Industrial policy and development

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This article examines some theoretical approaches in support of industrial policy in Brazil, with special emphasis on the neo-Schumpeterian/evolutionary approach. This approach is applied to the analysis of some satisfactory experiences in the field of industrial policy and economic development in Brazil up to the end of the 1970s, and some unsuccessful attempts in this field from the 1980s on. Lastly, it evaluates the industrial policy applied by the government in the 2003-2006 period, noting that, in spite of some positive aspects –the emphasis on innovation, clear goals and a new institutional organization– that policy has some weak points, such as its incompatibility with macroeconomic policy, lack of coherence between economic instruments, shortcomings in infrastructure and in the science, technology and innovation system, and lack of coordination and political will.

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I

Introduction

One of the most characteristic aspects of the lag in the economic development and also, by extension, the social development of Brazil has been the poor performance of industry in the last 25 years. This reflects the various problems faced since the 1980s in the practical implementation of industrial policy. Although some official documents on industrial policy prepared between the mid-1980s and the mid-1990s were publicly announced, they did not come to be put into effect, except for some programmes or policies with specific objectives (reform and programmed reduction of customs tariffs, temporary protection for some industries, quality promotion programmes, etc.) which were not sufficient in themselves to boost industrial development.

In the present study, we seek to resume the debate on industrial policy in Brazil in line with an approach which: i) discusses the theoretical bases guiding the drafting and implementation of this type of policy; ii) uses those bases to explain in general terms the reasons for the positive earlier experiences and the unsuccessful attempts to apply industrial policy as from the 1980s, and iii) evaluates present industrial, technological and foreign trade policy in terms of its value as a development policy.

II

Theoretical bases of industrial policy

The controversy on the definition and scope of industrial policy is due largely to the different positions regarding its theoretical bases. Some authors with a liberal background resort to formal theories to justify intervention through industrial policies as a way of correcting market failures or imperfections – in such matters as externalities, public goods, uncertainty, insufficient or biased information, and so on – under the hypothesis that the equilibrium of the economy is less than optimal, and on the basis of assumptions on the substantive rationality of agents behaving in a maximizing manner, fixed industrial structures, and knowledge available as a free good. According to this point of view, industrial policy is of a purely reactive and restricted nature, aimed specifically at correcting imperfections in the market, and should be applied horizontally: i.e., it would not be selective as regards sectors or activities.[1] Even so, intervention would only be justified when its benefits were not less than its costs in terms of government (or bureaucratic) failures and rent-seeking.[2]

The neo-Schumpeterian authors and supporters of evolutionary economics, however, while not rejecting formal theories, base their views above all on rigorous observation of economic phenomena, which constitutes what Nelson and Winter (1982) call appreciative theory.[3] When combined with

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[1] With a good deal of irony, Dosi (1988, p. 119) says with regard to the normative model based on the idea of market failures that "these 'imperfections' of the real world delimit the domain of institutional intervention, which –it is claimed– should make the world more similar to the theory".

[2] This argument is in opposition to the new institutional economics of State intervention, which holds that the cost of information is not specific to the government and that profit-seeking is necessary in order to encourage innovation. For a good summary of this debate, see Chang (1994, chapter I).

[3] As described in the paper by Nelson (2004) and in the lecture by the same author organized by the Office of the Rector of the State University of Campinas (UNICAMP), given at Campinas on 16 March 2005.

Schumpeter's views on the strategic role of innovation in economic development and the formal theories of evolutionary economics, this approach discards the equilibrium hypothesis. In line with more realistic assumptions that agents' behaviour is based on limited (or bounded) rationality and that knowledge is predominantly tacit or idiosyncratic, the neo-Schumpeterians hold that technologies, business and industrial structures and institutions in the broad sense –including institutions providing support for industry, the infrastructure, standards and regulations– coevolve , and that their motive force is innovation.[4] According to this theory, industrial policy should be active and wide-ranging and should be aimed at industrial sectors or activities which foment technological change and at the economic and institutional environment as a whole, which conditions the evolution of business and industrial structures and the organization of institutions, including the establishment of a national innovation system. This determines the systemic competitiveness of industry and promotes economic development.[5]

This second approach is more suitable for the formulation and implementation of an industrial policy as a development strategy, and its broad scope implies the need to make industrial policy compatible with macroeconomic policy; to establish goals; to link together instruments, rules and regulations in line with the objectives set; to coordinate the progress of the various infrastructures (physical, scientific, technological, innovation-related and social) in synergy with the industrial policy adopted, and to organize the system of public institutions and representative private-sector bodies which must interact in order to put it into practice. Although the need for such broad-ranging actions is evident in the light of the fundamental bases of neo-Schumpeterian/ evolutionary theory, we nevertheless feel that it is important to summarize the main points.

