

# CEPAL

## Review

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Gert Rosenthal

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UNITED NATIONS  
ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN

SANTIAGO, CHILE, APRIL 1989

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#### Notes and explanation of symbols

The following symbols are used in tables in the *Review*:

Three dots (...) indicate that data are not available or are not separately reported.

A dash (—) indicates that the amount is nil or negligible.

A blank space in a table means that the item in question is not applicable.

A minus sign (-) indicates a deficit or decrease, unless otherwise specified.

A point (.) is used to indicate decimals.

A slash (/) indicates a crop year or fiscal year, e.g., 1970/1971.

Use of a hyphen (-) between years, e.g., 1971-1973, indicates reference to the complete number of calendar years involved, including the beginning and end years.

Reference to "tons" mean metric tons, and to "dollars", United States dollars, unless otherwise stated.

Unless otherwise stated, references to annual rates of growth or variation signify compound annual rates.

Individual figures and percentages in tables do not necessarily add up to corresponding totals, because of rounding.

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## The old logics of the new international economic order

*Vivianne Ventura-Días\**

The institutional environment of international economic co-operation is based on harmony between national and international interests. Conflicts between those interests can be expected to arise, however, in a period of major industrial transition marked by changes in international competition and in production technology, such as that of recent years. The factor of power, so often neglected in the discussions of international economic co-operation, comes up distinctively when a country tries to change the international rules to maintain its competitive position as an industrial power. This article analyses in particular the relations between Brazil and the United States in this respect.

Section I deals with the changes in the world economy and trade and raises some queries about the integration of the developing countries in these spheres. Section II analyses the importance of the multilateral negotiations on goods and services. Section III takes up the problems raised by the arbitrary rules and principles defined by the United States and the discriminatory use that country makes of access to its market. Section IV examines the main achievements of the informatics sector in Brazil and contrasts them with the experience of that country's motor industry: in this respect, an analysis is made of the importance of the ownership of capital in the development of endogenous technological capacity. Section V reviews some highlights of the United States' conflict with the Brazilian informatics policy. Finally, some closing observations are made.

\*ECLAC Consultant.

## Introduction\*

The attitude of the United States toward the Brazilian policies on informatics and intellectual property rights illustrates, dramatically, the conflict between national interests and the international order. The United States Administration has threatened to impose surcharges on Brazilian exports of several manufactured products to force the property rights of United States corporations, in the areas of computer software and pharmaceuticals, to be recognized by Brazilian laws<sup>1</sup> and to reduce the scope of domestic policies in high-value-added areas.

This dispute is of particular interest because the international principles which could provide a legal basis for unilateral measures of commercial retaliation in the case of national practices dealing with services and intellectual property rights are still being negotiated in the new round of Multilateral Trade Negotiations (MTNs) in Geneva. The operation of the principles embodied in section 301 of the revised version of the 1984 United States Trade and Tariff Act shows the impatience of the United States to have them included in a new legal framework to regulate international trade transactions of goods and services.

The use of the protectionist instruments of that United States Trade Act by the United States Administration to obtain concessions at the bilateral level underlines the issues at stake in the current MTNs —the Uruguay Round— underway in Geneva. These are: a) the United States assigns strategic importance to goods and services of high technological content; b) domestic policies —particularly investment-

\*The Omnibus Trade and Competitiveness Act of 1988, signed by former President Ronald Reagan on August 23 of that year, incorporated and considerably expanded the principles and instruments of section 301 of the 1984 Trade Act, which are discussed in this paper (see Trade and Tariffs Act, 1984).

<sup>1</sup>On 16 September 1985, the United States Trade Representative started an investigation into the Brazilian policy on informatics, pursuant to section 301 of the Trade and Tariff Act (TTA) of 1984. Later, another investigation followed concerning inadequate patent protection of pharmaceuticals in Brazil. Several countries, such as the Republic of Korea and Argentina, among other developing countries, have already been affected by section 301 of the 1984 TTA.

oriented domestic policies— will be the focus of trade negotiations and, c) developing countries face the unpalatable choice of giving up their domestic markets for goods and services of high technological content in return for access to markets in the developed countries for mature technology goods.

Long negotiations preceded the inclusion of services, trade-related investment measures and trade-related aspects of intellectual property rights in the new MTNs. A careful wording of the Punta del Este Declaration, that launched the negotiations, was necessary before it could be signed by all countries.

Countries such as India and Brazil wanted to be sure that intellectual property rights and foreign investment would not be discussed *per se* (as this is not allowed by the General Agreement on Tariffs and Trade), but only in so far as they relate to trade in goods. It was also accepted that a framework for trade in services would be negotiated in the new round of negotiations but in a group formally separated from GATT, and therefore not limited by its norms and procedures. This was necessary in order to prevent *cross-concessions* or concessions in the realm of the new issues being demanded in return for concessions in the realm of traditional products. Such cross-concessions are precisely those which were demanded by the United States in the case of the Brazilian informatics and patent policies.

There is very little understanding, in most countries, of the full implications of these negotiations for the development process. Many developing countries perceive the future of their economies in the areas in which they presently have static comparative advantage, such as agroindustries and other mature industries. Entrepreneurs in traditional industries, in developing countries, have difficulty in accepting the risks and costs of creating the technological capability to produce technologies locally. They prefer to participate in the new technological wave as consumers of embodied and disembodied technology, in the form of machines, equipment and services which will be used to update and improve their competitiveness in traditional markets, assuming that these technologies and foreign exchange to pay for them will always be readily available.

The characteristics of the new technological wave associated with the intensification of the internationalization of national economies have been used to question growth and development policies. Developing countries are again being urged to liberalize their markets for goods and services and to rely on international markets for the domestic allocation of resources.

Moreover, in this context of dynamic technological transformation, the institutions, categories and methods of analysis used in development studies are depreciated. Economic development concepts, and in particular the centre-periphery model designed by Raúl Prebisch in the late 1940s and early 1950s, are among those challenged by the ongoing structural transformations as outdated concepts. The question is how relevant Prebisch's concepts and policies are in a highly integrated world economy in which world production may or may not be geographically segmented, but will remain dominated by international and transnational corporations.

In my understanding, the basic question of how developing economies should be integrated into the world economy as sovereign nations remains as important now as it was for the post-war economy. The industries, as well as the specific problems involved, have certainly changed. But developing countries cannot accept the role of trading low-valued for high-value-added goods, just as they could not accept trading primary commodities for manufactured goods in the past. The former would mean the passive acceptance of the current levels of world income distribution and consequently of the unequal pattern of income distribution in their countries.

Brazil is ill-prepared to take advantage of the new technological wave. It is a newly-industrializing nation but has lost a great part of its bargaining power as a high-debt developing country. The country has to face simultaneously economic, social and political problems which involve different levels of technological sophistication and human suffering. In spite of some democratic reforms, Brazilian society is not yet allowed to discuss fully and openly the various levels of problems, the alternative courses of actions and the different costs and benefits implied in each case.

