing for some time that inflation had become a major social problem, as seen in the special measures to curb food price increases taken in March and July.¹⁴⁹ Though the origins of this inflationary outburst dated back to the 1921 exchange rate collapse and the easy money period of the Rediscount Department, the lax way the Banco do Brasil managed its note issuing rights — particularly during the second half of 1923 — was certainly not in tune with the government's avowed deflationary intentions. By the end of June 1924, the Bank had already issued over 400 thousand contos, that is over two-thirds of the statutory limit set by the valuation of the gold reserve transferred from the Treasury, expanding the monetary base by almost a fifth.

Besides, the rather delicate external position remained very much the same. The beginning of the substantial export growth of 1924 brought about by a firm rise of coffee prices was compensated by a concomitant growth of imports as the economy recovered from the post-war slump under strong inflationary pressures relatively to her main import suppliers, as shown in Table 3 below. As the trade balance failed to recover and no foreign loans were forthcoming, the exchange rate remained at

¹⁴⁸ As measured by the Rio de Janeiro cost 7 living index.

¹⁴⁹ Decrees nos. 16419, of March 19, and 16524, of July 1st, regulated the distribution and gave tariff exemption to several foodstuffs, authorizing the Agriculture Ministry to purchase abroad and build buffer stocks so as to stabilize food prices. As Neuhaus has noticed, the introductory paragraph of the second of these decrees reads: "Considering ... the alarming increase in the price of necessities ... which has made life unbearable to the lower classes which form the majority of the population, etc., ...". Cf. Neuhaus (1974, p. 70).

Table 3

Price Indices: Brazil, U.S. and U.K., 1920-1924
(1913 100)

Years	Brazil	U.S.	U.K.
1920	181.1	220.5	307.3
1921	153.5	139.4	197.2
1922	167.5	138.1	158.8
1923	218.0	143.7	158.9
1924	242.0	140.1	166.2

SOURCES: *Brazil*: General (Agriculture, Industry and Transport and Communications) Deflator presented by Haddad (1974, Table 76, p. 191).

United States: Bureau of Labour wholesale price index, in U.S. Department of Commerce, Bureau of the Census, *Historical Statistics of the United States, 1789-1946*, op. cit., p. 233.

United Kingdom: Board of Trade wholesale price index, in Pigou (1947, pp. 234-235).

about one-half of the planned stabilization rate. In this situation, if the indefinite postponement of the loan caused by the embargo was to last for long, it was bound to eventually force the government to alter its tactics.

However, almost simultaneously with the failure of the London loan, the government's attention would be shifted away from economic policy towards more pressing problems, as a military revolt broke out in the city of São Paulo on July 5. The revolt, though almost exclusively a sequel to the July 1922 military upheaval in Rio preceding Bernardes' inauguration and immediately motivated by the anti-Bernardist hatred still cultivated in some sectors of the Army, was also fed by a diffuse but growing discontent in certain quarters of the middle-class elite with what they considered as the abandonment of original republican ideals by an anti-democratic and power-centralizing political regime.¹⁵⁰ Concerted armed risings broke out simultaneously in some other states and, in São Paulo, the rebels

¹⁵⁰ On this see Santa Rosa (1933) or Fausto (1970, especially Chapter II). For a recent appraisal of the 1924 revolts see Martinez Correa (1976, especially pp. 45-55).

were able to oust the state government from the capital on July 9 and effectively controlled it until July 27 when, with the port of Santos controlled by the loyalist Navy and the capital besieged and bombed by land and air, they withdrew.

It should be stressed, however, that these rebellions had very weak connections with organized political groups and in no way should they be seen as representing a reaction of São Paulo or of the coffee interests against Bernardes' economic policies. Nor, indeed, should they be construed as being a reaction against the Montagu mission, as some writers have done, based on the flimsy evidence of passing references to the mission existing in pamphlets distributed in São Paulo by the rebels during the occupation period.¹⁵¹ However, the armed revolts had two indirect effects of major importance in shaping the course of economic policy in the later part of 1924.

The first was to enable Bernardes to strengthen his political support among the controlling regional oligarchies. This came as a natural outcome of the prompt and uncompromising way the revolts were quelled everywhere — except for the symbolic Coluna Prestes-Miguel Costa — due to the rather conservative outlook of the Brazilian political establishment startled at the potential of popular unrest which the revolts uncovered. Having received exceptional powers concerning law and order measures as well as wide support from the higher ranks in the armed forces at the start of the risings, the President would eventually publicly consolidate his authority with an impressive referendum from all state Governors in November.¹⁵²

The second was to force the Banco do Brasil to cause a large monetary expansion during the third quarter of the year, as both the unforeseen and large military expenditures and the need to help the banking system out of liquidity problems, arising from the temporary blocking of transactions with São Paulo and other centres, had to be met with further issues by the Bank. Its 600 thousand contos statutory limit was passed in

151 Cf., for instance, Castro (1933, pp. 469-70).

152 See *A palavra da nação*, in *DOU*, 15.11.1924.

mid-August when a further issue of 100 thousand contos — the maximum allowed by law in emergency conditions — was authorized. However, though the Bank tried at this stage to restrict its rediscount operations ¹⁵³ its note circulation rose to an all-time peak of almost 753 thousand contos in early October, with no legal backing.

If the greater political support Bernardes was able to amass at this critical juncture gave him the necessary strength to enforce unpalatable economic measures, the Bank's behaviour would provide the motive for conservative groups to press for a radical redefinition of the conduct of economic policy, definitely resolving in their favour a division which had always existed within the government on central issues of financial policy.

The origins of this division can be traced to the contradictory basis on which Bernardes had gathered support for his economic policy programme. The initial support São Paulo had given to his candidacy, as noted above, led not only to the formal inclusion of coffee "defence" in his programme, but also to the granting of the finance portfolio and the Bank's presidency to *Paulista* politicians. These were men bound to take a less orthodox view on monetary policy and be particularly lenient on occasions in which the financing of coffee stock retention depended on the Banco do Brasil. On the other hand, because of the predominantly regional organization of party political life in Brazil, the President was close to and bound to be influenced by the extremely orthodox opinions sustained by a group of influential politicians from Minas Gerais led by Deputy Antonio Carlos, the former Finance Minister and now appointed leader of the majority at the House, Mario Brant, former Deputy and now Financial Secretary of Minas Gerais, and Affonso Pena Jr., leader of the state lobby in the House [Falcão (1931, pp. 69-71)].

In these quarters, a name that could hardly arouse more suspicion was that of Vidal. In 1921, as a Congressman, the now Finance Minister had made a passionate defense of his Permanent Coffee Defence Bill providing for Treasury fiduciary issues to finance the retention of the coffee surplus, an idea which was

¹⁵³ *UK-DCR*, 1924, p. 15.

little less than anathema to this group. Indeed, the Bill was defeated after a strong attack by Mario Brant and Antonio Carlos, apparently with the backing of Bernardes himself, then governor of Minas Gerais.¹⁵⁴

One is led to think that under the more conservative consensus regarding fiduciary issues after the Rediscount Department's "scandal", the Minister could hardly afford to repeat his 1921 utterances. However, such consensus only existed to the extent of not letting Treasury needs influence the behaviour of the monetary base, a consensus against financing budget deficits with note issues beyond ways and means requirements.¹⁵⁵ The theoretical defense of Braga's central bank plan had been exclusively constructed on the basis of a real-bills doctrine argument¹⁵⁶ which, in essence, differed little from the more crude and explicit "coffee bills" argument Vidal had used in 1921 [Brant (1931, p. 18)]. Given the £10 million gold reserve

¹⁵⁴ See Brant (1931). The following passage, taken from the debates on the Bill, helps to gauge the passion with which Vidal defended his views:

"Mr. Sampaio Vidal — With what were the 800 million coffee trees of São Paulo — worth more than our total actual circulation — created?"

Mr. Mario Brant — With the toil of the *Paulistas* and

Mr. Sampaio Vidal — With paper-money. It was in that currency that the worth on the plantations was paid.

Mr. Mario Brant — With capital accumulated by savings ...

Mr. Sampaio Vidal — The 800 million coffee trees in São Paulo were created by paper-money issues". Brant (1931, p. 17).

¹⁵⁵ As Vidal qualified his views during the above mentioned parliamentary debate in 1921: "Paper-currency issues with productive applications were never prejudicial. When paper is issued to make up for deficits, then, indeed, it is disastrous". Brant (1931, p. 17).

¹⁵⁶ In an interview given in 1923, defending the government's project for the reorganization of the Banco do Brasil into a bank of issue he argued: "The paper-money in circulation, issued by the National Treasury, is almost all founded on the simple art of lithography; its issues are not measured by commercial necessities, but by deficits in the National Budget. This issuing system, so far followed, has not, however, as yet terrified those who fear inflation; they are scared of a system by which it is only possible to issue against collateral composed of first-class commercial paper in the proportion of two-thirds of the amount issued, and metallic gold in the proportion of one-third of the same amount. It is curious ! It is thought dangerous that a

transferred to the Bank, Braga's comments on the financial soundness of the experiment, pointing out that the Bank's issues would have a 1:3 gold backing, only meant that the Bank's note issues would have an upper limit; this limit was, however, in nominal terms, twice as large as the limit for the fiduciary issue asked by Vidal for the support of coffee prices in 1921. In fact, the central bank could, as indeed feared by the British mission, become the source of unwarranted increases in the money supply under pressure from the random – and large – financial requirements of coffee valorization, as had actually happened in 1923. Thus, the more conservative group led by the leader of the government's parliamentary majority had perforce to nurture great misgivings about the decision of having the Bank's rediscount operations at the discretion of men who they had no confidence in and whom, moreover, were likely to bow to pressures from the coffee interests. This point receives further support from the British mission's records: in fact, as early as January 1924, Antonio Carlos indiscretely confided to Montagu that he did not approve of the coffee valorization scheme, expressing the view that the exchange rate depreciation was "entirely due to emission" and that "he would deprive the Bank of Brazil of the right to issue for the next seven years and undertake a careful reduction of existing currency ... that Vidal was a fanatic of figures of emission (sic) and that he represented united public opinion and the opinion of most ex-Ministers of Finance and that he had every reason to believe – he spoke confidentially – that Bernardes was wavering on the subject".¹⁵⁷

serious bank, organized not as a public department but as a commercial house ... should issue against first-class commercial paper and gold, and not thought dangerous that the National Treasury should continue the methods so far practiced ! ... Never will the Bank issue a single note without having as assets ... commercial paper of the most solid houses in Brazil ... So bridled, the Bank will never be in position to inflate circulation with super-abundant and unnecessary paper-money". *Jornal do Comércio*, 28.5.1923.