It is generally recognized that, as a result of the management of the two basic prices of the economy –interest rates and the exchange rate– and of the level and structure of taxation, macroeconomic policy may come into conflict with a development strategy based on an industrial policy. It is not recognized to the same extent, however, that the latter policy can also affect macroeconomic objectives: for example, through increases in productivity. It is important that industrial policy should not become unviable as a result of very restricted or unstable macroeconomic policies. As Corden (1980, p. 183) says, "the more disturbance there is on the macroeconomic side, the more industrial policy is likely to become short-term oriented".[6] In various senses, industrial policy is a bridge between the present and the future, between existing structures and institutions and those which are still in the process of formation and development. Although it can be an important instrument for combating uncertainty, this cannot be eliminated altogether. If the macroeconomic environment continues to be marked by very pronounced instability, industrial policy will probably lose much of its potential and vigour. When there is uncertainty and basic indetermination about the relatively distant future but the immediate situation seems relatively stable, the structuring and transforming dimensions of industrial policy lose importance in the eyes of the agents, who concentrate above all on their own short-term objectives.

Although the establishment of goals is undoubtedly the most controversial aspect of industrial policy and is the favourite target of its critics, it is of fundamental importance in an industrial strategy driven by innovation and guided by technological and structural changes in firms and industries. The detractors of industrial policy criticize in particular interventions which involve the selection of "winners" or a "winning industrial structure", which corresponds to a mistaken interpretation of the concept of industrial policy. Such policy does not involve the replacement of market mechanisms with bureaucratic decisions but, on the contrary, is the result of "cooperative efforts by the public and private sectors to understand the nature of technological change and to anticipate its likely economic effects".[7] The political scientist Chalmers Johnson, whose classic study on Japanese industrial

[4] See Nelson and Winter (1982), Possas (1996), Dosi (1988) and Dosi and Kogut (1993).

[5] With regard to the concept of systemic competitiveness and industrial policy, see Possas (1996). This concept is also implicit in the work by Fajnzylber (1990) on changing production patterns with equity in Latin America.

[6] Although Corden's text (1980) corresponds to a specific period and problem –the adoption of positive adjustment-oriented industrial policies, as against purely defensive policies, in the crisis which affected the level of employment in the developed countries in the 1970s– his instructive analysis of the relations between macroeconomic and industrial policies shows that there are industrial policy ingredients in macroeconomic policy, that the latter affects the objectives of industrial policy, and that in turn industrial policy affects macroeconomic objectives.

[7] See Johnson (1984, pp. 9-10) and also Rodrik (2004).

policy[8] was a notable contribution in the field, is perfectly clear on the establishment of goals, asserting that: "Government does not make these decisions so much as ratify and underwrite them. Industrial policy becomes a way to evaluate their economic as well as their scientific significance. Targeting thus does not mean the promotion of technologies that are unlikely to develop at all on their own; it means, rather, helping them rapidly to achieve the necessary economies of scale and manufacturing efficiency without which they can never become internationally competitive" (Johnson, 1984, p. 10). Obviously, some of the goals may turn out to be failures, but this is a risk which must be run in all activities, in so far as they are subject to uncertainty. The critics of industrial policy exploit the fact that the failures are there for all to see, whereas it is harder to prove with arguments that cases where good results were obtained would not have been successful without government support (Johnson, 1984, p. 10).