The 1980s have been called the lost decade for development. Over the past years, many developing countries —and Brazil in particular— have been merely responding to pressing needs, without having any resources left for designing and implementing strategic goals.

The country has gone through several periods in which it was possible to use the State apparatus to build up political consensus around the establishment of major industries: steel and oil, motor vehicles, telecommunications and informatics. In a few cases, there was a deliberate decision to allocate resources for the creation of technological capability: in intermediate industries such as steel and oil, in telecommunications and in the recent case of informatics.

The negotiations of the Uruguay Round aim at a further liberalization of trade in goods and services, thus increasing the scope and freedom of transnational corporations based in industrial countries. Developing countries are told to benefit from that liberalization as consumers of better products at competitive prices. In this new international order of highly mobile transnational corporations, national concern in developing countries, such as Brazil, over the future of their domestic markets and of their domestic enterprises is deemed old-fashioned. Development experience show, however, that the establishment of a domestic technological capability in developing countries cannot be dissociated from domestic ownership of the production of goods and services.

## I

### Structural changes in the world economy

Few doubts remain today that the world economy has gone through a major industrial transition determined by two principal forces: i) changes in international competition and ii) changes in production technology. The world economy has been more and more characterized by a multi-polar world. In this course of events, major industries of the United States manufacturing and services sectors have been forced to face massive exposure to international competition, with unpredictable results for the international order.<sup>2</sup>

Advances in production technology are promoting fundamental changes in the structure of the world economy: firstly, the reduction to marginal importance of the primary-products sector because of the natural resource-saving feature of the new technologies. For instance, in 1984, for every unit of industrial production, Japan consumed only 60% of the raw materials consumed for the same level of industrial production in 1973; the raw materials in a semicon-

ductor microchip account for 1% to 3% of its total production cost; 50 to 100 pounds of optical fibre cable transmit as many telephone messages as does one ton of copper wire, and producing 100 pounds of such glass fibre cable requires no more than 5% of the energy needed to produce one ton of copper wire.<sup>3</sup>

The impact of these changes on export earnings has already been felt by most of the developing world.<sup>4</sup> New materials and the adoption of technological innovations by traditional industries in industrial countries will also provide these countries with a competitive edge which may neutralize the influence of low wages in imports from developing countries.

Secondly, the new technologies are labour-saving. Higher volumes of manufacturing output are achieved with fewer and fewer persons directly employed in productive activities. As

<sup>2</sup>Drucker, P., "The changed world economy", *Foreign Affairs*, Spring, 1986, p. 773.

<sup>4</sup>In this context, Drucker (*op. cit.*) p. 775, footnote 7) paid tribute to Prebisch's perception that primary products would become of marginal importance to the economies of the developed world when he recognized that in the early 1950s even he could not believe the rightness of Prebisch's propositions.

<sup>3</sup>See J. Zysman and S. Cohen, "The International Experience", in D. Obey and P. Sarbanes (eds.), *The Changing American Economy*, Basil Blackwell, N.Y., 1986, pp. 41-55.

Drucker (1986, p. 776) points out: "In the 1920s one out of every three Americans in the labour force was a blue-collar worker in manufacturing. In the 1950s the figures was one in four. It now is down to one in every six and dropping".<sup>5</sup>

The same author concludes that, to remain competitive—or even to remain *developed* over the next 20 years—a company, an industry or a country must sharply increase manufacturing production while at the same time sharply reducing its blue-collar work force.<sup>6</sup>

In this transitional period, the American Dream of the Great Society has vanished and has been replaced by a dual society with higher levels of economic inequity. High-wage jobs in manufacturing industries are replaced by low-paid jobs in service industries. These, on the other hand, create a small number of highly skilled and highly paid jobs.

Knowledge and knowledge-intensive industries are the dynamic and growing sectors of the new technological wave. Moreover, it is in these sectors that the intimate relationship between goods and services becomes more visible. Drucker (*op. cit.*, p. 779) holds that: "Two distinct kinds of manufacturing industry are emerging. One is material-based, represented by the industries that provided economic growth in the first three-quarters of this century. The other is information- and knowledge-based: pharmaceuticals, telecommunications, analytical instruments and information processing, such as computers. It is largely the information-based manufacturing industries that are growing.

These two groups differ not only in their economic characteristics but especially in their position in the international economy. The products of material-based industries have to be exported or imported as 'products'. They appear

in the balance of trade. The products of information-based industries can be exported or imported both as 'products' and as 'services', which may not appear accurately in the overall trade balance."<sup>7</sup>

The dominant role that services play in domestic employment and production will not, however, be equivalent in international trade. Regardless of how precise the estimates of international transactions in services may be, the conclusion is that trade in services will remain less important than trade in goods. Actually, the share of services in total world trade in goods and services has remained almost constant at 17% to 18% over the past 15 years. There is little doubt that international competitiveness in manufactured goods, and especially in high-value-added manufactured goods, depends on *knowledge-based-services* (computer software, engineering, banking and finance and different kinds of business services).<sup>8</sup>

Skilled labour has become the main source of comparative advantage. Economists and some of the most vocal advocates of protectionist policies in the United States believe that decisions on human-capital development define a nation's competitive strategy. It has been said that the coherent Japanese strategy is effective because it is rooted in the adoption of higher-skilled, higher-valued economic activities. In contrast with the United States, Japan has moved both to upgrade old industries' production processes and to move up to higher value-added production.<sup>9</sup>

Japan has been able to harvest the full benefits from the introduction of new microelectronics and laser controls in the production process, while at the same time the country has also been consolidating a reputation in the services sector. The sector comprising fashion, movies, television programming, publishing, consulting, real estate, design, construction, leisure, tourism, advertising, insurance and finance has been targeted, together with high technology, as the most promising growth areas.

<sup>5</sup>Drucker, *op. cit.*, p. 776.

<sup>6</sup>Drucker also referred to capital movements rather than trade (in both goods and services) as the driving forces of the new world economy: together goods and services amount to around US\$2.5 trillion to US\$3 trillion a year. "But the London Eurodollar market, in which the world's financial institutions borrow from and lend to each other, turns over US\$300 billion each working day, or US\$75 trillion a year, a volume at least 25 times that of world trade" (p. 782). The perverse results are the impact of exchange rates determining trade in goods and services and not the other way around. Therefore, they also become a "comparative advantage" factor (pp. 786-788).

<sup>7</sup>Drucker, *op. cit.*, p. 779.

<sup>8</sup>United States Congress, Office of Technology Assessment, *International Competition in Services* (OTA-ITE-328), Washington, D.C.: United States Government Printing Office, July 1987.

<sup>9</sup>See R. Reich, "Beyond Free Trade", *Foreign Affairs*, Spring 1983, pp. 773-804; Thurow, L., *The Zero-Sum Solution*, Simon and Schuster, N.Y., 1985.



According to Reich and Mankin, the Japanese strategy in joint-ventures with United States-based companies has been "to keep the higher paying, higher value-added jobs in Japan and to gain the project engineering and production process skills".<sup>10</sup> The resulting gains in market shares in the United States markets have divided the opinions of economists and policy-makers in the United States. Some of them are concerned that short-run profits of "off-shore" management can be offset by long-run losses in terms of the downgrading of domestic skills and the weakening of the domestic technological capability.