¹⁵⁷ *Montagu Diary*, pp. 19-20 and 48. The ex-Ministers quoted in the Diary as belonging to what Montagu jokingly referred to as "the Don Carlos school of non-emission of currency at any price", are Leopoldo de Bulhões and the more moderate banker João Ribeiro. *Idem*, pp. 48 and 66.

Accordingly, it was quite natural that, after the formidable expansion of the Bank's issues during the military revolts, these men should put strong pressure to bear upon the President for a contractionary monetary policy. Although on this occasion, the Bank had not specifically issued to rediscount coffee bills¹⁵⁸ and had actually been instrumental in overcoming the emergency, the circumstances could hardly be more favourable to the deflationists' preaching. In face of the growing outcry against the rise in the cost of living and the still vulnerable external position, the certainty now existing that no early loan was forthcoming from London would, in itself, leave no other option besides some measure of deflationary readjustment. Moreover, the government's recent public endorsement of the British mission's report counselling a rather cautious attitude regarding increases in the Bank's note liabilities,¹⁵⁹ made it extremely difficult to leave things as they were after the return of internal peace, for such a complacent view of the Bank's behaviour was bound to have a demoralizing effect and probably block the way to an eventual — and certainly still entertained — reopening of negotiations with London. Not surprisingly, they would succeed in bringing Bernardes to their side.

The secretiveness with which the tactical details towards the enforcement of a contractionist monetary policy were worked out between the President and some of the leading deflationist politicians — a process which, as will be shown, kept both Vidal and Braga totally in the dark — makes it difficult to ascertain precisely when the decision to deflate was reached. However, the fact that the decision would later be publicly justified as having been prompted by the desire to neutralize the effects on domestic and external equilibrium of the monetary expansion caused by the Bank during the third quarter of 1924, suggests

¹⁵⁸ This was explicitly admitted even by Antonio Carlos. See the summary of the debates of the Joint Congress Finance Committee in *Jornal do Comércio*, 19.12.1924.

¹⁵⁹ The mission had adverted: "It is not a condition ... that the withdrawal of Treasury notes from circulation shall be made coincident with the issue of notes by the Bank". *Report to the President*, p. 21.

that its immediate cause was present, at the latest, from the beginning of October.¹⁰⁰

The form they would devise to enforce the decision centered on what seems at first sight a technicality. The Bank's statutes provided that the withdrawal of the Treasury notes left in circulation would automatically start when the resources of a special reserve fund, for which some of the Bank's income was earmarked, reached 100 thousand contos. This figure had been reached by the end of the first-half of 1924 and some twelve thousand contos of Treasury notes had been allocated to be withdrawn in July, though, since then, the Bank had issued far in excess of the small amounts of Treasury notes destroyed each month. Since the deflationists' immediate objective was to reduce high powered money and the reserve fund mechanism provided an automatic way of doing it, their attention focused not only on pressing for the observance of this clause, but also on finding means of enlarging the sources of resources for the fund. However, the latter called for a revision of the Treasury-Bank 1923 contract, which required Congress approval. So a Bill had to be drafted which only reached committee stage in mid-December, where it was to meet opposition from São Paulo members when it became clear that Vidal and Braga had been totally excluded from its making.¹⁰¹

¹⁰⁰ Explaining the decision a few months later, Bernardes would say: "... the perceptible high cost of living coincided with the emissions of the Banco do Brasil and with the credits which it facilitated, in virtue, perhaps, of its issuing powers ... Earnestly wishing that this establishment shall withdraw from the path of emissions along which it has advanced too far, the government found it necessary to stop the monetary inflation ...". *Mensagem Presidencial de 1925*, in *DOU*, 4.5.1925.

¹⁰¹ Julio Prestes, then a representative of São Paulo and later governor of his state, pondered, after the presentation of the draft Bill, that the Congress Finance Committee should hear Vidal's opinion on it, to which Antonio Carlos replied that the Bill "reflected the government's opinion". Pressed by another Deputy to answer "whether the chief of the national finances was not the Finance Minister" the latter would sharply reply that "the men responsible for the finances, the chief, was Mr. President of the Republic", adding that "one should not go into this kind of argument". See the summary of the debates of the Joint Congress Finance Committee in *Jornal*

Though eventually it was found impossible to debate the Bill during the final crowded days left of the congressional session, this had little practical consequence since its fundamental aim could be secured by less formal methods. The existing institutional framework could surely enable the Executive to tighten monetary policy through the control of the Bank's rediscount policy and by enforcing the existing clause relating to the retirement of the Treasury note issue, if only the Treasury and the Bank could be placed under the command of men in line with the new policy. So when the public demoralization suffered by Vidal and Braga over the Bank's reform Bill affair led to their resignation on December 27, Bernardes was left with a free hand to fill their posts with his new advisors: Anibal Freire, the author of the draft Bill became the new Finance Minister, and Braga was replaced by James Darcy, a legal advisor to the Bank, who was to follow faithfully the new directives. Before the end of the year the Bank was already stepping up the withdrawal of Treasury notes with the allocation of some fifty-five thousand contos to the reserve fund. This process, coupled with a drastic cut in the Bank's rediscount facilities, which would bring the Bank's issue back within the legal limit during the first-half of 1925, would be relentlessly pursued for the following twenty months. By November 1926, when this policy was finally abandoned, the monetary base had been reduced by 14 percent, causing an 11 percent contraction in the money stock. The consequences of this policy will be discussed in the final section of this chapter.

The redefinition of Bernardes' economic policies in late 1924 would not be limited, however, to this radical change in monetary policy. A no less radical turn occurred in November, when the federal government transferred all responsibility for the financing and control of coffee valorization to the state of São Paulo.¹⁶²

do Comércio, 18.12.1924 and 19.12.1924. Braga and Vidal's exclusion from the process of designing the Bank's reform was explicitly denounced by the former in his resignation letter sent to Bernardes a few days later. See USNA RG-59, 832.001143/43, enclosure no. 1.

¹⁶² Decree no. 4.868, of 7.11.1924.

Although the formal change in coffee policy in fact preceded the actual implementation of the decision to deflate, their near simultaneity was not fortuitous and it will be argued here that the two measures had a logical connection and were, in a sense, complementary. However, for the sake of clarity of exposition, it is necessary that some specific developments in the coffee industry during 1924 should first be described.

As Table 4 shows, in 1924 world coffee prices were rapidly recovering from the stagnant levels of the previous two years. As can be seen, this extraordinary rise was not continuous and, in fact, the two steps that can be observed in the coffee price series during 1924 resulted from the operation of distinct causes.¹⁶³ The rise during the first three months of the year could be described as the result of the resistance Brazil was able to put up to the bear attack from consuming markets which followed the government's decision to liquidate the 1922 London coffee valorization loan through the sale of the stocks serving as collateral. Probably in the hope that the ample supplies forecast for the 1923-24 crop would further cheapen the commodity, American and European roasters failed to take advantage of the low prices then ruling to rebuild their stocks.¹⁶⁴

The roasters' expectations proved false when the federal government activated the new coffee defence plan in the second half of 1923 with financial help from the Banco do Brasil. As suggested by Rowe, when, by the end of this year, the consuming centres reacted, trying to free themselves from the control which Brazil was exercising through the regulation of port entries by rebuilding their stocks from the bare levels they had reached hoping that higher prices would tempt Brazil to free her supplies, "they played straight into her hands":¹⁶⁵ the valorization

¹⁶³ Though modified in places, the analysis here draws on Rowe (1932, pp. 26-7).

¹⁶⁴ By November 1923, visible supplies in the United States and Europe totalled just 4.2 million bags, the same level at which they stood at the beginning of the year and an extremely low level when one considers that in pre-war days 8 to 9 million bags was thought normal. Rowe (1932, p. 26).

¹⁶⁵ *Idem*, p. 26.

Table 4

*Average Spot Prices of "Santos 4" Coffee in New York
(in US\$ Cents per lb-weight)*

Period	Price
1922	14.30
1923	14.84
January	16.00
February	18.34
March	20.18
April	19.40
May	19.13
1924	19.02
June	20.61
July	21.63
August	22.81
September	24.91
October	27.03
November	26.68
December	26.68

SOURCE: Rowe (1932, p. 80).

managers held back the existing surplus and prices shot up in an extraordinary fashion. By April, Brazil had obtained an effective control over the price and could force the roasters back to buying from hand to mouth.

The weather definitely decided the battle in favour of Brazil. The 1924-25 crop amounted to only 11 million bags against 19.5 million in 1923-24. By the middle of 1924 importers realized that prices were not likely to come down for some time and this bullish mood accounts for the further rise during the second half of 1924.¹⁰⁶

¹⁰⁶ As Rowe puts it, "... it became clear that not only the defence scheme would successfully liquidate the surplus of the 1923 crop, but that there would hardly be sufficient coffee to meet the requirements of consumption. Every roaster wanted to insure his own supplies, and such coffee as Brazil offered was eagerly bought at higher and higher prices". Rowe (1932, pp. 26-7).

However, paradoxical as it may seem, the very success of the government's coffee defence scheme reopened the debate about its merits. It should be remembered that under the new scheme the financial burden of carrying over the stock fell exclusively on the planters. With more than one-quarter of their 1923-24 crop still unsold by mid-1924,¹⁶⁷ the planters were finding it extremely difficult to meet their current expenses with the advances from the banking system which they received against the warrants furnished by the government warehouses.¹⁶⁸ They had welcomed the defence plan without much discussion when the prospects for the industry were rather bleak but now, after prices had nearly doubled and still hard pressed for cash, they faced no alternative in the short-term but to wait for the release of their coffee for export. On the other hand, they were now more convinced than ever of the advantages of valorization and certainly did not want to throw the baby out with the bath water. As an obvious outcome, the notion that there was a pressing need for some *ad hoc* provision of funds to smooth the financing of the crop carry-over grew stronger.

As a result, negotiations between São Paulo and the federal authorities in search of a new financial formula to appease the planters started during the winter.¹⁶⁹ It should be noted that São Paulo's negotiating position was much weaker, since the federal government had already finished the liquidation of its old stocks and, with the exceptional prices now ruling, it was free to take a more detached view. However, this should be interpreted as only meaning that it was now politically easier for the federal government not to bow to pressures from the coffee lobby to commit additional resources to valorization. It is wrong to construct, based solely on the relatively better

¹⁶⁷ Stocks in São Paulo on July 1st, 1924 amounted to 4.6 million bags.

¹⁶⁸ "The resources of the ordinary banks had been hardly adequate, and the planters did not much like the prospect of facing in the future another crop so large as that of 1923 ...". *Ibidem*, p. 27.

