

# Winning the Battle to Lose the War?

Brazilian Electronics Policy Under US  
Threat of Sanctions

**Bastos, Maria-Ines**



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*Maria-Ines Bastos*



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## PREFACE

In this study, I analyse the conflict that developed from September 1985 to October 1989 between the United States and Brazil over the Brazilian protectionist policy for the electronics industry. The conflict's development and outcomes are analysed within a descriptive approach to bargaining. The conflict's evolution is described as a process by which a choice among a set of possible outcomes is reached through negotiation between the two players who exchange information, promises, and threats. My main arguments are (i) that the conflict's development led to the definition of a focal point within a feasible set of mutually satisfying outcomes which could be agreed on by interested groups; (ii) that the threat of economic sanctions was the key strategic tool that moved the players to define this focal point; (iii) that the effectiveness of the threat of sanctions was due to the economic losses it could have imposed and to its political effects upon uncommitted interest groups within the target country.

Regulation of intellectual property rights of software in Brazil was the focal point of the conflict. This outcome allowed the suspension of American threats of sanctions and led to the solution of the conflict. This solution was satisfactory to the Americans who had been fighting internationally for trade-related aspects of IPRs and for the adoption of the copyright regime for software. Although they had rejected it since the late 1970s, Brazilian authorities agreed in 1986 to adopt copyright protection for software because it satisfied interested parties and those uncommitted groups who pressed the government for a settlement to the conflict that could prevent economic sanctions. The conflict had a non-zerosum solution. Brazilian gains were cancelling the threat of economic sanctions, maintaining their protectionist policy for electronics for some more years, and little impact on the domestically controlled electronics industry. American gains were a wider access to the Brazilian IT market, softening of Brazilian opposition in GATT negotiations on new issues, and the international display of what could happen to any other country that tried to emulate the Brazilian policy.

Measures taken by the Brazilian government after the closing of the conflict have been to promote an immediate liberalization of the electronics market and to ensure that the protectionist policy ends in 1992. The suddenness of Brazil's current process of economic liberalization suggests that what Brazil fought to keep during the conflict has, now, a large chance of being lost.

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Archival research and interviews with Brazilian politicians, members of nongovernmental organizations in the IT area, and people who occupied central positions in the Brazilian state apparatus during the Brazilian 301 case were the source of much of the data analysed in this study. The list of persons interviewed and interview structure are presented in appendices III and IV, respectively.

Finally, I would like to thank CNPq and the Brazilian Senate for funding the research, the Dudley Seers Fund and the Institute of Development Studies for material support during the last stages of the study, and the Institute for New Technologies of the United Nations University, UNU/INTECH, for material support in the preparation of this book for publication.

# ABBREVIATIONS

ABES	Associação Brasileira das Empresas de Software (Brazilian Association of Software Vendors)
ABDI	Associação Brasileira de Direito de Informática (Brazilian Association for Informatics Law)
ABCPAI	Associação Brasileira de Controle de Processos e Automação Industrial (Brazilian Association for Process Control and Industrial Automation)
ABICOMP	Associação Brasileira da Indústria de Computadores e Periféricos (Brazilian Association of Computer and Peripheral Industries)
ABINEE	Associação Brasileira da Indústria Eletro-Eletrônica (Brazilian Association for the Electric and Electronic Industries)
ADAPSO	Computer Software and Services Association
AEA	American Electronics Association
AEB	Associação dos Exportadores do Brasil (Association of Brazilian Exporters)
APPD	Associação dos Profissionais de Processamento de Dados (Association of Data-Processing Professionals)
ASIC	Application Specific Integrated Circuit
ASSESPRO	Associação Brasileira de Empresas de Serviços de Informática (Association of Data-Processing Service Enterprises)
BNDE	Banco Nacional de Desenvolvimento Econômico (National Economic Development Bank)
CACEX	Carteira de Comércio Exterior (Foreign Trade Department of Banco do Brasil)
CAPRE	Comissão de Coordenação das Atividades de Processamento Eletrônico (Coordinating Commission for Electronic Processing Activities)
CBEMA	Computer and Business Equipment Manufactures Association
CCTCI	Comissão de Ciência e Tecnologia, Comunicação e Informática Informática—Câmara dos Deputados (Committee of Science and Technology, Communication and Informatics—House of Representatives)