Emphasis has been placed on the economies of learning and on the importance of controlling manufacturing operations for a successful combination of manufacturing and service production. In the view of the above-named authors: "Unless United States workers constantly gain experience in improving a plant's efficiency or designing a new product, they inevitably fall behind the competition. This is especially true in high-technology sectors where new and more efficient products, processes, and technologies quickly render even state-of-the-art products obsolete. For example, as the Japanese moved from supplying cheap parts to selling finished products in the consumer electronics industry, vital United States engineering and production skills dried up through disuse. The United States work force lost its ability to manufacture competitive consumer electronics products".<sup>11</sup>

In the midst of these transformations, the industrialization strategy in the developing countries, which was so controversial in the 1950s, has now been trivialized and has become almost a commonplace. Major development agencies and business journals urge developing countries to move away from deteriorating commodity markets and to adopt an outward-looking strategy to industrialize their economies.<sup>12</sup>

<sup>10</sup>See R. Reich and E. Mankin, "Joint ventures with Japan give away our future", *Harvard Business Review*, March-April 1986, No. 2, p. 78.

<sup>11</sup>Reich and Mankin, *op. cit.*, p. 79.

<sup>12</sup>The 1987 *World Development Report* emphasized the linkages between industrialization and trade régimes, but nevertheless underlined the institutional support that the Bank will provide to correct policies leading to the industrialization of developing countries.

The 1987 World Development Report emphasized the importance of global manufacturing and illustrated the argument with the case of the Ford Escort, produced by the Ford Motor Co., which is assembled in the United Kingdom and in the Federal Republic of Germany, with the production of its parts scattered among 15 industrialized countries (12 European countries and Canada, United States and Japan). The result is an intense two-way trade in manufactures among industrialized countries. In the context of intra-industry trade, the World Bank admitted, cost advantages can only be assessed "at the level of finely disaggregated product categories".<sup>13</sup> Therefore, it should be concluded that the theoretical basis for international specialization has become almost irrelevant.

Corporations based in industrial countries need the "global village" to be completed through institutional changes in the international trading system so that they can make their investment and production plans freely and benefit from industry-specific cost advantages across all borders. In the words of the magazine "Fortune" (2 February 1987, p. 23): "More and more companies manufacture in two, three or more countries, treating the whole world as their shop floor and market place. Such companies already account for more than half of the world exports of non-agricultural goods, and a quarter of that trade consists of transfers between subsidiaries of the same company".

A corporation such as the United States-based Singer Corporation, for instance, produces machine shells in Cleveland, United States; motors in Campinas, Brazil; drive shafts in Monza, Italy; to assemble them in Taiwan and export them back to the United States. The IBM PC which is assembled in the United States, has 73% of its components made overseas. Only the manufacture of the case, the assembly of the disk drives and the computer are undertaken in the country.

Changes in the world economy and in the structure of world trade will not occur once-for-all, as in text-books economics, but will be introduced slowly and irreversibly. In the above-mentioned issue of the magazine "For-

<sup>13</sup>World Bank, *World Development Report*, Washington, D.C., 1987, pp. 38-39.

tune" (p. 22) some analysts forecast that in the next decade, sunset industries of "the world production of what are now essentially 'manufactured commodities', basic steel or even cheap cars will shift to countries with low labour costs but increasingly skilled work forces, such as Taiwan, South Korea and Brazil".

It is unlikely, however, that world production and international specialization in the next decades will be divided along the lines of two-digit-level industries. After almost 15 years of international debate on "protectionism and structural adjustment", it has become clear that industrial countries will not give up their domestic senile industries. Behind protectionist barriers, governments in industrial countries have been rejuvenating them and recuperating the capacity to out compete developing countries in these areas of production. The combined processes of structural change and adjustment in the industrial countries have been associated with different forms of protectionism and managed trade, through bilateral agreements designed to insulate particular domestic economic groups from the costs of adjustment.

The industrial countries are not becoming "post-industrial", service-based economies. They are going through a process of intersectoral integration which is accompanied by an increase in the services content of the different productive activities, both within manufacturing enterprises and in service firms.<sup>14</sup> That was the

conclusion of a recent study on the United States service industries: "To maintain a society with high living standards and large numbers of well-paying jobs, the United States must remain competitive in both high-value-added goods and knowledge-based services; this, in turn, requires a well-educated and highly skilled labour force...".<sup>15</sup>

It is now evident that the mode of growth that led to the expansion of the world economy in the 1950s and 1960s has run its course. As one author phrased it: "The world must now make the transition from a set of social and institutional arrangements shaped by the characteristics—and fostering the full deployment—of a constellation of mass production technologies based on low-cost oil, to another capable of fruitful and appropriate interaction with a new system of flexible technologies based on low-cost electronics".<sup>16</sup>

The international organizations on trade, finance and money were established in the wake of the industrial structure of the late 1890s early 1900s. The last round of Multilateral Trade Negotiations, the Tokyo Round, did start to attempt to readjust the trade organization, the GATT. It is evident that the current Uruguay Round will either lead the organization to a collapse or else adopt it to the new world economy and trade. However, adaptation to a new world economy does not mean adaptation to the development needs of the developing countries.

## II

### The Uruguay Round: the issues at stake

The United States played a leading role in the establishment of the post-war trading system. The consensus among industrial countries on the free-trade ideology was a consequence of the unprecedented growth in mass consumption of standardized goods and of huge technological differentials among industrial and semi-

industrial countries. The hegemonic role of industries such as steel, chemicals, automobiles, rubber and electrical machinery shaped the United States trade policies that were later codified in the General Agreement on Tariffs and Trade and in the subsequent trade rounds. These indus-

<sup>14</sup>See references in V. Ventura-Días and G. Fernández Saavedra, "América Latina y el Caribe en la economía mundial", series *Estudios e Informes de la CEPAL*, No. 66 (LC/G.1478-P), ECLAC, Santiago, Chile, September 1987.

<sup>15</sup>United States Congress, Office of Technology Assessment, *op. cit.*, p. 6.

<sup>16</sup>See C. Pérez, "Microelectronics, long waves and world structural change: new perspectives for developing countries", *World Development*, vol. 13, No. 3, 1985, p. 441.

tries with high fixed costs required stability and predictability for their investment plans. Moreover, at the time of GATT's foundation, trade in goods was a partial substitute for the movement of factors.<sup>17</sup>

The years after the Second World War saw crucial changes in the pattern of capital flows. The convertibility of the dollar, the gradual liberalization of trade and payments, the privileged position of United States enterprises, and technological changes in transport and communications, data processing and management techniques favoured the growth of foreign direct investment as the major component of private capital flows.