¹⁶⁹ *Ibidem*, p. 27.

bargaining position of the federal government, as Rowe does,¹⁷⁰ an explanation for the extreme measure Bernardes eventually took of disclaiming all federal responsibility towards coffee valorization and selling the government's recently built warehouses to the state of São Paulo. If it is clear that São Paulo politicians could not possibly think of abandoning coffee valorization at that stage, it is also clear that they could not justifiably take for granted that they could carry the baby without the nursing of the federal government, since no alternative sources of finance could be immediately envisaged: the private domestic banking system could not cope with a large crop; the market for internal state bonds was quite narrow; London was blocked, and New York was not likely to lend a cent to coffee valorization as long as Herbert Hoover remained at the Commerce Department. Thus, if São Paulo could not get what she wanted from the federal government, the assurance that the *status quo* would be maintained — with the Banco do Brasil ready to step in case of trouble — was certainly the second-best alternative in the foreseeable future.

However, the federal government's stand at the negotiations was not limited to resisting the planters' pressures for further financial assistance. The decision it eventually took to wash its hands of all responsibility towards coffee valorization implied cutting the institutionalized ample access coffee bills had to the Bank's rediscount facilities. True, the promising prospects then enjoyed by the coffee industry made the decision politically easier, but one is left with no explanation of the motives which led the government to actually take advantage of the situation if the analysis of the change in coffee policy is made in isolation from the broader monetary policy decisions being shaped at the time.

¹⁷⁰ He concludes: "To a large extent the negotiations were simply a struggle between São Paulo and the federal government as to which party should carry the baby, for it was perfectly clear from the start that São Paulo would never let it drop: on the other hand, if the federal government could be made to act as a nursemaid, so much the better. But a bargainer in such a position is necessarily weaker than his opponent, and President Bernardes, appreciating this, remained adamant". *Ibidem*, p. 27.

In fact, the link between the change in coffee policy and the decision to deflate should not be overlooked. The monetary consequences of the coffee defence scheme were already seriously worrying the federal government during the negotiations with São Paulo. As later stated by Bernardes himself, this was a central issue, since the substantial disagreement which then separated the government and the producers, and which was resolved by the change in federal coffee policy, revolved around the question of financing the defence scheme through Banco do Brasil note issues.¹⁷¹ It is unlikely that worries of that sort would arise from Vidal or Braga's advice. If that was so, there are strong reasons to believe that the President's action on coffee was already taken under the influence of the deflationists and with a view to the change in monetary policy. As shown above, in their minds, the federal government's compromise with coffee valorization involved, under the prevailing system, a serious potential threat to monetary stability, since they feared that the scheme's financial requirements could lead to unwarranted increases in the Bank's note issues. Naturally, they also saw the maintenance of this compromise as a permanent menace to the continuity of the monetary policy they were pressing for, and strived to end it.

Besides, the absolute need for foreign financial assistance to attain Bernardes' economic policy goals in the two years he still had left to govern suggests another stronger motive for the change in coffee policy, because of the negative reactions of potential lenders towards federal involvement with coffee valorization. The opinion the government's London bankers had of their clients' sponsoring the coffee defence scheme has already been pointed out and was quite unambiguous: they shared the deflationists' views on the inflationary dangers of the scheme

¹⁷¹ Commenting on the resulting state-sponsored coffee defence scheme he would say: "... if the viewpoint of the federal government and of the producing states have substantially differed ... the disagreements have disappeared with the present organization of coffee defence, which abandoned the recourse to the emission of paper-money ...". Mensagem Presidencial de 1926, in *DOU*, 4.5.1926.

and saw its abandonment as a necessary condition for a successful floating of a loan in London. Furthermore, given the size of the loan Brazil was asking for, it is likely that a New York tranche was already seen as being necessary: it is revealing that the Montagu mission's report had been cabled shortly before publication, in July, to Dillon, Read & Co. — Brazil's New York bankers¹⁷² — and that New York's participation, when the loan was finally raised in 1926, was crucial. However, given Secretary Hoover's fierce opposition to coffee valorization it was unlikely that a loan which could enlarge the Banco do Brasil's financial strength would be viewed with favour by the United States government under the existing *modus operandi* of coffee defence.¹⁷³

5 — Conclusions

The 1923 negotiations between the federal government and the Rothschilds, which resulted in the visit of the Montagu Mission, were prompted by the importance attached by the Brazilian authorities to raising a large foreign loan which could allow them to solve simultaneously two pressing problems at the start of the Arthur Bernardes government: the huge short term Treasury debt and the difficulty of carrying out the proposed exchange policy, due to the weakness of the foreign position.

The account presented here of the negotiations with the Montagu Mission — whose results, from the English point of view, can only be considered a resounding success — gives a picture of the position of the Brazilian authorities at the beginning of 1924, which is of some interest in the light of the dramatic changes that occurred in economic policy during the year. The price, the government agreed to pay for the financial "help" from abroad

¹⁷² It was through them that the report reached the American press. See *The New York Times*, 4.7.1924.

¹⁷³ This last assertion is admittedly conjectural. See, however, the discussion of the United States Department of Commerce actions against the new coffee defence scheme in 1925 in the following section of this chapter.

— indoubtelly a high one and still on known to the historious of the period is a clear indication of how far it was prepared to go to avoid the painful and comparatively slow — working alternative of combining a deflationary monetary policy with its already rigid fiscal program, so as to put an end to the growing insecurity in face of the recurrent pressures on the exchange rate and growing inflation.

Moreover, it was show that the deflationist option and the abandonment of the defence of coffee by the federal government were complementary decisions whose logic can only be perceived in the light both of the restrictions imposed on the political options by a reversal in the expectations of obtaining a foreign loan and by the increase in inflation, as well as of the growing influence exerced on Bernardes by a group of public men, important within his scheme of regional political support and who advocated extremely orthodox ideas in terms of financial policy. In fact, if the arguments at the end of Section 4 are accepted, it seems incorrect to consider the end of federal support to coffee as has been done so far, as an isolated decisions of the Federal Government. Strange though it may seem, this decision bears the stamp of both change and of continuity in Bernardes economic policy: of change, because it was necessary, according to deflationists' logic, for the success of the monetary policy they were advocating; of continuity, as it was seen as necessary in keeping access open to the London and New York capital markets, something which was also seen as necessary for accomplishing the goals of Bernardes' economic policy program within his term of office.

Finally, from a more general point of view, one should note that the evidence put forward in this article casts doubt, once again, on the naive interpretations which attribute to the large coffee interests of São Paulo an absolute control of the State apparatus to toster their own corporative interests. The economic policy changes of 1924 cannot possibly be considered, as having been favourable to the coffee interests or to São Paulo and, in fact, were carried out in spite of them.

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The tax system of 1967: is it still adequate for Brazil in the 1980s? *

Ricardo Varsano **

1 — Introduction

Although the present Brazilian tax system is essentially that which was exacted in 1967, the 14 years that have passed since then should not be seen as a long period when tax systems are considered. During these years, however, Brazil has undergone considerable changes and output approximately tripled. Furthermore, many of the problems the country had prior to 1967 still exist or have even worsened. Thus, it is useful to inquire whether the tax system introduced in the sixties, with the limitations and objectives of an economy three times smaller, is still adequate for present-day Brazil.

This article suggests that the tax system is no longer suitable to the country. It argues that tax reform is not only necessary but probably inevitable. Section 2, briefly comments on some aspects of the evolution and reform of tax systems. Section 3 provides an interpretation of the spirit behind the tax reform of the sixties, trying to show its objectives shaped the features of the new system. The final part provides an outline of the evolution of the tax system since 1967 and argues that it must be soon reformed.

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2 — On tax systems evolution and reform

The tax system in force in a country at a given moment in time is the result of an evolutionary process. Having been created, it undergoes changes over time that aim to adjust it to new conditions. Even if created through a tax reform, to replace another system, it embodies many characteristics of its predecessor. Thus, it reflects not only the ideas and conditions prevailing in the society at the time of its institution (and, to the extent that it is able to assimilate them, the changes in those ideas and conditions), but also the characteristics that society had in the past. Hence, at no point in time can it be considered as a perfectly adequate tool for the circumstances of the moment. There is always a reason to change it, which ensures a constant evolution.

Most of the time, the evolutionary process of a tax system is continuous, since changes in legislation and administrative procedures are frequent. A tax system, once its basic structure is established, is able to adapt itself, through such alterations, to the changing economic and social environment and to operate satisfactorily for relatively long periods. However, once in a while, the process has to experience discontinuities, *i.e.*, changes in its basic structure are urged. In this respect, the tax system is analogous to a machine, in that it can become obsolete or reach the end of its useful life through natural aging. Tax reform replaces certain parts or, in some cases, replaces the whole machine; but the new system retains many of the features of the old one.

The obsolescence of a tax system may occur for two reasons. The first is some innovation in taxation techniques which leads to the adoption of a new and more desirable tax structure. Usually, this does not imply more than a partial replacement of the old structure. For example, several works which appeared in the twenties and thirties led to a better understanding of income tax and are responsible in part for the wide-spread adoption of this tax [Simons (1968)]. Another example is the substitution of value added taxation for turnover taxes, which

took place in France and, later, in all E. E. C. countries and in many others, including Brazil.

Another cause of obsolescence in the tax system is the occurrence of an abrupt change in the economic, social or political through of society (or, which has the same effect the abrupt assimilation of these ideas by its governing elite. If a capitalist country goes socialist or vice-versa, reform becomes necessary, as the tax structure which serves one of these economic systems is fundamentally different from that suitable to the other.¹ This is, for sure, an example which involves a radical change in the behaviour of society. There are, however, much less drastic changes which make certain features of the tax system obsolete. One example is a change in society's thought about priorities of its economic objectives. A tax system designed to fit a policy of rapid growth can hardly be useful if the priority of economic policy becomes the improvement of income distribution. Another example is a change in what is considered to be the ideal degree of decentralization of a federation. In this case, though the basic structure of the tax system might serve the new objective, a reform in revenue sharing practices would be necessary.

As an abrupt change in objectives or conditions is abnormal, reform of the tax system due to obsolescence is, consequently, an uncommon measure. Usually, social changes are. As was said before, the tax system is able to keep pace with evolution; but its adaptability is limited and diminishes over time. As the system grows old, regeneration through a tax reform becomes necessary. In this case, the reform is not an exceptional measure, but only a component of the natural evolution of taxation.

The speed at which the tax system ages obviously depends on the speed at which changes in society take place. One would expect, therefore, the useful life of a tax structure to be shorter in a developing country than in a traditional economy, almost static, or in a developed society, already mature and subject to few structural changes. The useful life of a tax system depends

¹ For a comparison of the tax structures in capitalist and socialist economies, see Musgrave (Chap. 1 and 2, 1969).

also on the quality of what Hinrichs call the “tax process reform”, made at the time of its creation.² The more rigid the institutional base of the system is, the shorter will be its useful life.³ It should be added that an ill designed tax system, which does not embody the most modern tax practices, and does not take into account the prevailing economic conditions and the characteristics of the country, is already senile at birth, and fated to a short life. A reform cannot be carried out overnight; it is the result of a laborious process which requires detailed study, criticism and evaluation.