The success of industrial policy as a development strategy centered on innovation also depends on the difficult task of linking up instruments, rules and regulations. It is these instruments for the implementation of industrial policy which create the patterns of economic signals, regulate the incentives for and restrictions on innovation, and make it possible to harmonize the activities of profit-seeking enterprises with the objectives of industrial policy designed to promote development and competitiveness.[9] The aim is to manage the various instruments –the system of protection, financing, export promotion, fiscal incentives, defence of competition, patents law, etc.– in a harmonized way, without any ambiguities regarding the signals given to the agents, and in keeping with the objectives of the industrial strategy. This can be of fundamental importance for the success or failure of the strategy. Thus, for example, contradictory movements of the exchange rate and customs tariffs (or other instruments of the protection system, including export promotion), financing which is insufficient or has priorities different from those laid down in the industrial policy, fiscal incentives with objectives incompatible with those of industrial policy, or legislation which gives rise to uncertainty on the competitive environment and the possibility of making use of the benefits of innovation, can all distort the desired distributive effects and prevent the industrial policy from acting as a development strategy.[10]

Another requisite for the success of the strategy is to coordinate advances in the field of infrastructure with the implementation of industrial policy, especially when the strategy is one of technological catching-up. Although infrastructures are great sources of externalities, many critics and even some supporters of the idea of industrial policy consider that infrastructures are outside the ambit of such policy.[11] As a development strategy, and above all because of its emphasis on innovation, however, industrial policy must necessarily include the infrastructures as a policy variable. Dosi (1988) refers to the "organization of externalities" and the "creation of context conditions", consisting of the provision of efficient economic infrastructure services and the development of the science, technology and innovation system so that it not only includes training and research centres but also institutions which establish a relation between scientific and technological advances and their economic exploitation by enterprises. The need to organize the externalities of the economic infrastructure is clear: it must be ensured that they really are externalities and not external hindrances or diseconomies for enterprises. The conditions regarding the science, technology and innovation system are also of fundamental importance for the innovation process. No knowledge-intensive industry can grow without the support of a solid training and research system and various types of specific training (often the result of a long learning process) and without the simultaneous

[8] See Johnson (1982).

[9] In a paradigmatic article in which he seeks to create a broad policy framework within the neo-Schumpeterian/evolutionary approach, Dosi (1988) suggests five variables on which policies can act: the capabilities of the science and technology system, the capabilities of the economic agents in the search for new technologies and forms of organization, the patterns of economic signals, the forms of market organization, and the incentives, stimuli and constraints facing the agents in their adjustment and innovative processes .

[10] Dosi (1988, pp. 130-131) rejects Ricardian distributive efficiency and asserts instead that the distributive options must reflect the different technological opportunities associated with different products and sectors, in order thus to attain what he calls Schumpeterian efficiency, that is to say, technological dynamism as an effect of the distribution model and the efficiency of growth, i.e., "specialization in goods with high income elasticity of demand".

[11] As, for example, Chang (1994, chapter 3), who considers that broad definitions overload the concept of industrial policy and prefers instead the usual definition of selective industrial policies.

development of the synergies, standards, models and regulations typical of its institutional complexity.[12]

Lastly, and because of all the foregoing, institutional organization in the strict sense is indispensable for putting industrial policy into effect. On the one hand, coordinating or executive public institutions must be established, while on the other hand it is necessary that there should be bodies representative of the enterprises or other interest groups involved. The organization of the first-named must be flexible and responsive and must be linked up and coherent with the objectives of industrial policy. This means that these institutions cannot be run in line with the interests of the bureaucrats working in the corresponding area, nor can they be swayed by special interests (Chang, 1994, chapter 1; Rodrik, 2004, section III). The bodies representing enterprises and other interests must be legitimated and recognized as suitable interlocutors in policy formulation and implementation.

This debate touches on two central aspects of any strategy based on industrial policy: political power and coordination. In turn, the political aspect is divided into two main points. Firstly, and above all else, the adoption of an industrial policy as a development strategy must be the subject of a political decision. This is what Johnson (1984, p. 7) means to say when he asserts that industrial policy is above all an attitude, and only afterwards a technical question. Secondly, the strategy must be headed by an indisputable political authority. Rodrik (2004, pp. 19-20) suggests that it should be headed by a minister, the Vice-President, or even the President of the Republic. This would thus place industrial policy at the summit of economic policy, ensure the necessary links between the executing institutions, and make possible better coordination of activities.