The current international economy is highly integrated by the international production activities of firms. To illustrate this argument, it may be noted that 20% of United States imports (and much more for some individual products) represent shipments from United States affiliates abroad to their parent companies. Indeed, the estimate could go up to three-fourths of United States imports in the case of microelectronics, consisting of intra-firm shipments, primarily from subsidiaries in Asia.<sup>18</sup> As discussed in the previous section, the structure of world trade has considerably changed, with intra-industrial trade replacing the inter-industrial pattern that had prevailed until the inter-war period.

Over the last three decades of increasing internationalization of productive activities, the developing countries have increased their capacity to negotiate with TNCs and have been able to extract more favourable terms from these companies. In Brazil, successful efforts have been made to control the unrestricted "transfer" of technology. Training of officials and the establishment of a data bank on available technologies in the country and overseas were part of an intensive programme of the National Institute of Industrial Property to improve information and to create a real "market" for technology purchase.<sup>19</sup>

<sup>17</sup>See Reich, *op. cit.*

<sup>18</sup>United States Congress, Office of Technology Assessment, pp. 45 and 334.

<sup>19</sup>The National Institute of Industrial Property was created by Law No. 5.646 of 11 December 1970.

The autonomy that governments can display in demanding export performance from multinational enterprises (MNEs) of the inclusion of domestic inputs in the production plans of foreign affiliates introduces stochastic factors into the strategic planning of global enterprises, and in their perception these measures restrict their investment freedom.

Moreover, policies adopted by developing countries in pursuit of economic growth, technology transfer and technological autonomy affect the use of "proprietary technologies". Policy-makers in the United States are concerned at the narrowing of that country's lead in technology. The reasons were found to be not only in the technology base of the United States but also in the steady upgrading of technical abilities in other parts of the world. This was the result of the improved negotiating capacity of the receiving countries, which were able to regulate inward investment and technology transfer.<sup>20</sup>

MNEs would prefer not to share their proprietary technologies with a local partner and the United States government would prefer American companies to use these technologies to produce at home and export instead of licensing technology on the terms dictated by receiving countries. Also, corporations are unwilling to agree to limit trade secret protection to a certain number of years (as in Mexico and Brazil) which is often judged too short for accumulating the expected earnings on the technologies.

These are the reasons behind the request made by the United States to include investment measures, high technology and trade in services in the work programme of GATT at its 38th ministerial-level session in November 1982.<sup>21</sup>

Trade-related investment measures and intellectual property rights were formally included among the 14 negotiating groups on

<sup>20</sup>See United States Congress, Office of Technology Assessment, *op. cit.*

<sup>21</sup>The Trade and Tariff Act of 1974 provided a Presidential mandate to negotiate "more open and equitable market access for the United States exports of goods and services". But it was not until 1982 that the Contracting Parties of GATT agreed to consider the exchange of information about trade in services on the basis of national studies carried out by industrial countries. See M. Gibbs, "La reunión Ministerial del GATT y el futuro del sistema de comercio internacional", *Gaceta Internacional*, vol. 1, No. 1, 1983, pp. 99-110.

goods when the Uruguay Round was formally launched in September 1986. The recognition that governments can create comparative advantage through appropriate policies and policy instruments is implicit in the request to examine a broad array of national policies. In spite of the text approved at Punta del Este, these policies will be at the centre of the negotiations.<sup>22</sup>

Trade in services is being negotiated in a group apart.<sup>23</sup> It is generally admitted by the industrial countries, however, that "international transactions" in services and not merely trade across borders should be part of the negotiations. And by definition, "international transactions" in services involve a foreign presence for the delivery of many services. Consequently, negotiations on investment necessarily to become part of the negotiations on services trade.<sup>24</sup>

The developing member countries of GATT have tried to separate negotiations on goods from negotiations on services: this is the two-track agenda for the Uruguay Round. For the United States government, however, concessions on goods trade must be exchanged for concessions on services, and even those cannot be taken for granted, in view of the protectionist feeling reigning in the country. Labour unions, for instance, have expressed deep reservations over the exchange of concessions in manufacturing for lower barriers to services trade.<sup>25</sup>

It should be added that the logics of free trade do not apply to the protection of intellectual property rights. Whereas higher levels of competition are ensured in the first case, in the second, corporations are allowed to make monopolist gains. In addition, such protection provides unfair competition because these enterprises can acquire rental gains in local markets after having spread the costs of development over international markets. Conversely, the same arguments that justify the maintenance of reserve markets with rental gains to induce investments in R & D apply to reserve markets in industries targetted by governments for development.

Despite this the United States seek the establishment of a new international trading system that takes into consideration the broad interests of their multinational corporations operating both in goods and in services. However, the United States government does not act just on the multilateral level. The negotiations on services are expected to be lengthy and difficult and to continue well into the 1990s. In the meantime, concessions are extracted through domestic policies that impose unilateral restrictive measures against trading partners that do not provide enough intellectual property protection or that restrict the operations of United States-based multinational corporations in goods and services.

<sup>22</sup>See, in particular, United States Congress, Office of Technology Assessment, *op. cit.*, and United States Congress, Congressional Budget Office, *The GATT Negotiations and United States Trade Policy*, 1987 United States Government Printing Office, Washington, D.C.

<sup>23</sup>The 14 negotiating groups on goods were regrouped as *Access to markets* (groups on tariffs and non-tariff measures; tropical products; textiles and clothing; and natural resource-based products); *Group on Agriculture*; *Normative areas* (groups on safeguards, settlement of disputes, GATT articles, MTN agreements and arrangements, subsidies and countervailing measures; and functioning of GATT); and *New Issues* (groups on trade-related

investment measures and on trade-related aspects of intellectual property rights).

<sup>24</sup>See F. Prieto, "Services: a disquieting link between Latin America and the world economy", *CEPAL Review*, No. 30 (LC/G.1441), December 1986, pp. 117-236, for a detailed discussion of services and services negotiations; see also P.S. Randhawa, "Punta del Este and after: negotiations on trade in services and the Uruguay Round", *Journal of World Trade Law*, vol. 21, No. 4, 1987, pp. 163-171.

<sup>25</sup>United States Congress, Office of Technology Assessment, *op. cit.*, p. 321.

## III

### The United States 1984 Trade and Tariff Act: the extent of the market

The traditionally protectionist character of United States trade legislation was reinforced by the Trade and Tariff Act (TTA) of 1984. The Trade Act of 1974 had already provided unilateral relief measures for domestic industries. It also marked the first time that trade in services was included among the negotiating objectives of the United States. The TTA of 1984 amended the existing "presidential retaliation" authority (section 301 of the Trade Act of 1974) and significantly extended the negotiating objectives to include foreign investment and service industries.<sup>26</sup>

The 1984 TTA increased the presidential retaliation authority already provided by section 301 of the 1974 TTA. It allows the President to impose commercial sanctions against trading partners which incur in unfair commercial practices or establish arbitrarily defined *unjustifiable* or *unreasonable* restrictions against the access of United States products, services or foreign investment to their markets. The *reserve market* for Brazilian manufacturers of microcomputers and software is perceived as an *unreasonable* restriction against United States enterprises.