The senility of a tax system is marked by a number of characteristics, such as, for example, the employment of outmoded tax techniques. Compared with modern techniques, they generate, on the one hand, higher costs for the fiscal administration and the tax-payer and allow, on the other, a higher level of evasion. Thus, they fail to extract all the revenue that could be obtained from the existing tax base. Another feature is the excessive accumulation of fiscal legislation, which makes the system — by nature highly complex — unnecessarily over-complicated. Impairing the basic function of bringing in resources for the public sector, it hampers the performance both of this and of the private sector of the economy. Another characteristic is the presence of activities that, either because they did not exist or were of little importance at the time the system was set up, were relegated to a secondary plane for the purpose of taxation. On

² Hinrichs distinguishes four types of reform: a) infrastructure — reform to set up an adequate administrative structure, to select and train personnel responsible for making the new system work; b) formal tax reform — enact the laws that will govern the system; c) substantive tax reform — enforce these laws; d) tax process reform — develop an institutional structure that provides continuity for the three previous types of reform and which alters the system whenever necessary to adjust to everchanging conditions. See Hinrichs (1972, p. 47).

³ It should be noted, however, that there are advantages in the adoption of a more rigid institutional base that should be weighed against the benefits of a longer useful life at the time the system is conceived.

coming into existence, or becoming more important, they receive preferential fiscal treatment, being subject, though not intentionally, to lower tax burdens, while other activities are over-taxed to satisfy the growing public sector spending requirements.

A senile tax system also proves to be incapable of serving as an effective instrument for carrying out policies designed to achieve new objectives of the changing society. This is due, in part, to the fact that the system was conceived to meet the priorities to be found at the time that it was set up. No matter how flexible it may be, it is not the most adequate instrument once the order of priorities is changed. Furthermore, the very characteristics mentioned in the previous paragraph make the system unduly rigid. Revenue shortage rules out any policy which involves further revenue losses. As the sectors of the economy are either overtaxed or practically tax exempt, it is impossible to increase tax liabilities; thus, the use of the system to induce changes in relative prices means necessarily a revenue loss. The accumulation of legislation ends up confusing policy makers who, upon introduction of a measure with a given intention, are surprised by a quite different result as its effects are wiped out or modified by nevious measures. Finally, it should be noted that mis conceptions which, at the time the system is set up, seem of little importance or are not even perceived, tend to worsen as the it ages, becoming more evident and unfavourable affecting economic performance.

For all these reasons, a senile tax system imposes costs on society much above what could be considered reasonable. Relative prices are inadvertently altered, to the detriment of efficiency. The increase in tax liability encourages evasion. The public sector runs a deficit-since revenue expansion is not able to keep pace with the natural evolution of public sector spending — thus becoming a permanent source of inflation. At some point in time, the senile system becomes such a burden for society that it is advantageous to replace it, even if the transition is not made without costs.

3 — The tax reform of the sixties: background, objectives and characteristics

It was only at the start of the forties that the process of industrial development in Brazil took on a continuous character and received government support.⁴ During these years, Government contribution to the industrialization process came primarily in the form of direct intervention, though investment in large-scale basic industry projects. Only in the fifties did the Government switch to the objective of stimulating industrial growth through a specific policy, gradually transforming itself into the coordinator of this process. Thus, in 1952, BNDE was created with the purpose of providing long term credit for basic industries and financing the economic infrastructure. From 1955 on, the Government directed a development effort, stimulating capital inflows on favourable financial and exchange terms and transforming the import tax, at that stage of minor importance for the financing of public expenditure, into an instrument for protection of the domestic industry. 1959, with the setting up of SUDENE, marks the beginning of the phase of granting fiscal incentives which has lasted up to nowadays.

The support given to industry produced an increase in the Government expenditure/GDP ratio. Treasury expenditures, around 8% of GDP at the end of the forties rose to more than 11% after 1957 and, by the beginning of the sixties, had reached the 13% mark. On the other hand, Treasury revenue grew in the second half of the sixties, but not enough to keep up with the increase in expenditures. As a result, the long-enduring public sector deficit worsened, representing more than 2% of GDP between 1956 and 1960 (in 1957 it reached 3.4%). From 1961 on, the tax system proved itself incapable of generating enough revenue to maintain its ratio to GDP. As expenditure continued to grow rapidly, the Treasury deficit rose to over 4% of GDP (4.26% in 1962 and 4.23% in 1963). As there was no institutional structure which could finance the deficit by way of

⁴ One exception is the Federal Council of Foreign Trade, established in 1934, to foster exports and production in certain sectors.

public debt, it was covered almost completely by increasing the money supply. The rate of inflation which in 1950 was 12.4% and had already climbed to 30.5% in 1960, increased rapidly to 47.7% in 1961, 51.3% in 1962 and 1963.⁵

As the country developed, and as a consequence of the development in a climate of open debate, the demand for changes began to mount. Awareness that the existing institutions no longer met the country's requirements grew. The so-called "Basic Reforms" were put forward and debated, among them the tax reform,⁶ whose objective was not only to solve the problem of the government deficit, but also to provide resources for carrying out the other reform programs. There was consensus that the tax system was obsolete, that the fiscal administration was unqualified and, as a consequence, that the fiscal system was out of touch with all the precepts of social justice, hampering the country's development. It was also agreed that tax reform, which, since 1947, had been considered unavoidable by the President of the Republic, could not be postponed any longer.⁷

At the end of 1962 the Ministry of Finance and Fundação Getúlio Vargas concluded an agreement for the provision of technical consultancy services that would entrust the Foundation with organizing, coordinating or carrying out surveys, studies and projects necessary for restructuring the federal tax collection service. Upon the ratification of the contract, in March 1963, it was decided to establish the Commission for Reform of the Ministry of Finance, whose initial task was to reorganize and update the federal fiscal administration. It was envisaged, however, that the analysis of facts and information would lead to an expansion of its tasks and even to an overall review of the tax

⁵ Figures from FGV (1966 and 1977). The rates of inflation mentioned in the text correspond to the annual variations in the general price index.

⁶ "Basic Reforms" covered, besides tax system, agrarian reform, labor union, banking, constitutional, political and electoral reforms and the reformulation of economic, energy, railway and food policies.

⁷ Various theses on tax reform are presented in "Anais do Congresso Brasileiro para Definição das Reformas de Base — Reforma Tributária" (1963), vol. VI, mimeo.

system, which in fact happened. After a preparatory phase, begun in October 1963, the reform was put into effect, in stages, from the middle of 1964 on. The Commission wound up its activities in November 1966, leaving behind Constitutional Amendment no. 18 of December, 1965, and Law no. 5,172 of October 25, 1966 as what can be considered a synthesis of its results. The new Constitution of January 30, 1967, though modifying certain aspects of the amendment, introduced no major change in the newly created tax system.

As some of the intentions of the Commission are explicitly stated in the many publications which it brought out while others can be inferred from the text of these publications or from its proposals, it is possible to present an interpretation of what can be called "the spirit of the reform". It should be pointed out that the text which follows cannot, nor intends to, reflect the thought of any member of that Commission. On other hand, the Commission itself recognizes that there was, frequent need to "sacrifice personal opinions or inclinations in the interests of the unity of the work" and that it "did not have the unrealistic or even arrogant pretension of minimizing the importance of the political factor";⁸ therefore, the "thought" of the Commission does not represent that of its individual members. On the other hand, the reform did not result from the exclusive action of the Commission, but from the interaction of the latter with the Executive and Legislative and even with private sector groups. Hence, the "spirit of the reform" is something abstract, which cannot be reported, but only interpreted.

One of the basic concerns of the reform was to raise the level of the fiscal effort of society, consequently increasing tax revenues to offset the Government deficit and the new expenditure requirements. The deficit was attributed to an increase in public expenditure, owing to the growth in population and to industrialization, without a corresponding increase in tax resources to finance it. Besides, new outlays would be necessary to solve

⁸ FGV, *Comissão de Reforma do Ministério da Fazenda* (1966, pp. 83-4).

“immediate questions, many of them neglected by previous generations, the solution of which depends on considerable resources, which the Government can only raise if it has an up-to-date fiscal structure”.⁹

The second basic concern of the reform which is evident from the Reform Commission's papers and the work of its members was to pursue the objective of rapid economic growth. The statement of the Commission's General Coordinator, Gerson Augusto da Silva: “is an example Nowadays, taxes constitute tools that provide the State with the means for taking action to guide and stimulate the process of economic growth. Taxation is no longer conceived as being exclusively an instrument for obtaining resources to finance public spending”.¹⁰ It should be noted that the quotation does not mention taxes as instruments of economic policy in general, but only as a means of achieving economic growth. In fact, all the material published by the Commission also shows complete lack of interest in using the tax system as an instrument for income distribution policies; only occasional casual references are made to the concept of fiscal justice. Even the restructuring of the income tax was designed only to stimulate capital accumulation.

All the objectives and characteristics of the reform, as well as the actual measures that were put into force, are subordinated to these fundamental concerns and to the plan formulated to achieve the desired macroeconomic objectives. To eliminate the focal point of inflation in which the public sector had been transformed, it was necessary to create a tax system that would increase revenues and help eliminate the *deficit*. But it was necessary to create a broader fiscal base than was simply required to balance the budget, so that the Government, in providing tax exemptions, could stimulate capital accumulation. Also with the objective of encouraging economic growth, the structure of the tax system had to be altered, so as to benefit capital

⁹ Extract from the introduction to the Reform Plan of 1963, taken from FGV, Comissão de Reforma do Ministério da Fazenda (1967, p. 47).

¹⁰ Silva (1967, p. 7).

and to prevent the system from continuing to impose barriers on the growth of production. The guiding hand in the process of growth would be that of the Federal Government, which meant that the reform had to centralize economic policy decisions. However, the States and Municipalities had to have sufficient resources to carry out their functions without hindering the process of growth.

To put this strategy into effect, the reform had, in sum, the following objectives:

- a) to increase tax revenues to deal with the Government deficit, new spending requirements and the granting of fiscal incentives;
- b) to reduce the costs which the tax system imposed on society (administrative cost, tax-collection cost and efficiency cost) and shift the system to a more neutral position as far as allocation of resources was concerned;
- c) to introduce deliberate deviations from neutral so as to benefit specific sectors or regions and, particularly, capital accumulation;
- d) to provide the tax system with sufficient flexibility allowing the Federal Government, and the Federal Government only, to use it as a policy instrument for allocating resources;
- e) to maintain, as far as possible, the division of available resources between the three levels of Government that existed prior to the reform, observing, however, the previous objective; and
- f) to try and compensate for the inequalities in tax raising capacity between the various regions of the country.