The other aspect refers to the coordination which is an essential element of industrial policy, as distinct from the decentralized coordination carried out by the market mechanisms. In the latter case, the measures applied through industrial policy would be a form of *ex post* coordination, in response to market failures or imperfections. This normative model, however, does not take into account the phenomena characteristic of the dynamic world of technological evolution, in which "lato sensu institutional factors appear to shape the constitution of behavioural rules, learning processes, and patterns of environmental selection, the context conditions under which economic mechanisms operate –in general, and *a fortiori* with reference to technological change" (Dosi, 1988, p. 138). Consequently, according to the neo-Schumpeterian/evolutionary approach, industrial policy is seen essentially as a form of *ex ante* coordination.

Two important observations may be made regarding this form of coordination through industrial policy: firstly, this is a form of strategic collaboration between the government, enterprises and private sector entities in the light of the objectives of industrial policy, rather than coordination centralized at the level of the State.[13] Secondly, it involves the creation of specific institutions, in the form of collegiate bodies, as consultative, deliberative and decision-making agencies. Rodrik (2004), for example, suggests that these institutions should be public/private bodies structured as coordination and deliberation councils organized at the national, regional and sectoral levels. Although this author –in line with the industrial policy approach adopted– proposes that such councils should be places for the exchange of information and social learning, the complexity of the dynamic world described by Dosi (1988) makes it necessary for them to have a more ambitious mission and to function in effect as channels for the interaction of public-private activities and the formulation and implementation of a development strategy focused on industry and innovation.

Dosi (1988) considers that a strategy of this type makes it possible to modify the systems of comparative advantages which are determined endogenously by the evolution of international markets and –perhaps even more important– it can set in motion a learning process which can boost economic and social development.[14]

[12] Among the most common examples of this are the electronics industry and its synergies with telecommunications, information-processing equipment, transport equipment and consumer durables; the pharmaceutical industry, especially as regards its main assets, with their solid scientific basis and their relations with the health system, and the aircraft construction industry, with its technical safety standards.

[13] Or, as Rodrik (2004) suggests, with a view to solving problems identified by those actors in the productive sector of the economy. This approach is a compromise between industrial policy guided by market failures and that which places the emphasis on innovation, in that it proposes that the government and the private sector should interact to identify problems and find solutions to them.

[14] With regard to the industrial policy applied in Japan after the war, which is seen as a showcase example of success in change and development, Dosi (1988, p. 142) says that "One decade after the end of the Second World War, no economist would have suggested that electronics was one of the Japanese comparative advantages. Now it certainly is. If one would have

Unlike what neoclassical theory claims, development is not the pure and simple result of the accumulation of physical and human capital, but also, and above all, the result of learning new technologies and how to master them.[15] Nelson (2004) says that technological updating calls for innovation, and the capacity for innovation involves adopting and mastering ways of doing things which have already been in use for some time in the advanced economies but which are new for the country or region which is trying to "catch up".

III

Brazilian industrial policy in the recent past

There seems to be no doubt that the rapid industrialization of Brazil in the period between the end of the war and the end of the 1970s was propelled by industrial policies. In that period, industrialization became an accepted part of the political agenda and economic policy, some political actors were strengthened, and other new ones arose –industrial associations, unions of employers and workers, and regional and sectoral bodies– while economic policy reflected the new political setting. Nationalist developmentalism and State intervention prevailed, bringing together the political forces and the economic interests of the industrialization project. The decision in favour of industrial policy and the manifestation of political leadership were reflected in particular in two events: the plan to attain a series of goals adopted under the Kubitschek government and implemented by industry-level executive groups with the participation of the private sector, and –under the dictatorship– the implementation of the second National Development Plan under the authoritative direction of the Economic Development Council. At the same time, however, albeit intermittently, there was a corresponding process of evolution of technologies, economic structures and institutions throughout the period in question.

The goals pursued were established above all in the light of balance of payments problems: import substitution and, in the 1970s, an increase in the export of manufactures. In this sense, industrial policy was mainly concerned with building up sectors so as to make the industrial structure converge with the structural model of the industrialized economies, based on the engineering and chemical industries.[16] At the same time, efforts were made to create a national innovation system –the National Scientific and Technological Development System– and to improve the economic infrastructure, first in the areas of energy and transport, and later of telecommunications.[17] The firm establishment of the industrial structure and the infrastructure led to the

taken the relative allocative efficiency of the different industrial sectors thirty years ago as the ground for normative prescriptions, Japan would still probably be exporting silk ties. In a sense, the use of comparative-advantage criteria as the final and sole ground for normative prescriptions is a luxury that only countries on the technological frontier can afford (…)".