CDE	Conselho de Desenvolvimento Econômico (Brazilian Council for Economic Development)
CEPAL	Comision Economica para America Latina y el Caribe (Economic Commission for Latin America and the Caribbean)
CNDA	Conselho Nacional de Direito Autoral (Brazilian Council for Authors Rights)
COBRA	Computadores e Sistemas Brasileiros SA (Brazilian Computers and Systems plc)
CNI	Confederação Nacional das Indústrias (National Federation of Industries)
CONCEX	Conselho de Comercio Exterior (Foreign Trade Council)
CONIN	Conselho Nacional de Informática (National Council for Informatics)
CPU	Central Processing Unit
CRUB	Conselho de Reitores das Universidades Brasileiras (Brazilian Council of University Chancellors)
CSN	Conselho de Segurança Nacional (National Security Council)
DEC	Digital Equipment Corporation
DECEX	Departamento de Comércio Exterior, Secretaria Nacional de Economia (Department of Foreign Trade, National Secretariat for the Economy)
DEPIN	Departamento de Política de Informática e Automação—Secretaria de Ciência e Tecnologia (Department for IT Policy and Automation—Secretariat for Science and Technology)
DIGIBRAS	Empresas Digitais Brasileiras S.A. (Brazilian Digital Enterprises plc)
DRAM	Dynamic Random Access Memory
ESNI	Escola Nacional de Informações (National Intelligence School)
EU	European Union
FDI	Foreign Direct Investment
FIESP	Federação das Indústrias do Estado de São Paulo (Federation of São Paulo Industries)
FINEP	Financiadora de Estudos e Projetos (Studies and Projects Financing Agency)
FNE	Federação Nacional de Engenheiros (National Federation of Engineers)
GATS	General Agreement on Trade in Services

GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GEICOM	Grupo Interministerial de Componentes e Materiais (Interministerial Group for Electronic Components and Materials)
GES	Grupo de Assessoramento para Exame de Similaridade (Advisory Group for the Assessment of Similarity of Software)
GNP	Gross National Product
GSP	Generalized System of Preferences
GTE	Grupo de Trabalho Especial (Special Working Group)
IBM	International Business Machines Corporation
IMF	International Monetary Fund
INPI	Instituto Nacional de Propriedade Industrial (National Institute for Industrial Property)
IPR	Intellectual Property Rights
IT	Information technology
ITAMARATY	Brazilian Ministry of Foreign Relations
LAN	Local Area Network
LSI	Large System Integration
MBI	Movimento Brasil Informática (The Brazilian Movement for Informatics)
MCT	Ministério de Ciência e Tecnologia (Ministry of Science and Technology)
MIC	Ministério de Indústria e Comércio (Ministry for Industry and Commerce)
MINICOM	Ministério das Comunicações (Ministry of Communication)
MINIFAZ	Ministério da Fazenda (Finance Ministry)
MITI	Japan's Ministry of International Trade and Industry
MNC	Multinational Corporations
NBM	Nomenclatura Brasileira de Mercadorias (Brazilian Nomenclature for Commodities)
NCR	National Cash Register Corporation
NGO	Nongovernmental Organisation
NICs	Newly Industrializing Countries
OECD	Organisation for Economic Cooperation and Development
OSI	Open Systems Interconnection
PBX	Private Branch Exchange

PLANIN	Plano Nacional de Informática e Automação (Plan for Informatics and Automation)
PMDB	Partido do Movimento Democrático Brasileiro (Brazilian Party for Democratization)
PSDB	Partido da Social Democracia Brasileira (Brazilian Social Democratic Party)
R&D	Research and Development
SBC	Sociedade Brasileira de Computação (Brazilian Computing Society)
SBPC	Sociedade Brasileira para o Progresso da Ciência (Brazilian Society for the Progress of Science)
SCSS	Special Commission on Software and Services
SCT	Secretaria de Ciência e Tecnologia (Secretariat for Science and Technology)
SECOMU	Seminário de Computação na Universidade (Seminar of Computation at the University)
SECT	Secretaria Especial de Ciência e Tecnologia (Special Secretariat for Science and Technology)
SEI	Secretaria Especial de Informática (Special Secretariat for Informatics)
SEPROESP	Sociedade dos Empregados em Processamento de Dados do Estado de São Paulo (Society of Workers in Data Processing in the State of São Paulo)
SERPRO	Serviço Federal de Processamento de Dados (Federal Data-Processing Service)
SNI	Serviço Nacional de Informações (National Intelligence Service)
SPA	Software Publishers Association
SUCESU	Sociedade de Usuários de Computadores e Equipamentos Subsidiários (Society of Computer and Subsidiary Equipment Users)
SUFRAMA	Superintendência da Zona Franca de Manaus (Manaus Free Zone Administration)
TELEBRAS	Telecomunicações Brasileiras (Brazilian Telecommunication Holding Company)
TNC	Trans National Corporation
TRIM	Trade-Related Investment Measures
UCC	Universal Copyright Convention
UNCTAD	United Nations Commission for Trade and Development
UNCTC	United Nations Centre for Transnational Corporations
UNESCO	United Nations Educational, Scientific, and Cultural