It was correctly pointed out by M. Rodríguez that "the TTA does not provide greater access to the United States market as an incentive for other countries opening of their own markets. Rather, it creates new obstacles for exports from countries that 'impede' the expansion of United States investments, goods and services". Even the nature of the United States Generalized System of Preferences (GSP) is radically changed by the TTA, converting it into a negotiating tool to obtain concessions from the beneficiary developing country. The TTA makes protection for United States intellectual property rights a factor in decisions on renewal of agreements under the GSP.<sup>27</sup>

The purposes of Title III of TTA 1984, also called the International Trade and Investment

Act, are *inter alia* to improve the ability of the President to identify and to analyse barriers to and restriction on United States trade and investment and to achieve the elimination of such barriers and restrictions; also, to encourage the expansion of a) international trade in services through the negotiation of agreements (both bilateral and multilateral) which reduce or eliminate barriers to international trade in services and b) United States service industries in foreign commerce, as well as to enhance the free flow of foreign direct investment through the negotiation of agreements (both bilateral and multilateral) which reduce or eliminate the trade distortive effects of certain investment-related measures.

The chapter on Barriers to Market Access entitles the United States Trade Representative (USTR) to: "a) identify and analyse *acts, policies or practices* which constitute significant barriers to or distortions of: i) United States exports of goods or services (including agricultural commodities) and property protected by trademarks, patents, and copyrights, exported or licensed by United States persons) and ii) foreign direct investment by United States persons, especially if such investment has implications for trade in goods and services".

The Trade Representative can initiate investigations after examining a petition filed with his office by *any interested person*. The USTR can also initiate the investigation on his own.<sup>28</sup> If, upon the advice of the USTR, the President determines that action is appropriate "... b) to respond to any act, policy, or practice of a foreign country or instrumentality that ... ii) is unjustifiable, unreasonable, or discriminatory and burdens or restricts United States commerce", then he may use his authority to impose or unilaterally raise tariffs or otherwise restrict access to the United States markets.

<sup>26</sup>See also M. Rodríguez, "Latin America and the United States Trade and Tariff Act", *The Journal of World Trade Law*, vol. 20, No. 1, January-February, 1986.

<sup>27</sup>See Rodríguez, *op. cit.*, p. 47.

<sup>28</sup>The investigation on the Brazilian informatics policy was initiated by the Office of the United States Trade Representative and that on the Brazilian property rights in pharmaceuticals by the Pharmaceutical Manufacturing Association.

The term *commerce* "includes, but it is not limited to —a) services (including transfers of information) associated with international trade, whether or not such services are related to specific goods, and b) foreign investment by United States persons with implications for trade in goods or services".

The terms *unreasonable* and *unjustifiable* were defined as to incorporate the United States' demands on the right of establishment and national treatment of corporations based in that country. These concepts are part of the proposal tabled by the United States in the Negotiating Group on Services in Geneva last year:

*Unreasonable.* The term "unreasonable" means any act, policy or practice which *while not necessarily in violation of or inconsistent with*

*the international legal rights of the United States, is otherwise deemed to be unfair and inequitable.* The term includes, but it is not limited to, any act, policy or practice which denies fair and equitable: a) market opportunities; b) opportunities of adequate and effective protection of intellectual property rights.

*Unjustifiable.* a) In General: the term "unjustifiable" means any act, policy, or practice which is in violation of, or inconsistent with, the international legal rights of the United States; b) Certain Actions Included: The term "unjustifiable" includes, but it is not limited to, any act, policy, or practice described in subparagraph a) which denies national or most-favoured-nation treatment, the right of establishment, or protection of intellectual property rights.<sup>29</sup>

## IV

### Industrialization and technological capability

#### 1. *The Brazilian informatics policy: technological autonomy*

In 1986, the Brazilian informatics policy celebrated its first 10 years of existence. In 1976, the Co-ordination of Electronic Processing Activities Agency (CAPRE) imposed import quotas on data-processing equipment and began the preparation of an overall policy to develop a broadly defined Brazilian computer industry, and in June of that year, the agency issued recommendations that "when feasible, mini- and microcomputers and peripheral devices be reserved for the domestic industry" —marking the beginning of the market reserve policy which was to be embodied in the National Informatics Law.<sup>30</sup>

The next step was taken in June 1977, when the Brazilian government refused permission to IBM, Burroughs, NCR, and several other leading

transnational corporations in the computer industry to manufacture mini-computers in Brazil.<sup>31</sup> Finally, on 24 October 1984, Law 7.232 on the National Informatics Policy was passed overwhelmingly by Congress and was signed on 29 October by the President. The Law gave eight years' total protection to nationally-owned companies in the micro and mini-computer sectors.<sup>32</sup>

In May 1977, the Data General Corporation sent a report to the Trade Representative of the Presidency, describing the possible negative impacts of the establishment of a locally-owned Brazilian computer industry and requiring an investigation for unfair trade practices (ABICOMP, May 1984:3-4).<sup>33</sup>

<sup>29</sup>P. Evans, "State, capital and the transformation of dependence: the Brazilian computer case", *World Development*, vol. 14, No. 7, 1986, p. 791.

<sup>32</sup>For the purpose of the law, any activity related to the rational and automatic treatment of information is considered informatics activity (Article 3 of Law 7.232).

<sup>33</sup>The multinationals already established in Brazil, such as IBM, Burroughs and Hewlett-Packard, put in a year-long campaign behind the scenes against the new legislation. But, as noted in *Financial Times* (31 October 1984), "they received little support from any significant sector of Brazilian society".

<sup>30</sup>Section 302. Initiation of Investigations by United States Trade Representative, *Congressional Record*, October 5, 1984, p. H 11548 (my italics).

<sup>31</sup>A. Botelho, "Brazil's independent computer strategy", *Technology Review*, May-June, 1987, p. 39.

Up to 1976, all the computers in Brazil were produced by foreign firms. In 1986, almost 50% of the industry's production originated in locally owned firms, but even so, IBM Brazil's total sales in that year were over US\$800 million, i.e., almost six times those of the largest Brazilian enterprise (Itautec Informática, US\$126 million), and they accounted for approximately 37% of the industry's sales, while together with Unisys and Olivetti, they accounted for 54% of such sales (EXAME, September, 1987).

It is not our intention here to give the precise chronology of the industry, which has been described better elsewhere.<sup>34</sup> Suffice it to quote some of the various factors that made possible a domestic microcomputer industry.<sup>35</sup>

The major factor was the particular direction of technological change, which created a "moment of transition". This provided developing countries with certain possibilities to enter into those industries. According to Evans (p. 803), such moments are those in which: "technological change is accompanied by a disjunction in established corporate control over technology. In the case of the computer industry, two overlapping disjunctions were crucial. First, the move to smaller machines was made by new companies without established international operations. Second, a fundamental technological breakthrough (the microprocessor) became available in the open market; it was controlled by firms with no proprietary interest in final demand sales".<sup>36</sup>

Obviously, it is not enough to have such moments of transition and nothing else. Considerable infrastructure is required to take advantage of them. Brazil had people with the technical skills necessary to take that initiative. Also, the country had acquired a lot of experience with the administrative process of import-substituting industrialization. Finally, there were nationalist engineers totally committed to creating technological capability in the country.