[15] Nelson and Pack (1999) analyse these learning processes on the basis of what they call "assimilation theory", in contrast with "accumulation theory". See Kim and Nelson (2005, Introduction) and Nelson (2004).

[16] These two industries accounted for between two-thirds and three-quarters of the output of the most highly industrialized countries (Germany, the United States and Japan). Next came France and Italy (with a proportion of around three-fifths), while in Brazil the proportion was slightly over 50%.

[17] The pioneering institutions of the National Scientific and Technological Development System were the National Council for Scientific and Technological Development (CNPq) and the Coordination for the Enhancement of the Capability of High-Level Personnel (CAPES), set up in the early 1950s. The Technical and Scientific Development Fund (FUNTEC) of the National Economic and Social Development Bank (BNDES) and the Fund for the Financing of Studies and Projects (FINEP) were formed in the 1960s. Subsequently, research and post-graduate training in the universities was structured and measures were taken to set up research and development institutes and centres in State enterprises, together with specialized laboratories and other research institutions, including some in the field of agriculture, which were the origin of those now considered to be examples of success in the international market. In those days, however, there was not yet proper interaction with the productive sectors, and this is still considered to be insufficient even today.

organization of the economic power around the well-known triple axis of the State (infrastructure and basic industries), foreign capital (fast-growing industries) and domestic capital (traditional industries and some segments of the fast-growing industries).

Throughout this period there was also an ongoing process of institution-building. The State improved its facilities in terms of organization and economic coordination by creating planning bodies, programmes of goals or sectoral plans, institutions and policies in the areas of public finance, promotion and foreign trade, specific norms and regulations on prices, public utility service charges, wages, economic concentration, technology transfer and foreign direct investment, among others. The coordination of this institutional machinery and the respective instruments was somewhat deficient, however. Throughout the period there was indiscriminate and excessive tariff protection, equally indiscriminate provision of fiscal and financial subsidies, tardy emphasis on exports, insufficient attention to training for innovation, and serious regulatory distortions affecting investments, prices, public utility charges and wages. Something similar occurred with macroeconomic policy: although this was openly expansive, except in the first few years of the dictatorship, it allowed various discriminatory exchange rate regimes, often with subsidies for imports and penalization of exports, until the system of mini-devaluations was adopted. Likewise, the tax structure was archaic and strongly regressive, and interest rates contained subsidies that kept the private financial system in a state of under-development, at least until monetary correction of financial assets was adopted.

Even so, industrialization and economic growth gathered pace and began to change the pattern of international insertion of the country, which ceased to be merely a supplier of agricultural and agroindustrial commodities and gained increasing importance as a supplier of manufactures and semi-manufactures. This was not reflected in social improvements, however, and on the contrary, social problems got worse. The concentration of the population –a phenomenon inherent in the process of industrialization – increased in urban areas, but there was no concomitant change in the educational system and the training and skills of the labour force. Because of this and of the weakening of the trade unions, real wages went down and there was a deterioration in income distribution, which favours current growth but is extremely bad for the future of the country.

It might be considered that the right moment to reform the industrial policy model was the transition from the 1970s to the 1980s. The emphasis on the construction of sectors should have been reduced, the end of import substitution as an industrialization process should have been acknowledged, and more qualitative goals should have been set, aimed at promoting innovation, technological development, quality and productivity.[18] Such changes began to be considered when there was an attempt to reform foreign trade and fiscal incentive policies in 1979. Efforts to outline a policy for the development of industries representative of the new information technologies began with the creation of the Special Secretariat for Informatics, which gave rise to the Informatics Act, promulgated in October 1984.[19] The process was cut short, however, by changes in the authorities responsible for running the economy at the end of 1979 and by the macroeconomic crisis of the early 1980s.