Among the measures which aimed at increasing tax revenues, one should mention particularly the reorganization of the administration of the tax administration, the restructuring of the consumption tax and the changes to income tax, including a widening of its base, which all came into effect before 1967. Income tax underwent various changes in 1962, 1964 and 1965, with revenues increasing by more than 1,000% between 1962 and 1966, considerably higher than the rise in the general price

index (about 620%).¹¹ The consumption tax was restructured in 1964 and the revenue produced grew rapidly in the following years.¹² The relationship between Treasury revenues and Gross Domestic Product changed significantly, rising from 8.57% in 1962 to 11% in 1966, while the deficit dropped from 4.23% to 1.61% of GDP in the same period. This percentage went down even further in the following years, and the Treasury had a budget surplus from 1973 on. It is quite true, however, that this was not due exclusively to the increase in revenues, but the reform can be considered highly successful in this respect.

Efforts were made to reduce the costs of administration and enforce the tax legislation by reorganizing the collection system, abolishing the stamp tax, modernizing and simplifying the consumption tax and by collecting taxes through the banking system. More important, however, was reducing the efficiency cost arising from the unintentional interference of taxes with the allocation of resources. As for the latter, the main factors for producing it were diagnosed as being the lack of any general tax norms, the creation of innumerable Federal and State taxes of little relevance as a source of income, but which alter relative prices — affecting, therefore, the allocation of resources — and the utilization of turnover taxes as the main source of resources both for the States as well as the Municipalities.

In search of neutrality for the tax system, the reform attempted to consolidate taxes of an identical nature and define them, even on a Constitutional level, according to their economic characteristics, and not simply according to their denomination. An up-to-date version of the Tax Code bill, presented by Rubens Gomes de Souza in 1952, was finally passed by Congress, becoming Law no. 5,172. Government power to enact new taxes was withdrawn by Constitutional Amendment no. 18. The tax on the circulation of goods replaced the sales and shipping tax, while on a municipal level, the taxes on services and circulation of goods [replaced before coming into force by the Municipalities'

¹¹ Law nos. 4,069 of June 11, 1962, 4,357 of July 16, 1964, 4,506 of November 30, 1964 and 4,862 of November 29, 1965.

¹² Law no. 4,502 of November 30, 1964.

participation in the State tax] too the place of the taxes on industries and occupations and the entertainments tax .

Having obtained, then, a much more neutral tax system, the next step was to introduce deviations from this situation which would make it an instrument for stimulating capital accumulation. Income tax was used to this end and, at the same time, taxation of wealth was avoided. As taxes on products are regressive, it comes as no surprise that recent studies show that the tax system is incapable of redistributing income. This is only a reflection of the complete contempt which the Reform had for income distribution as an objective of economic policy and the obstinacy with which the objective of rapid growth was pursued.

Income tax, which according to the Ministry of Finance's Statement of Motives no. 910/65¹³ would be responsible for correcting the inequalities of income among individuals, was unable to fulfill this role, as various measures took away the greater part of its redistributive capacity, turning it almost into a tax on earned income. The tax base was extended, so as to provide a more equitable appearance, but at the same time, it was also reduced, not only by granting savings and investment incentives, but also by granting tax breaks for income from capital.¹⁴ The individual income tax liability on unearned

¹³ Statement no. 910, November 1, 1965.

¹⁴ Among the new income tax measures introduced the following were especially important: a) abolition of schedular tax on net income, which rate was greater for unearned income than earned income; b) allowances on gross income of sums invested in areas of social or economic interest or in public debt bonds, share certificates in mutual funds, shares in investment funds and share subscriptions in public joint stock companies; c) allowances on gross income, up to fixed limits, of dividends, cash bonuses, interest from public debt bonds, income from mutual funds and investment funds; d) exclusion of dividends from public joint stock companies from withhold tax; e) privileged treatment of profits on property transactions; f) special treatment of income from agricultural activities, vegetable and animal extractive industries and agribusiness; g) reduction of tax liability on revaluation of fixed assets and lower rates of taxation on retained profits than distributed profits; h) reduction of corporation tax on investments in regions and sectors of national interest; and i) tax exemption on a company's share of profits derived from exports.

income and income from agricultural activities was minimal and tax allowances were granted to whoever saved and invested, clearly benefiting the upper income groups; corporation tax stimulated the accumulation of capital and tax rebates were provided for companies to invest in priority projects.

Furthermore, the system did not include any tax liability on wealth, excepting real estate, and, as government could not create any new tax, later inclusion of tax such was prevented. Even the already existing *causa mortis* transfer tax, which was charged on property in general, was merged with the transfer *inter vivos*, tax affecting exclusively real estate transactions. Even so, the new transfer tax was not charged on the transfer of properties that were incorporated into a company's assets.

It should be noted that the *causa mortis* transfer tax was conceptionally similar to the death duties found in other countries: it was charged on property in general, it was progressive in relation to the size of the inheritance and had varying rates according to different factors. According to Gerson Augusto da Silva, two reasons led the Reform Commission to eliminate this tax. The first is that, in practice, the tax was only charged on real estate property; the other forms of accumulating wealth escaped taxation and the great fortunes in the country were, according to the author, accumulated in the form of bearer shares. The second reason is that "death tax takes the form of a direct taxation of capital, that is either extremely light, failing in this way to fulfill its supposed ethical-social or philosophical objectives, or extremely heavy, amputating part of the productive assets of the Nation, due solely to the fact that a property is transferred from one generation to another" [Silva (1967, p. 24)].

Such a line of thinking is obviously extremely tenuous. If the tax was only charged on real estate, this would not be a reason to eliminate it, but to find ways of effectively extending it to other types of property. Furthermore, the tax does not "amputate productive assets", but only redistributes them. Taxation does not impose costs on society, besides those already mentioned; it only redistributes the power over the resources which the tax yields. The true reason behind the abolition of

the death tax seems to have been in fact to benefit those that had possessions, so as to encourage them to increase them.

The fourth objective of the reform was to make the tax system useful as a policy instrument, but only to be used by the Federal authorities. To achieve this it was necessary to replace the system of separate tax sources, where three independent tax systems coexisted, with a centralized one with the power to legislate on tax affairs. It was also necessary to bring within Federal control those taxes which served essentially as a policy instrument and not as a source of tax revenue.

The experts that devised the tax reform were fully aware that they were reducing the degree of fiscal autonomy enjoyed by the States and Municipalities, judging, however, that the benefits which accrued from the greater coordination and "economic rationality" of the new system would compensate for the loss of autonomy. In a report, "the Commission anticipates that its work will probably be accused of being centralizing". This statement is followed by an attempt to justify the centralization, defending it on the grounds of rationality and the redistributive effects it would bring, besides mentioning the safeguards that had been adopted against the possibility of the Federal Government curtailing State and Municipal activities by not distributing resources.¹⁵

The reform limited the role of the States and Municipalities to a much lower level than was strictly necessary to rationalize the tax system. It not only determined precisely what types of taxes could be charged by the States and Municipalities, it also practically took away from these levels of government the right to fix the size of their budgets and forced them to accept, in the name of coordination, the Federal Government's interference in expenditure decisions.

The States without doubt were subject to greater restrictions to their fiscal autonomy than the Municipalities, which levied tax on services, which base is narrow, except in the larger Municipalities and on urban building property and land. This

¹⁵ FGV, Comissão de Reforma do Ministério da Fazenda (1966, pp. 31-2).

gave some choice as to the level of its own revenue if the municipal fiscal administration was able to collect it. The States also levied two taxes: tax on real estate transfers and on the circulation of goods. The first is a tax which, by its very nature, yields little revenue and, in addition, has its rate fixed by the Federal Senate. Thus, it was left to the tax on the circulation of goods to provide almost the whole of the State's tax revenues. As this accounts for the bulk of tax revenues which, in its turn, corresponds to the bulk of State own revenues, the yield of this tax and the value of transfers from the Treasury imposed a limit on the size of the budget.

The power of the States to legislate on matters concerning the tax on circulation of goods was severely limited; it should be mentioned that the restrictions would have been even more severe but for the strong reactions of critics of the project formulated by the Reform Commission.¹⁶ In practice, therefore, the Federal Government fixed the tax revenues of the States. Moreover, the original project of the Reform Commission intended to grant the Federal Government the power, by a complementary law, to grant state and municipal tax exemptions.¹⁷ Furthermore, shared revenues are determined by Federal tax policy. Exemptions and reductions in income tax and the industrialized products

¹⁶ The following restrictions are of particular importance: a) States in the same geoeconomic region should form agreements to set a common tax rate; b) rates charged on interstate transactions would have their ceilings determined by the Federal Senate; c) the Federal Executive Power would foster agreements with the States, to exclude from set bounds to or taxation on foreign exports. The Constitutional Amendment project which came before Congress was more restrictive, providing for: a) exemption from the tax on retail sales of basic necessities defined as such by act of the Federal Executive Power (Congress replaced the word "Federal" with "State"); and b) exclusion of exports from tax base. Though such a measure was correct from the allocative point of view, the amendment project did not impose the same restriction on the Federal tax on industrialized products, and it was eliminated by Congress.

¹⁷ It should be noted, however, that the Reform Commission intended that the complementary law take the form of a National Law, higher than a Federal law.

tax, allowed by Federal Legislation, affect state and municipal finances.

On the expenditure side, 50% of the resources transferred through the Participation Fund were linked to capital expenses. The original project of the Reform Commission also intended to require the States and Municipalities to invest these resources "so as to ensure a full and efficient coordination of the Federal, State and Municipal investment programs, contributing to the social and economic progress of the respective regions".¹⁸ The Minister of Finance chose, however, to obtain the collaboration of the States and Municipalities by granting additional funds to those that accepted agreements with the Federal Government, "designed to ensure the full and efficient coordination of the respective investment and public service programs".¹⁹

There seems to be no doubt as to the centralizing intention of the Tax Reform. However, this intention was limited to economic policy decisions, as one cannot accuse the Reform of having helped to bring about the centralization of political power by concentrating the power to tax in the hands of the Federal Government. The Reform was careful to bestow on the Legislative and not the Executive, the power to modify provisions which affected the States and Municipalities. The reduction in their degree of autonomy, which occurred after the Reform, was a consequence of a situation in which the Executive had the power to legislate, independent of Congress, even on constitutional matters. In such a situation, no matter how strict the safeguards introduced by the Reform were, or even if the system of separate tax sources had been maintained, it was impossible to guarantee the autonomy of the local government units.