Organization

US

United States of America

USTR

United States Trade Representative

VLSI

Very Large System Integration

WIPO

World Intellectual Property Organization

# INTRODUCTION

From September 1985 to October 1989, the governments of the United States and Brazil were involved in a trade conflict over Brazil's information technology (IT) policy. Brazil's IT policy had evolved—like industrial development policies in many developing countries—to promote the development of a domestic electronics production capability. The two central elements of Brazil's IT policy—also called the 'informatics' policy—were the control of imports and of foreign direct investment. In September 1985, the US government initiated the conflict in accordance with Section 301 of the American Trade Act, which authorizes the executive branch to act bilaterally to combat other countries' policies considered harmful to American interests. The conflict thus became known as the 'Brazilian 301 Case'. This case is a noteworthy example of the complex interplay of domestic and international political constraints on economic and technological development policies in developing countries. It also serves to illustrate the current toughness of international relations in high-technology issues.

In this study, I examine how this conflict evolved, what were its immediate outcomes, and why these outcomes came about.

My argument centres on three main points.

1. Evolution of the Brazilian 301 Case is understood most clearly as a bargaining process to define a *feasible set* of mutually satisfying outcomes that could orient the negotiations, a *focal point* to which the expectations of an outcome for both players could converge, and a *win set* that could contain the outcome that might be agreed upon by the interested groups. Protection of intellectual property rights of software in Brazil was such a focal point in this conflict.
2. The American threat of economic sanctions was the central strategic tool that moved the players to define this focal point. In this case, sanctions were effective in both their *instrumental* and *expressive* components.
3. The effectiveness of the threat of trade sanctions in pressing Brazil to accept a solution was due not only to the potential economic losses that sanctions could have imposed, but also to the impact of these anticipated costs on the domestic balance of forces in support of the policy. I will argue that the effectiveness of sanctions was due to their effect on previously uncommitted interests groups, who thus 'tipped the balance' toward opposition to the policy.

Brazil's 'market reserve' policy limited the importation of IT goods and restricted market access for foreign investment in the production of some electronics goods and the rendering of IT services. The foreign trade side of the Brazilian IT policy complemented its regulation of investment. The trade restrictions were, nevertheless, in accordance with the General Agreement on Tariffs and Trade (GATT), which allows exceptions to the most-favoured-nation clause for balance of payment, infant industry, and national

security objectives. The policy aimed not only to establish a local electronics industry, but, primarily, to foster domestic technological capability in electronics. Local control of this dynamic industry was deemed to be the only effective way to internalize technological knowledge that would be increasingly costly if obtained from abroad.

The relatively free availability of technology for the production of microcomputers in the late 1970s and early 1980s, and the significant number of engineers and other university-trained researchers produced by Brazil's science and technology policy, facilitated the launching of Brazil's IT policy. Problems in the balance of payments lended support to the ideal of controlling importation of data-processing equipment.

Notwithstanding these technological and economic factors, political conditions were central to the establishment of the policy. Strong backing by a variety of domestic social groups united by the nationalist ideal of overcoming technological dependence legitimized such measures despite their high social costs. Insulation from direct social pressures in the executive branch of an authoritarian state helped to shield the policy from its major opponents, especially those of foreign origin. But the most effective protection against the policy's opposition was the fact that before the early 1980s the policy's successes, although impressive on a Brazilian scale, were very modest in international terms. Only after the 'boom' of microcomputer production in the Brazilian market in the early-1980s did access to that market become sufficiently attractive to induce potential exporters of products and capital to oppose the policy.

The policy produced a number of successful results. Production in Brazil's electronics industry grew rapidly during the 1980s, despite general economic stagnation. Overall production in the electronics industry, comprising 'professional' electronics, electronics components, telecommunications equipment, consumer or 'entertainment' electronics, and software reached US\$ 8 billion <sup>1</sup> in 1986, when the conflict was at its height. Production of computers and other data-processing equipment in Brazil rose from US\$ 860 million in 1980 to US\$ 2 billion in 1985 and US\$ 4 billion in 1989. Locally owned companies' share

1. In this book I use the North American definition of *billion* (i.e., a thousand million).

jumped from one-third of the whole Brazilian electronics industry in 1980 to 52 per cent in 1985 and 58 per cent in 1989. Employment of university-trained personnel reached 23,894 in 1989, representing an average annual growth rate of more than 22 per cent in the period 1981–89. <sup>2</sup> This has made the electronics industry the sector with the highest level of formal education in industrial employment in Brazil. The majority of this highly qualified staff has been absorbed by locally owned companies, which employed 75 per cent of them in 1989.