Nevertheless, as Evans points out, they "were able to act because the régime's general commitment to a new round of import substitution in basic industries, on the one hand, and the connection between informatics and national security, on the other, created a political space for their campaign."<sup>37</sup>

The benefits of the informatics policy cannot be measured just in terms of market shares or the number of computers produced in that period, but rather in terms of the establishment of the technological capability that otherwise would not exist. The engineers of the informatics policy can easily show that while production was dominated by transnational corporations, most administrative and sales positions were open to Brazilian engineers.

The computer industry, at the beginning, faced problems in recruiting engineers experienced in system software and hardware design and development. The foreign computer firms which supplied the Brazilian market before the reserve market for domestic firms was established trained local engineers and technicians only to perform customer support activities and to develop some application software. According to SEI, even in 1983 the foreign corporations in Brazil employed 40% fewer university-level workers than Brazilian firms, and 43% of those were in sale-related activities. Only 4% of university-level workers were employed in R & D, as compared with 30% in domestic enterprises.<sup>38</sup>

After more than 10 years of existence, the number of high-level engineers able to design modern hardware, video terminals, microcomputers, different kinds of digital equipment and the corresponding sophisticated software is estimated at over 30 000.<sup>39</sup> In the whole area of informatics, including high-level technicians, the number is estimated at 250 000 professionals just in the State of São Paulo, with an estimated deficit of 150 000.

<sup>34</sup>See Evans, *op. cit.*; Botelho, *op. cit.*; S. Helena, "A indústria de computadores: Evolução das decisões governamentais", *Revista de Administração Pública*, vol. 14, October/December, 1980, pp. 73-109.

<sup>35</sup>Those were Evans' *op. cit.*, conclusions.

<sup>36</sup>Evans, *op. cit.*, p. 803.

<sup>37</sup>Evans, *op. cit.*, p. 804.

<sup>38</sup>P. Tigré, "Protectionism in the Brazilian computer industry", *Science and Public Policy*, June, 1983, p. 147.

<sup>39</sup>I. Costa Marques, *Dez Anos de Política Nacional de Informática. O que conseguimos? O que poderemos conseguir?*, paper prepared for the CNPq, 1987.

## 2. *The Brazilian motor vehicle industry: foreign capital and foreign technology*

The informatics industry may be contrasted with the Brazilian motor vehicle industry in order to highlight the positive and negative impacts of foreign and local ownership on domestic technological capability. Although this task falls beyond the scope of this paper, it is worthwhile outlining some facts.

The motor vehicle industry in Brazil represented a successful example of industrial sectoral planning. Through import controls, tariffs, fiscal and financial incentives the government induced foreign automobile producers to start manufacturing operations in the country. The strategy was simple and effective. First, the motor vehicles were required to be assembled in the country. Second, the local car components industry was protected and it was forbidden to import parts *similar* to those produced locally. After that, the content of domestically produced parts was prescribed by the public sector. The domestic content of the motor vehicle was defined as a percentage of the total weight and total value of the vehicle. Preferential exchange rates and subsidies were given for the importation of parts to complement those locally produced.

Tariffs and discriminatory exchange rates introduced distortions in the system of relative prices. The local production of previously imported goods was accomplished in a market organized through oligopolies. The former importer was induced to start manufacturing operations by the assurance of reserved markets. The industrialization which took place in this way imposed a high social cost on society as a whole: it has been highly inflationary, and it was achieved with great disparities in income distribution, socially, sectorally and regionally.

The creation of a domestic industry did not mean domestic ownership. The incentives were clearly biased toward foreign enterprises which were supposed to bring foreign currency and modern technology to the country. Although the process can be perceived as essentially continuous throughout the civilian populist and autocratic military governments in Brazil from the

early 1950s to the 1970s, the final results may hide different conceptions of the role of foreign capital in the Brazilian process of industrialization. The discussions are partially documented in the records of the Automotive Industry Executive Group (GEIA), which was responsible until the late 1960s for handling the problems of the sector.<sup>40</sup>

Actually it was only in the second half of the 1960s that industrial mergers in the automobile sector gave equity and managerial control to the major multinational car corporations.<sup>41</sup> Likewise, it was only then that these corporations started to produce passenger cars. With the exception of the German Volkswagen, during the first 10 years of the industry in Brazil passenger cars were produced by joint ventures with a majority of capital held by Brazilians. Concurrently, the motor parts industry also came to be dominated by foreign enterprises. The sector is atomized in hundreds of small and medium-sized enterprises that depend on final goods producers to change their technology. Hence, their investment plans are also dependent on car manufacturers' strategies. Foreign companies prevail in the sophisticated segments of motor parts production.

Similarly to what happened in informatics, it was the alliance between nationalistic government officials, some of them civilians but mostly military, and small to medium entrepreneurs that made possible the whole infrastructure for the industry to arise. General Macedo Soares, who had served as technical director of the State-sponsored steel plant and was the president of the National Steel Commission created in 1940, said that the Commission had in mind the local production of motor vehicles when setting up that company. Admiral Lucio Meira was the head of the Subcommittee on Jeeps, Tractors, Truck and Passenger Cars, created in 1952. He was to be Minister of Transportation in the late

<sup>40</sup>For further references see V. Ventura-Dias, *The Brazilian Motor Vehicle Industry. A Case of Sectoral Planning*, unpublished Master's Thesis, University of Berkeley, 1975.

<sup>41</sup>In the second half of the 1960s, after the 1964 *coup d'état*, a set of mergers was stimulated by the government: Vemag and Willys Overland were purchased respectively by Volkswagen and Ford Motor Co., Simca do Brasil and International Harvester were bought by Chrysler Corporation do Brasil, and Fábrica Nacional de Motores was sold to the Italian Alfa Romeo company.



1950s and responsible for the implementation of the project outlined by the Subcommittee.<sup>42</sup>

The presence of domestic capital in the automobile industry was supplementary to the foreign enterprises. The government incentives were directed to the foreign investor. There was no commitment of the public sector to domestic entrepreneurs.<sup>43</sup> Local industrialists had to import equipment without preferential exchange rates, unless they were associated with foreign investors.

Undoubtedly, the domestic companies which invested in the production of passenger cars helped to build the local motor parts industry. This was done either by developing locally owned companies, by bringing original suppliers to the country or by producing the parts themselves.

At the time the National Passenger Car Plan was issued (1957), the Brazilian suppliers had not yet achieved the sophisticated technological capability required for the production of the parts for an average American car. When the American companies bought the joint ventures stimulated by the Brazilian government, they bought altogether 10 years of technological development and market growth. They were able to expand their sales of medium-sized and luxury cars within efficient production patterns. In the beginning, they lost the market for small popular cars to Volkswagen, but in a few years that would not make a great difference.

Similarly, the National Plan for the production of motor vehicles was based on the requirements of increasing the content of domestically produced parts in the weight and value of the vehicle. There was never a requirement that those parts should be bought from local suppliers or from local enterprises with domestic capital and management. As a result, part of the production of parts was internalized in the assembler plants or was carried out locally by the original suppliers of the assembler.