While the States and Municipalities were removed from the decision-making process of economic policy, the Federal Government strengthened its array of policy instruments. Export taxes were transferred from the State to the Federal ambit, concentrating in the latter all the fiscal instruments of foreign trade policy.

¹⁸ FGV, *Comissão de Reforma do Ministério da Fazenda* (1966, p. 77).

¹⁹ *Ibid.*, p. 128, and art. 22 of Constitutional Amendment no. 18.

Rural land taxes were kept under Federal jurisdiction to serve as an instrument of agrarian policy. The Executive Power was granted the power to legislate on changes in the rates of import and export duties and of the tax on financial operations, so as to increase the flexibility of these taxes as policy instruments. Finally, with the same objective in mind, the principle that changes in tax laws come in force only in the fiscal year after that in which it was introduced was eliminated for indirect taxes and betterment taxes.

If the intention to centralize decision-making is clear, the intention to keep its implementation decentralized is equally so. The Reform tried to keep, as far as possible, the same availability of resources that the States and Municipalities had before. Furthermore, it tried to strengthen the revenue of the poorer States and Municipalities through grants which took into account the inequalities in tax capacity. The following quotations show that these objectives existed:

a) On the Municipalities' share in the tax on the circulation of goods:

“We are dealing with a compensatory distribution, for the Municipalities, of two norms introduced by the amendment: limiting the incidence of the tax on industries and occupations and the abolition of the present Constitutional article 20, which lays down that 30% of the excess of state taxes collected in their areas, above the total of local revenues, shall revert to the non-Capital Municipalities”;²⁰

b) On the States and Municipalities' Participation Fund:

“... aims at compensating for the loss of their own tax revenue which these public entities will experience, as a result of the new system”;²¹

²⁰ FGV, Comissão de Reforma do Ministério da Fazenda (1966, p. 55).

²¹ *Ibid.*, p. 56.

c) On the allocation of the single tax:

"... it has above all the character of a refund to the States and Municipalities, of what they could have collected from their own taxes, and which was absorbed by the single tax";²²

d) On the reform as a whole:

"It should be emphasized, finally, that the guiding idea behind this reform was, in the final analysis, the concern with expanding the benefits of social and economic progress throughout the whole country, allocating resources to the less developed States and Municipalities to organize and provide the public services vital for the well-being of their respective populations".²³

Finally, there exists one feature of the tax reform of the sixties that goes against the objective of transforming the system into an instrument of policy for rapid growth, but was indispensable for the other basic concern, which was to eliminate the inflationary pressure produced by the Government itself: concentrating tax liability in industry, with the primary and tertiary sectors being taxed less severely. The existence of this feature was due to the need to raise tax revenues in order to eliminate the deficit, in the face of the limited capacity of the tax machine to produce adequate yields. These limitations, common in less developed countries, led the Government to try and obtain its revenues mainly from the more easily exploitable tax bases, which were, at that stage in the development process, industrial production and urban incomes. The latter was exploited intensely by income tax and the former by the industrialized products tax. The tax on the circulation of goods excluded the service sector (except commerce) and, in practice, left the primary sector and small retailers, concentrating its efforts on the industrial sector. The tax on services was granted to the Municipalities as a mere complement of the tax system, recognized as being incapable of generating a reasonable tax yield in the majority of cases.

²² *Ibid.*, p. 57.

²³ *Ibid.*, p. 168.

4 — The tax system in 1980

The tax system in force is, as far as its basic aspects are concerned, the same that was created by the Reform in the 1960s. For about eight years it was used increasingly as an instrument in the policy of rapid growth. In this phase, one can find a proliferation of fiscal and credit incentives and a reduction in the already limited degree of State and Municipal autonomy, while the GDP grew at unprecedented rates.

Owing to the intense and widespread employment of fiscal incentives, they lost their original objective, which was to deliberately alter relative prices so as to channel private investment into specific areas. However, due to the incentives, projects that were submitted to Government control became artificially more profitable than similar projects carried out without it. The incentives acted as a type of reward for submitting decisions taken by the private sector for the approval of the Central Government, which could, in this way, control and not only coordinate the development process.²⁴

As those with decision-making power in the private sector also happen to be those who possess wealth, the incidence of incentives is inevitably perverse. Despite the modifications to the income tax legislation in 1974, the bad features in terms of equity in the tax system were accentuated by conceding fiscal incentives which resulted, moreover, in a significant depletion of revenues and, consequently, in a shortage of resources to finance public spending. The public sector became once again a source of inflation, which put an end to the growth in fiscal incentives from the mid-seventies on.

The process of a growing centralization of decision-making at the Federal Government level was also arrested at the same time. Even before the tax system created by the reform came into force, the States had been subject to new limitations to their taxation

²⁴ In this respect, see Varsano (1979, pp. 90-93). It should be noted that the practice of "renting" the decision-making power instead of taking it was also used regarding the States and Municipalities (the previously mentioned Article 22 of Constitutional Amendment no. 18).

powers.²⁵ Shortly afterwards, Treasury grants were also limited: in 1968, Complementary Act no. 40 reduced the percentage of the tax yield from income tax and the industrialized products tax allocated to each of the Participation Funds from 10 to 5%. The same Act Created the Special Fund, earmarking to it 2% of the yield of those taxes, and making receipt of shares in the Participation Funds conditional on various factors, including how the funds will be employed. Decree-Law no. 835 endowed the Executive Power with the task of regulating, from 1970 onwards, the utilization of such resources. Constitutional Amendment no. 1 practically repeated, in this respect, the text of Complementary Act no. 40. Fiscal autonomy of the States and Municipalities was reduced to its minimum level, where it remained until 1975.²⁶

With the drawing to an end of the "Brazilian Miracle", the tax system had fulfilled the task for which it had been conceived, at the cost of rapid aging. This was not due to any inherent weakness in the system's conception, but to its intense utilization, to the changes that the country underwent in that period, in which the Gross Domestic Product more than doubled and to the radical alterations in the world economic situation. The degree of fiscal inequity which the system reached made it necessary to introduce small adjustments in 1974. The States and Municipalities could not endure any further reduction in their fiscal autonomy or even stay for very long at the level of autonomy already reached. The expansion of fiscal incentives could not continue, due to the need to generate sufficient revenues, and it was clear that the tax system was not able to perform as an instrument

²⁵ The main ones were fixing the limits for the tax rates on the circulation of goods chargeable on intrastate operation, the exclusion of exports industrialized products from the tax base, and compulsory agreements between states in the same geoeconomic region to establish a common policy of exemptions, reductions and other fiscal benefits related to the tax (Decree-Law no. 28, November 14, 1966; Complementary Act no. 27, December 8, 1966; Complementary Act no. 31, December 28, 1966; Complementary Act no. 34 January 30, 1967, and the Constitution of January 23, 1967).

²⁶ Complementary Act no. 40, December 30, 1968. Decree-Law no. 835, September 8, 1964 and Constitutional Amendment no. 1, October 17, 1969.

of new policies. Furthermore, it had lost its capacity to produce increasing yields to accompany the growth in expenditure. Wages and industrial production, despite the incentives, were already highly taxed, and the system was not designed and the fiscal administration was not adequate to tax agriculture and the service sector. The mild taxation of capital was a policy objective.

After 1975, therefore, the tax system was no longer used as an instrument of new policies. Its goals became quite simply those of generating revenues and continuing to support the policies to which it was already directed. Even so, the latter objective had to be sacrificed in the interests of the former, which, from the political point of view, was not an easy task, as those benefiting from the fiscal incentives tended to consider them not as temporary benefits, but as "acquired rights". It was necessary, also, to relieve the pressure on Municipal and State finances, if the country were to remain as a federation.

As for the fiscal incentives, the balance of payments difficulties allowed or demanded a reduction in incentives related to imports. Decree-Law no. 1,428 denied the granting of any exemption of import taxes without the prior approval of the President of the Republic, still enabling however, the competent organs to continue offering tax reductions.²⁷ In 1979, due both to internal as well as external pressures, export subsidies related to taxes on industrialized products and the circulation of goods were eliminated.

Resources allocated to the States and Municipalities were increased, in 1976, by Constitutional Amendment no. 5, which raised the percentage share of tax revenues from income taxes and the industrialized products tax destined for the Participation Funds. Decree-Law no. 1,434 attempted to strengthen to some extent the financial situation of the poorer States, at the expense of those with greater resources, by setting up the Special Reserve of the Participation Fund, destined exclusively for the North

²⁷ Decree-Law no. 1,428, December 2, 1975.

and North-East regions.²⁸ Another boost to state and municipal finances resulted from the partial absorption in 1977, and total from 1978 onwards, by the Treasury of the loss of revenue due to export subsidies through the circulation of goods tax. In 1980, Constitutional Amendment no. 17 once again raised the percentage share of revenues from income taxes and the industrialized products tax destined for the Participation Funds and allotted to the Municipalities 50% of the revenues from the State tax estate transfers.²⁹

Recently, there can be noted a trend towards decentralization in the decisions affecting the employment of resources. Decree no. 83.556 eliminated most of the earmarking which resources from the Participation Funds were subject to. Decree-Laws ns. 1.805 and 1.833 abolished the requirement to present investment plans in order to receive the grants and the earmarking of such funds to expenditure categories, turned the payment of share quotas into an automatic process and transferred the task of inspecting the employment of resources to the State Accounts Boards.³⁰

One can also see, starting in 1975, an effort on the part of the Government to obtain revenues from undertaxed sources. The tax on intermunicipal and interstate road transport services for passengers and freight was restructured by Decree-Law no. 1.438 and the tax on financial operations was also subject to profound changes.³¹ However, the intention to tax wealth by introducing a death tax came in for much opposition and was shelved; and

²⁸ Constitutional Amendment no. 5, June 28, 1975 and Decree-Law no. 1.434, December 11, 1975.

²⁹ Constitutional Amendment no. 17, December 2, 1980, laid down that of the tax yield mentioned in the text, the Treasury would distribute 11% to each of the Participation Funds and 2% to the Special Fund, from 1984 on. In 1981, each Participation Fund would be entitled to a 10% share and in 1982 and 1983, 10.5%.

³⁰ Decree no. 83.556, June 6, 1979, Decree-Law no. 1.805, October 1, 1980 and Decree-Law no. 1.833, December 23, 1980.

³¹ Decree-Law no. 1.438, December 26, 1975 and Decree-Law no. 1.783, April 18, 1980.

a compulsory loan which had approximately the same characteristics as a tax on capital gains was turned in effect into a loan.