Despite these successes, many of the conditions that had favoured the establishment of the IT policy and the development of an electronics industry in Brazil changed in the late 1980s. The relatively free availability of information technology of the mid-1970s and early 1980s soon disappeared. Growing knowledge-intensity in production during the 1980s prompted technology-leading countries to battle to defend their proprietary rights over advances in knowledge in science and technology in order to guarantee the return of investment in research and development. They have fought for the establishment of legal

mechanisms to protect industrial and intellectual property rights in technology-follower countries with dispositions that could facilitate subsequent adoption of an internationally agreed global regime. This has been the case in electronics-based technology, particularly for semiconductor design and software. For software, copyright has been the preferred regime for the protection of intellectual property rights. United States government actions in this direction have also been linked to the large American trade deficit. Market access for American products and proprietary technology were at the centre of many cases of trade conflict between the United States and its trade partners during the 1980s.

At a domestic level, the economic and political situation also changed and affected the IT policy's development. Deficits in the Brazilian balance of payments, which had favoured the import control policy, were aggravated by the two oil crises and by the increase in international interest rates. These factors contributed to a huge foreign debt, whose negotiation has been made conditional on, among other requirements, liberalization of the electronics market. Economic crisis and the policies designed to overcome it were accompanied by a reduction in the availability of financial resources for investment in the electronics industry. Modernization of industrial production came to a standstill. And the users of electronics-based products, particularly in industry, felt the costs they had been bearing for the establishment of a domestically controlled electronics production capability were too high.

## 2. SEI 1991.

All of these factors combined to erode domestic social support of the policy from within and without the state apparatus. Negotiation of the foreign debt, and the needs to attract foreign investment and to accelerate the modernization of Brazilian industrial production were one factor. A second factor was the precarious political coalition of liberals and interventionists who formed the first civilian government in Brazil in more than two decades, and who pushed various segments of the administration to criticize the strictness of the IT policy. The restoration of democracy pushed the military and intelligence sectors to the back stage of the IT policy. The reduction of public resources for investment in science and technology in general, and particularly in electronics research and development, aggravated the disillusionment of Brazilian researchers with the IT policy.

It was in this environment of economic crisis, political instability, and erosion of public support for the IT policy in Brazil that the United States initiated the Brazilian 301 Case. American IT industrialists had opposed the Brazilian IT policy since it was established in the early 1970s. Initially, the policy's reserve of the domestic market for locally owned companies was limited to the production of mini- and microcomputers and their peripherals. In the early 1980s, however, protection was extended to a wider variety of IT goods and services. In launching their case, the Americans demanded withdrawal of Brazil's protectionist policy in the name of restoring most-favoured-nation treatment and fairness in international trade. The Brazilians fought, on the other hand, to maintain their policy, which was designed to develop domestic technological capability in electronics.

Various rounds of bilateral negotiations were needed before the nations reached agreement on the many contentious issues. The United States failed to achieve immediate

deregulation of foreign direct investment and IT goods importation in Brazil. However, legal protection of intellectual property rights of software and more liberal administrative treatment in the electronics industry were finally accepted by the Brazilians after the United States threatened to impose sanctions against Brazilian exports to the US market. Surprisingly, then, despite the asymmetry in structural power of the two governments, this case ended with an outcome that was far below the initial demands of the stronger player.

This clash with the United States was the most severe conflict the Brazilian government and society have ever confronted to maintain policies to protect local industry. The conflict sharpened the arguments of the IT policy's enlarged opposition; it also blocked the search within Brazilian society for ways to correct the policy's acknowledged imperfections and mistakes without dismantling it and risking the loss of its achievements.

After the case was closed in late 1989, Brazil's economic crisis deepened and the first democratically elected President took office, in March 1990, pledging to stabilize the economy and liberalize Brazilian markets. His initial measures related to the IT policy were to promote immediate liberalization of the electronics market and to ensure that the protectionist policy would end in 1992. At the end of June 1991, the IT policy's alternations proposed by the Brazilian government were being discussed in the House of Representatives, where some representatives of opposition political parties were fighting to improve the policy without dismantling it. Brazil had won a battle when some concessions made in the negotiations of the Brazilian 301 case prevented the collapse of the whole IT policy. There is, now, a large chance that it will lose the war.