The reasons underlying the foreign control of the motor parts industry were the low level of technological development of local manufacturers and the complex technical requirements of automobile production. Proprietary technologies of products and processes have remained internal to the corporations. Rather than develop a future competitor, the foreign enterprises mainly preferred to combine the earnings from license fees with the returns on equity capital, jointly with managerial control over the decisions of the firms.

The large corporations benefited from the high turnover in the labour market introduced by the autocratic military régime in the mid-1960s. They did not create conditions for the expansion of highly skilled occupations, and the local universities were not invited to participate in the creation of car design and construction technology.

<sup>42</sup>Lucio Meira drew the following conclusion, after holding general meetings with the industry: "I got the impression that the foreign motor vehicle concerns have no interest in producing 100% domestically produced automobiles in our country and they will not do that unless they are forced to. This is evident in the contacts with Ford and General Motors. We can see that they will use national products only when required by government policies" (in W. Moreira Franco, *A Nacionalização dos Veículos no Brasil*, unpublished master thesis, n.d.).

<sup>43</sup>In contrast, many authors have already emphasized the importance of local entrepreneurship to explain the success of Korean exports in highly sophisticated markets. The history of the Korean automotive industry is similar to that of Brazil, considering

the administrative procedures and import prohibitions, although it started a little later (in the early 1960s). Nevertheless, the number of car producers was limited and there was never a totally foreign-owned corporation. On the contrary, in the case of subcompacts, for instance, there are only two firms' Daewoo Motor Company (a 59:50 joint venture between a large Korean conglomerate and General Motors) and Hyundai Motor Company (owned by Korea's largest conglomerate, with 10% equity of Mitsubishi) (A. Amsden, and L. Kim, *The Korean Production and Exports of Subcompact Automobiles: A Case Study in Industrial Strategy*, paper presented at the UNCTAD Symposium on South-South Trade, Geneva, June, 1985).

## V

## Development policies at bay

From the beginning, the Brazilian government was under increasing pressure to modify its nationalist computer policy. The military officers at the *Secretaria Especial de Informática* (SEI), the government body in charge of computer policy, however, pushed ahead with their plan to extend the market reserve policy, originally applied to mini-computers, to other sectors of the market.

The pressures for change were made explicit during the visit of President Reagan to Brazil at the end of 1982. Concessions on the informatics policy were part of the conditions for financial aid. Representatives of multinationals were claiming that difficulties in importing some product lines had made the companies lose export orders, with heavy costs to the country. Brazilian businessmen willing to form joint ventures in some areas of information technology, warned that, as a result of the restrictive policies applied, the country could finish up with an obsolete industrial complex, as local companies did not have the resources to keep up with the latest developments, particularly in the key area of factory automation.<sup>44</sup>

The *Federal Register*, vol. 50, number 179 of 16 September 1985 published a notice announcing that the United States Trade Representative was initiating an investigation into Brazil's informatics policy and invited interested parties to submit written comments. Pursuant to the norms of the Trade and Tariff Act (TTA), the United States government had previously requested formal consultations with the Brazilian government, which took place in Geneva in February 1985. There, the Brazilian delegation tried to prove that the reserve market did not infringe any of the rules or principles of the GATT. The investigation to ascertain whether Brazil's market reserve policy constituted unfair trade was carried on parallel to the diplomatic talks.

The announcement of the investigation was well-timed, because it coincided with the preparations, in Geneva, for the GATT Ministerial Meeting to discuss the new round of MTNs. The Brazilian delegation had from the beginning actively opposed the inclusion of services, investment and intellectual property rights in these negotiations.

In February 1986, the Brazilian government approved a joint venture between Gerdau and IBM to form *Gerdau Serviços de Informática S.A.*, in which IBM would have a 30% stockholding but would supply most of the equipment and technology. This would mean a more flexible application of the law, which prescribes a maximum of 30% of foreign capital, without voting rights. The law also requires domestic managerial and technological control, if corporation is to be accepted, for the purposes of the law, as a Brazilian or national business. The final approval depended on the *Secretaria Especial de Informática* (SEI).

The strategy of the United States government was to leak information that sanctions might be imposed on Brazil, while at the same time denying the existence of any official report on the results of the investigations on the Brazilian informatics policy. In April 1986 there were hints of a status report drawn up by the International Trade Commission and the Technical Commission of the Department of Commerce, containing recommendations of two types of sanctions to be imposed on Brazil: a 40% reduction of all imports from Brazil and the opening of new investigations in specific areas such as the fine chemicals industry.<sup>45</sup>

Late in April 1986, Secretary of State George Schultz sent to the Brazilian Foreign Minister a letter requesting explanations concerning the computer industry law. The Brazilian reply stressed the development goals of the Brazilian computer policy and noted that no international rights or principles were being infringed by the

<sup>44</sup>*Latin America Weekly Report* WR-83-24, 24.6.83, p. 2.

<sup>45</sup>*Gazeta Mercantil*, International Edition, 28 April, 1986.

Brazilian government: "Brazil maintains that any effects of its computer industry law on the interests of trade partners must be examined in the light of both countries' international rights and obligations..."<sup>46</sup>

In May, the White House spokesman announced, that President Reagan was considering imposing trade sanctions on Brazilian products if there were no changes in the implementation of the informatics policy. By the end of May, the United States Undersecretary of State, John Whitehead, visited Brazil and was received by the President of that country. That visit marked the beginning of formal negotiations on the Informatics Law (officially non-negotiable), which took place in meetings between Brazilian and United States diplomats, out of which very little transpired.

In June 1987, the threat by the Reagan Administration to impose trade sanctions against Brazil was more than 18 months old. The sanctions had been forestalled when the Brazilian lower house of parliament, the Chamber of Deputies, approved a software law. The new software protection bill led the Cabinet-Level Economic Policy Council to recommend against imposing sanctions. But the Council advised the President to keep his trade complaint alive to make sure that both houses of parliament approved the legislation and that Brazil complied with United States demands in other high-technology trade and investment problems.<sup>47</sup>

In July, the SEI determined that SISNE, an operating system developed by a Brazilian company (Scopus), was functionally similar to the MS-DOS system manufactured by the United States company Microsoft. Consequently, in September, the agency denied a license to four Brazilian firms to market the United States product. The Brazilian authorities claimed that the Scopus system was perfectly adequate and that they did not want to discourage other Brazilian firms from developing that type of computer programmes.