Despite spending cuts and renewed efforts at raising taxes recently undertaken by the government, it is almost impossible to balance the public sector budget with the aged tax system that we have at present. The resources that are generated are insufficient for the Treasury's needs, which also makes any increase in grants to the States and Municipalities inviable. The States themselves only have the circulation of goods tax to rely on, which is an extremely regressive tax, and it is difficult to increase the already high rates in force. The serious problems of the municipalities have been aggravated by the recent growth in the inflation, as their tax revenues are not readjusted automatically. The administrative re-evaluation of their tax base is carried out taking into consideration indexation factors which have consistently underestimated the rise in prices, with a growing underestimation when the inflation spurts ahead. Once again, the deficit is likely to be the immediate cause of a tax reform.

It is not enough, however, for the reform to be carried out with the sole objective of increasing revenues. It is necessary that it has a new spirit, that is to say, that the new system is built with clearly defined objectives and which reflect society's wishes. These seem well interpreted in the recent words of the President of the Republic: "I have maintained, in this respect, that there will be no economic development worthy of our country, if it is not based on justice; and that Brazil will not be really prosperous while, side by side, we find wealth and poverty, waste and scarcity, abundance and hunger".³² This dichotomy is the fundamental problem to which government policy must direct itself. A new tax system should become one of the instruments to be employed in such a policy. It is essential, but not enough, that it be more redistributive than the present one; it is also necessary that it allows production to grow at rates which will ensure the creation of new jobs in sufficient numbers

³² Extract from a speech made on November 6, 1980 during the the II Congress of Brazilian Chambers of Commerce.

to the growing labour force. The basic problem of the Reform in the 1980s will be to obtain a tax system that serves both ends without upsetting its capacity to generate revenues.

It remains to be seen whether society, particularly the powerful segment that benefited from the Reform of the 1960s, is willing to accept such a tax system. The episodes involving the inheritance tax and the compulsory loan tend to show that it is not, but there are signs, however faint, of changes in attitudes. Brasil seems to be passing through a transitional phase. If the tax reform is undertaken while ideas as to "the economic development worthy of our country" are still immature and without having first overcome the resistance to the changes that will be required for it to be put into effect, then it will be of little use. Perhaps the moment is still not ripe to carry out a formal comprehensive tax reform, but, it is certainly the time to begin preparing for it. Certain changes, almost inevitable, such as the drastic reduction in the array of fiscal incentives, a partial restructuring of income tax that, among other things, includes those income components that are either undertaxed or not taxed at all, and others, can be introduced right now so as to tackle the public sector deficit while the comprehensive reform program is still maturing.

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The tax system of 1967: suitable for Brazil in the 80's – some notes three years later

Ricardo Varsano *

These notes were written, at the suggestion of the BES publishers, as a supplement to the English edition of the article mentioned in the title. Their purpose is to provide information about the discussions and changes to the tax system which have been taking place since the start of the decade. Tax reform is not merely a technical matter and, in the current Brazilian situation, it is perhaps more political than technical. These notes, therefore, do not intend to be a technical report, but an account based to a great extent on impressions, interpretations and personal opinions of someone who consider it absolutely indispensable for the country to embark on a wide-ranging tax reform.

Tax reform has been widely debated in these first few years of the 1980's. The State Legislative Assemblies and the National Congress have sponsored meetings attended by politicians, technical experts and executives from the three levels of government, businessmen and academic specialists. A Tax Reform Commission was created in 1982, in the Ministry of Finance, to study the question. Although the general lines of its work are known, they have not so far been published. It is known, however, that some changes introduced recently to income tax are the fruit of the Commission's recommendations.

One can deduce from the discussion of the tax system that there is a general consensus as to the need for changes and as to some of the changes required. There are divergencies about certain aspects and, particularly, in terms of how far the changes

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should go. There are those that are in favour of a comprehensive reform of the present system and those who believe that small adjustments are all that is required to achieve the desired characteristics. Obviously, the difference of opinions is not due to technical aspects but to differences in thinking about what is desired.

1 – The debates

The majority of recent debates have been held, under the auspices of state governments, with the objective of building up pressure in favour of increasing the share of this level of government in total tax revenues. As a result, the questions given the most prominent attention have concerned the division of tax revenues, the fiscal autonomy of states and municipalities and the characteristics of the principal state tax, the tax on the circulation of goods (ICM). However, themes such as the level of tax burdens and fiscal justice and the allocative effects of the tax system have also been thoroughly debated.

On the question of the level of tax burdens, there are those who consider it to be high already and, consequently, suggest that a tax reform should not aim to raise it even further; while others recommend an increase so as to help reduce the public deficit and/or replace other sources of financing government spending, considered to be inferior alternatives. The latter see the problem of the present system not in terms of the level but in the distribution of the tax burden; that raising the level in the past was obtained by taxing those whose liability was already high even more severely, and that undertaxed segments of society remained untouched. They argue that a reform that is designed to reach such segments will provide an increase in the overall burden and, at the same time, contribute towards the goal of fiscal justice.

The discussion concerning the desirable level of taxation is, by its very nature, subjective and inconclusive. There is no standard with which one can compare the present tax load. International comparisons, frequently mentioned in the debates,

help little, as differences in the social and political organization between countries result in public sectors of different sizes and with different functions and, consequently, with different requirements for resources.

There is, however, agreement that the tax load is badly distributed. Earned income is taxed more highly than unearned income (returns on capital); the industrial and commercial sectors are taxed more highly than the service sector (excluding retailing); taxation of farm incomes is much lighter than urban incomes; most capital gains are not taxed while dividends are subject to double taxation; and there is no taxation of wealth (except for real estate taxes).

To adjust the tax system so as to correct such discrepancies requires finding a solution to difficult technical problems. More than anything, however, it requires political will, as it would impose losses on powerful segments of society. Everyone demands fiscal justice, but there is no consensus of ideas as to what should be done. Besides social justice being a subjective concept — and, therefore, the decision as to what should be done is of a political and not technical nature — some people fear that the correction of inequities will have a high cost owing to the allocative effects of the changes, particularly of its effects on the rate of savings.

It is also agreed that, in terms of the allocative effects, the system created by the reform of the 1960's was a big advance on what had gone before. There is room for improvements, whether by adjustments to existing taxes or by introducing techniques which are difficult to employ, such as, for example, the integration of individual income tax and corporate taxes; but this aspect has been relegated to a secondary plane in the discussions. However, examples of backsliding, which have occurred in the recent past, can be pointed to: import duties have almost ceased to be a policy instrument and become a mere source of revenue; a similar fate has befallen the tax on financial operations (IOF); and FINSOCIAL, a tax created in 1982, is a new edition of the turnover tax that the reform had eliminated. Furthermore besides, the proliferation of fiscal incentives.

supposedly temporary but which have become perennial through successive deferments of their expiration dates, besides creating perverse effects, reduces revenues, provoking measures like those recently mentioned.

As for the central questions of the debates — the division of the tax cake and the fiscal autonomy of the states and municipalities — there is almost a general consensus that an excessive concentration of resources is to be found at the federal government level. This has resulted a) from the very conception of the tax system established in 1967; b) from the later modifications that the system has undergone; c) from the different income elasticities of federal, state and municipal taxes; and d) from the opportunity that the federal government has of creating new taxes while the other levels are not even allowed to raise the tax rates in force.

The insufficient growth in revenues, allied to an expansion — considered by many to be too much — of state expenditure, led to a growing resource gap, which had to be financed by public borrowing.¹ While the economy was growing at high rates during the 1970's, the problem was more apparent in the less developed state which, as a result, pressed for an increase in their share of resources. The recession at the start of the 1980's showed, in a very general way, the critical situation of state public finances.

Although less emphasized in the debates, it is also apparent today that the situation of the Federal Treasury is just as critical as that of the states and municipalities. The basic difference is that the Treasury can resort to other source of financing, increasing the money supply, and can borrow more freely and without institutional restraint. There are, however, economic (and/or political) limits to using such instruments. Having reached its limits, the Treasury is, in practice, reduced to financing its expenditure via taxation.

With the states and municipalities, on one side, permanently on the verge of insolvency and pressing for more resources and

¹ It should be noted that besides the economic limits to the growth of the state debt, the issuing of public bonds or the contraction of new loans is subject to the approval of the Federal Senate.

the Treasury, on the other, unable to simply hand over its resources to those authorities and also searching itself for more resources, a taxation spiral has been created which, in the absence of drastic changes to the system, the already overloaded taxpayer has to bear the full brunt of in most cases. This was the keynote of the tax changes carried out in the last few years.

2 — The taxation spiral

The Brazilian States have no powers to carry out changes to increase their tax revenues. The National Congress, through enacting legislation, the Federal Government, through decree-laws and administrative acts related to the taxes under its control, and the economic conditions prevailing in the country, which determine the size of the tax base, define the volume of resources available to them. On the other hand, the states have a reasonable degree of freedom, from the institutional point of view, to determine their levels of expenditure.

For the State Government, containing expenditure has a high political cost while that of increasing revenues is close to zero, as it depends on decisions to be taken outside its own ambit. In this way, the tax system in force, in denying the states the right — and, consequently, freeing them from responsibility — to fix their revenues, has a built-in discouragement to any efforts at containing expenditure and a built in stimulus to applying pressure on the Federal Government to obtain more revenue. Such pressures tend to be highly successful in view of the fact that they win the support of public opinion and, consequently, of politicians (in this story, the State plays the role of the “oppressed” and the Federal Government the “oppressor”) and there is a (real) threat of insolvency.

Thus, the pressures have resulted in increases in the rates of ICM, probably the most regressive tax in the system, or in increases in the shares of the states in federal taxes. In the goes hand in hand latter case, this has been followed by a reaction on the part of the Federal Government to rearrange its own budget which with its search for solutions for its no less acute

financial problems. In the short run, given the current institutional framework, it is much easier, politically and technically, to solve the problem by expanding revenues than by holding down expenditure; and by taxing the already highly taxed sectors than by seeking alternative little exploited sources.² Finally, comes the reaction of the taxpayer, with a growth in tax-evasion and in activities in the parallel economy. In practice the measures are less effective than is generally supposed, but fall on those who cannot avoid them, usually the taxpayers already bearing the heaviest load.

At the end of the process, the revenues of the three spheres of government are increased without there being necessarily any changes in the shares of each in the total. As a consequence, the tax burden has increased, more on the overtaxed. Nothing has changed as to the degree of autonomy of the States and Municipalities or as far as the built-in stimuli in the system are concerned. Nothing has been done about the causes underlying the gap in resources of the three levels of government. Everything is ready to begin a new pitch of the taxation spiral.

As a result of the pressures coming mainly from the States of the North and Northeast in 1979, ICM rates on intrastate transactions were raised, in 1980, from 15% to 16%, in the States of the North and Centre-West, and from 14% to 15% (in 1980), 15.5% (in 1981) and 16% (from 1982 onwards) in those of the South and Southeast. The interstate rate remained at 11%, except for operations which originated in the South and Southeast regions and were destined for the other regions which rate became 10%, 9.5% and 9.0% in 1980, 1981 and 1982, respectively. Such measures has a dual objective of increasing the overall

² As a secondary measure, the Treasury has fallen back on replacing taxes which the states and municipalities have a share in with taxes for their own exclusive use. A recent example is the replacement of the single tax on fuels and lubricants, the revenues of which started to be divided up with the states and municipalities (as laid down by Constitutional Amendment n.º 23, December 1, 1983) with a tax on exchange operations related to oil imports.

revenues of the States as well as the share of the less developed States in the total.

Still from the 1979 crop, but postponed until the end of the following year, was Constitutional Amendment no. 17, December 2, 1980. It increased the shares of income tax (IR) and tax on industrialized products (IPI) distributed to the States and municipalities through the Participation Funds (from 9% to 10% in 1981, 10.5% in 1982 and 1983 and 11% from 1984 onwards), with the 2% figure for the Special Fund remaining the same. It also laid down that the revenue from the state tax on the transfers of real estate property (ITBI) be shared with the municipalities, which would be entitled to 50% of its total. Shortly afterwards, the rates of this tax were doubled.

Constitutional Amendment no. 17 kept the states' demand for more revenue subdued for only a short time. The recession soon eroded the ICM base and the real fall in yield led to renewed demands which culminated in Constitutional Amendment no. 23 on December 1, 1983. The Amendment once again raised the states' and municipalities' share in federal taxes without, however, increasing the autonomy in fixing the level of their revenues. The main alterations introduced by the Amendment were to raise the percentage share of IR and IPI revenues destined to the Participation Funds, to increase the states' and municipalities' slice of the single tax on fuels and lubricants (IUCL) and the inclusion of IPI in the ICM base chargeable on cigarettes.³ Also in December 1983, the ICM rate for intrastate transactions was increased to 17%.

³ Constitutional Amendment no. 23 fixed the percentage shares of IR and IPI revenues destined to the States Participation Fund at 14%, to the Municipalities Participation Fund at 16% and the Special Fund at 2%. Such figures will come into force in 1985. For the 1984 fiscal year, they were fixed at 12.5%, 13.5% and 2%. As for IUCL, 60% of revenues will be allocated to the States, Federal District and Territories (2/3) and to the Municipalities (1/3), starting in 1988. The percentages will be 44%, 48%, 52% and 56% for 1984 to 1987, respectively. As for ICM on cigarettes, 1/3 of the IPI value will be included in the tax base in 1984, 2/3 in 1985 and the full value in 1986. The Amendment also modifies the definition of betterment taxes and some aspects related to ICM.

As for the Federal Government, besides raising the rate of the tax on financial operations (IOF) and extending it to cover exchange operations related to imports (from 1980), increasing social security contributions (from 1982) and creating FINSOCIAL (in 1982), it made intense use of personal and corporate taxes to increase its revenue.

In 1979, the corporate tax rate was raised from 30% to 35%, with an additional 5% surtax on profits over Cr\$ 30 million. In 1981, the surtax was increased to 10% in the case of finance companies. In 1982, the tax rate was reduced to 30% and the surtax increased to 15% in the case of finance companies and 10% for others. The surtax became chargeable on profits above 60,000 National Treasury Readjustable Obligations (ORTN). In 1983, the rate was once again increased to 35% and the surtax became chargeable at the reduced level of 40,000 ORTHs.⁴

On the other hand, small enterprises were granted tax exemption. Decree-Law no. 1780/85 provided for the exemption of companies with a gross turnover of less than 3,000 ORTNs. This ceiling was raised to 4,000 ORTNs and later to 10,000 ORTNs by Decree-Law no. 1.973/82 and 2.065/83, respectively.⁵

As for personal income tax, the only alteration to the rates was made through Decree-Law no. 2.065/83, which introduced a 60% rate for the highest tax bracket. However, the tax burden was made heavier by indexing the progressive tax scales at a lower rate than that of inflation. The following table compares the variations, showing marked divergencies in the fiscal years 1980 and 1984.

Another important modification affecting both personal and corporate tax alike, was the introduction of indexation on tax owing and tax devolutions in 1983. Until then, the balance of tax owing could be paid in monthly payments, up to the final month of the fiscal year; and tax devolutions were paid to the taxpayer in the second half of the year. In a highly inflationary

⁴ D.L. 1704 (23/10/79), D.L. 1885 (29/9/81), D.L. 1967 (24/11/82) and D.L. 2065 (26/10/83).

⁵ D.L. 1.780 (14/4/80), D.L. 1.973 (30/11/82) and D.L. 2.065 (26/10/83).

	Year				
	1980	1981	1982	1983	1984
Indexation of Fiscal Tax Scales in the Fiscal Year %	45	55	90	95	100
Annual Average Variation of General Price Index in the Base Year %	53.9	100.2	109.9	95.4	154.5

situation, this represented a significant reduction in the real tax liability of those with tax to pay and an increase for taxpayers entitled to devolutions. From 1983 onwards, a date was fixed on which the tax is due. If the tax is fully paid by that date, it is not subject to any increase. If the tax is paid in monthly installments, it is index-linked (though pre-fixed and undervalued in the case of personal income tax). In the same way, tax devolutions are indexed, using the same date as the basis of the calculation. Such a measure, at the same time as it raised real tax revenues, improved the system in terms of equity.⁶

Several changes were made so as to increase tax withholding (and prepayment of taxes). Starting in 1979, a system of prepayment of taxes was introduced on earnings in the liberal professions, on rents, and on royalties. The initial rate of 10% was raised to 15% in 1982 and 20% in 1983. Various types of unearned income not previously subject to withholding (and which, very often escaped progressive taxation as well) became subject to it; and others, already taxed, had their withholding rates increased. The limits of the tax scales for calculating income tax withholding for wage earners and the self-employed providing services for companies started to be adjusted at intervals of less than one year and, at present, are corrected bi-annually. A rule was established for indexing tax withheld to be offset against tax owing in the fiscal year. Finally, various alterations were introduced which, in the main, benefited the tax authorities in

⁶ D.L. 1.967 (23/11/82); D.L. 1.968 (23/11/82) e D.L. 2.065 (26/10/83).

the transition period, but which in effect constitute an improvement of the tax procedures.

A mention should also be made of the controverted compulsory loans instituted in 1980 and 1983, some modifications in schedular deductions and allowances and the significant reduction of the much criticised fiscal incentives on personal income tax.

Finally, it should be mentioned that many of the measures that were designed to improve income tax were based on recommendations, even though informal, of studies carried out by the previously mentioned Reform Commission, whose proposals are reported in the following section.

3 – Reform in sight

A Tax Reform Commission, presided over by the General Secretary of the Ministry of Finance, was set up in 1982 with the objective of formulating a proposal for modifying the tax system. Although it was originally expected that the findings of the Commission would be made known in the middle of 1983, no Bill was sent to Congress and no report has been made public up to now. What is known, however, in their general lines, are the premises that guided the studies and the proposal developed by the Commission.

The Commission's proposal should have considered the following work hypotheses: a) the states and municipalities should have an increase in their revenues; b) the less developed states should have an increased share in the total of available resources without there being any loss of revenue for any other state; c) the treasury should not suffer a reduction in its available revenues; and d) the taxpayers already carrying a high tax load should not be subject to any additional burden.

Concomitant with the decentralization of resources, there was to be a decentralization of activities. Thus, part of the Commission's efforts was devoted to trying to define the tasks and function pertaining to each level of government. From this, a criterion

could be conceived for dividing up tax revenues between the different spheres of government, inverting the previous practice of defining functions according to the availability of resources. However, though some functions clearly belong to a particular level of government, either for technical or economic reasons or merely by tradition, others, even when there are sound arguments in favour of their allocation to states or municipalities, cannot be carried out satisfactorily by all the units, at one of these levels, in view of the typical deficiencies of the less developed regions. Thus, a general solution for the problem of dividing functions, if one exists, is complex.

As for the taxes, the Commission carried out studies to verify the suitability and viability of the following basic proposal.

1 – Replacing IPI by:

a) federal taxes on specific products (cigarettes, beverages, cars and certain others) ; and

b) an increase in ICM burden;

2 – Combining the tax on services (ISS) with ICM and, perhaps, increasing the municipalities' percentage share of revenues from the resulting state tax;

3 – Adopting the destination principle when applying ICM on interstate transactions;

4 – Adopting differentiated rates, for ICM, by product groups, according to a criteria of essentiality;

5 – Increasing the tax burden and progressivity of personal income tax and corporate tax by extending the tax base and other changes, but without raising the nominal rates.

This basic proposal fulfills the working hypotheses and at least partially answers the criticism of the present tax system. The state and municipal finances would receive an injection of funds by raising the ICM tax burden. The less developed states would benefit from the adoption of the destination principle

(and by the already mentioned increase in the burden of ICM).⁷ As for the Treasury, the loss of part of the IPI revenues would be compensated for by the increased revenue from income tax. Alterations to this tax, the introduction of differentiated rates for ICM and heavier taxation of services would increase the tax liability of higher income groups and probably lighten the tax burden on the lower income classes. The now undertaxed segments of society would contribute more effectively to the financing of public expenditures.

There are those who consider this proposal to be a good reform and those who see it as a good start for the reform, though still insufficient. In particular, the question of increasing the degree of fiscal autonomy of the states and municipalities is not considered, though the proposal is compatible with the adoption of measures to this end. I believe that few would disagree that it is a step in the right direction. It is necessary, however, to deepen the discussion both on the technical and political plane, submitting it to society's full appreciation and complementing it with other proposals that arise from the debate.

There is no hope, in this final stage of the present government, of the Executive Power having the initiative to put forward a tax reform. Apparently, the Reform Commission has lost its wind and its continued existence is merely formal. On the other hand, there are indications that the country is moving rapidly towards a new Constitution; and, inevitably, there will be a tax reform contained in such a change. It seems to me that, if the reform is desired and urgent and the spirit of the new tax system should reflect society's thinking, the Executive Power is not the most appropriate birth-place. It is up to the National Congress not only to promote debates on the subject, but to take

⁷ It is certain that this proposal would bring a significant increase in revenues for the states in the North, Northeast and Centre-West with the exception of Amazonas, a special case owing to the favoured tax treatment granted to the Manaus duty-free zone. The other states would also obtain revenue gains, except perhaps São Paulo, a net exporting State in interstate trade, for which it would be necessary to balance the gains and losses from the proposal alterations to know the net result.

over the effective control of the process right away, to bring together all the existing ideas, to sponsor the necessary studies, to consult society and provide in due time a comprehensive and mature proposal for a new tax system.

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