On 13 November 1987, President Reagan announced his intention "to raise tariffs on Brazilian exports to the United States and to prohibit

imports from Brazil of certain computer products in response to the maintenance by Brazil of unfair trade practices in the area of computer products", going on to say that: "Brazil's national informatics policies, in place since the 1970s, severely restrict foreign participation in Brazil's computer and computer-related market. The United States has unsuccessfully raised its concerns with Brazil in bilateral and multilateral consultations since 1983. In September 1985 I initiated an investigation of these practices under Section 301 of the Trade Act of 1974, and in October 1986 determined that Brazil's informatics policies were unreasonable and a burden and restriction on United States commerce. I suspended parts of this investigation after Brazil made commitments to implement its 'informatics' law in a more flexible reasonable, and just manner".<sup>48</sup>

The Reagan Administration estimated at US\$105 million the lost sales opportunities for United States companies. As perceived by the *Washington Post*, the options were complicated by two factors: many Brazilian exports to the United States were either manufactured by United States multinationals based in Brazil or contained United States-made components, so sanctions would inevitably hurt United States interests. In any case, one week later, the office of the United States Trade Representative issued a request for public comments on possible United States actions in response to certain Brazilian unfair trade practices. At the same time, a list of Brazilian products which were being "considered" for increased duties or other import restrictions was produced.

The mere announcement of possible sanctions caused Brazil to suffer trade losses of nearly US\$500 million.<sup>49</sup> The list involved the most heterogeneous set of products, from coal tar to optical fibres, from household ware to industrial machinery, from motor vehicles to aircraft and space craft and parts, from footwear and luggage to furniture, pistols and rifles.<sup>50</sup>

The hearings in December showed the differences in the approaches of the aircraft indus-

<sup>46</sup>*Gazeta Mercantil*, International Edition, 5 May, 1986.

<sup>47</sup>A draft of the Brazilian software bill was shown privately to the USTR (Clayton Yeutter) (*Washington Post*, June 26, 1987).

<sup>48</sup>Statement by the President, 13 November 1987. The White House, Office of the Press Secretary.

<sup>49</sup>*Folha da Tarde*, 25 November 1987, p. 11.

<sup>50</sup>USTR office, docket No. 301-49, 19 November 1987.

try (a Brazilian State-owned enterprise) and the motor vehicle companies in their defences against possible commercial sanctions. The testimony by the Aerospace Industries Association of America indicated the risks of the confrontation between United States and Brazil in the aerospace sector. This would jeopardize billions of dollars worth of pending and future United States aerospace exports to Brazil, since the Brazilian company could prompt counter-retaliation by Brazil against those exports. The Vice-President of that Association noted that: "A trade war with Brazil could prove very demaging to the United States aerospace industry through: lost sales of complete United States commercial transports, helicopters and light aircraft; lost sales of components, systems and engines to Embraer; and increased cost of components supplied by Embraer to United States-built aircraft".<sup>51</sup>

In the statement by the Vice-President of Volkswagen of America, Inc.; the exports from Brazil were identified as necessary imports by the United States-based Volkswagen operation, to substitute for the closing down of its Pennsylvania plant: "Restrictions should not be imposed on a product that will harm a United States company that has demonstrated a desire to invest in the United States market and has made a good-faith effort to do so".<sup>52</sup>

Meanwhile, the two houses of the Brazilian parliament hastily approved a new software law which was sanctioned (with a few vetoes) by the President on 18 December. He vetoed some of the articles that United States diplomats had found unacceptable, in particular reducing the scope of action of the SEI. The year ended with emotional discussions and active criticisms by the conservative media against the Brazilian informatics policy. Application of trade sanc-

tions was postponed until January 1988, pending, it was believed, promises of reconsideration of the decision on the Microsoft MS-DOS.

Finally, on 20 January 1988, the National Council of Informatics, in a Pyrrhic decision, maintained the prohibition of the marketing in Brazil of versions 3.0, 3.1 and 3.2 of MS-DOS, but approved the sale of version 3.3. The decision was judged ironic because it is common knowledge that a new version of a computer programme adds very little to the previous one. In other words, whoever is capable of designing versions 3.0 to 3.2 can also develop version 3.3.

The sanctions were postponed again, and the last official note from the United States Administration on the subject did not change the overall situation. Officially, the United States is not satisfied with the Brazilian informatics policy and will watch carefully future attitudes of SEI which may hurt the interests of United States corporations. The sword of Damocles will be kept hanging over Brazilian exporters, as the best way to gain domestic allies against the implementation of Brazilian policies which could jeopardize United States interests in the near future.<sup>53</sup>

More recently, after the investigations under section 301 on Brazilian practices on pharmaceuticals were closed, new trade sanctions were threatened against Brazil if it does not properly safeguard the interests of the United States corporations in pharmaceuticals. The Brazilian official complaint was that: "They (the United States measures) not only try to coerce a party to change an internal policy which is perfectly consistent with internationally agreed instruments that regulate intellectual property rights. They also try to make that party mold its position on the Uruguay Round in accordance with the wishes of a more powerful trading nation".<sup>54</sup>

<sup>51</sup>Statement by Celia M. Sherbeck, Vice-President, Civil Aviation Aerospace Industries Association of America, Inc. to Section 301 Committee on Proposed Trade Retaliation Against Brazil, 18 December 1987.

<sup>52</sup>Statement by Volkswagen of America, Inc. to the Office of the United States Trade Representative concerning the United States response to Brazil's informatics policy, 17 December 1987.

<sup>53</sup>*Folha de Sao Paulo*, 18.6.88 ("EUA adiam retaliacoes às exportações brasileiras").

<sup>54</sup>International Foundation for Development Alternatives, (IFDA), *Special United Nations Service*, 28.7.88.

## VI

### Final remarks

Brazil is fighting hard just to stay in the same place. Clearly, however, staying in the same place within a dynamic and fast changing international economy means going backwards. Textiles, shoes, and small aircraft were taken as hostages indefinitely, to be exchanged for endless concessions in terms of intellectual property rights, investment in R & D, market reserve for local capital and indigenous technological capability.

The informatics industry is now aware that the use of mainframes has stopped growing, and they will eventually give way to networks of microcomputers of extraordinary capacity. Moreover, the future of the industry is not even in the hardware, which will become an inexpensive commodity, but in the engineering of software. Services and goods in informatics are part and parcel of the same industry, mutually conditioning their production.

In the new international economic order, the logics may be blurred by the intricacies of new jargons and the sophistication of the technologies involved. In reality, however, what used to be the colonial exchange of primary commodities for manufactured goods will be posed in terms of the unstable exchange of segments of the production organized by transnational corporations in return for the permanent presence

of these corporations in all the higher-value-added segments of the production of goods and services.

The 1984 Trade and Tariff Act is a summary of what the United States wants to see recognized in the GATT negotiations as the legal framework for regulating domestic policies dealing with, *inter alia*, services, investment and technology. If that legal framework existed, the National Policy on Informatics would be a still-born administrative measure, because it would have to be discussed by interested parties before it could be enacted.

Section 301 of the 1984 TTA, under which the United States Administration has acted in defence of the interests of its corporations, is a clear violation of GATT rules and principles. Yet the issue has never been officially brought before GATT. The United States are proud of the extent of their market. They know that their trading partners cannot go through costly litigations. Developing countries, and especially the NICs, will rather comply with the United States demands and settle the matter rapidly, because newly-industrializing and high-debt countries depend on their access to that market to produce the trade surplus required to service their debts with United States banks.