Thus, instead of the hoped-for changes, as from 1981 the historical process was reversed, so that technologies and business, industrial and institutional structures in the broad sense (including the corresponding policies) ceased to evolve and even fell back, the infrastructures deteriorated, and the National Scientific and Technological Development System was abandoned.[20] In the political and economic policy field, developmentalism and State intervention lost ground and the power and leadership exerted up to 1979 by the Economic Development Council, albeit in an authoritarian manner, were weakened. In the Federal Government, there was no longer an attitude favouring industrial policy and, on the contrary, macroeconomic stabilization objectives now prevailed. From then on, stabilization policy, monetary policy objectives, and the exchange rate policy of the real prevailed over considerations of industry and the productive sector as a whole, making industrial policy unviable. The various attempts to formulate and apply an industrial policy were frustrated or only partially implemented.[21]

[18] In the 1970s import substitution as a source of industrial output growth was already less important (8.3%) than the expansion of exports (14.4%). The dynamism observed was due to domestic demand (77.3%). See IPEA (1985, p. 209).

[19] For a summary of the first measures proposed, see Suzigan (1979).

[20] Between 1979 and 1984 the resources of the National Scientific and Technological Development Fund were cut by more than two-thirds.

[21] These attempts were made late in 1984 and early in 1985 (after the election of the "New Republic" administration); in 1988, during the Sarney administration (the New Industrial Policy); at the beginning of the Collor administration (the Industrial and Foreign Trade Policy – PICE), and at the beginning of the first term of Fernando Henrique Cardoso (1995).

All forms of coordination were abandoned. The sequence of plans for economic, scientific and technological development was interrupted, and sectoral goals and programmes were deactivated. The policy instruments which had previously helped to promote industrialization began to be administered in line with the objectives of macroeconomic stabilization. Up to the end of the 1980s, non-tariff barriers restricted access to imports even more than before. Some exports were subsidized, public investment in infrastructure was reduced, public budgets for financing industry and for the National Scientific and Technological Development System were drastically slashed, development incentives were reduced, and controls on prices and public utility charges were made tighter. There were some timid signals of change between 1988 and 1989 as a result of tariff system reform, but this finally proved to be meaningless because the prevailing protection was due to non-tariff barriers and new incentives for investment and technological development established under the New Industrial Policy. Meanwhile, the failure of the stabilization policy designed to cope with inflation put paid to any hopes of resuming industrial development.

The 1990s brought major changes, both good and bad. Although industrial development occupied a place in economic policy once again for a while, the attempt to implement an industrial policy within the framework of the Collor Plan failed, and the only element of the Industrial and Foreign Trade Policy (PICE) actually implemented was the liberalization of foreign trade. The multilateral trade agreements signed within the ambit of the World Trade Organization (WTO) and the subsequent revaluation of the real completed the trade liberalization process. In addition, there was greater openness to foreign direct investment and the State ceased to act as an industrial development agent. The industrial promotion system was abandoned, and a broad process of privatization of enterprises and infrastructure was begun. This radically changed the economic environment and exposed industry –already weakened by many years of stagnation– to the predatory competition of imports and foreign investments. As a result, there were intense de-nationalization processes, conflicts between the State and employers' organizations, strong sectoral pressures for protection (from the automotive sector, for example), a crisis of federalism, due to the individual states' policies designed to attract investments to fill the gaps left by industrial policy, sluggishness of industry, which was struggling to adapt to the new context, rising unemployment, and a weakening of the trade unions. Currency stabilization caused marked economic instability –especially at the external level– and greater uncertainty and risks, due to the volatility of exchange and interest rates and the predominance of the financial sector over the productive sector. All this consequently gave rise to a vicious circle.

Industry carried out a drastic adjustment process. Firms reduced their operational structures and sought to improve the quality of their products, to increase productivity and to direct their activities towards exports, while production structures were reduced through the dismantling of chains of production –especially in the electronics, capital goods and chemicals and pharmaceutical sectors– and the deactivation of high-technology segments. The share of manufacturing in the gross domestic product (GDP) went down by several percentage points. A new power structure emerged, made up of a regulatory State, the predominance of foreign capital in some industries which were of strategic importance from the technological development standpoint, and domestic private groups which had been restructured but had only limited financial capacity and few production synergies, especially as regards new technologies.

In the late 1990s and early 2000s, the country was still without an industrial policy, and any attempts to adopt political decisions to formulate and implement such a policy came up against various obstacles:

(i) It was necessary to overcome the ideological bias against industrial policy which had grown up after years of predominance of neoliberal economic thinking, which had installed itself largely because of the exhaustion of the old intervention models typical of the import substitution phase.
(ii) Macroeconomic policy (interest and exchange rates, tax structure) should be less insensitive to industrial development aspects and less hostile to the need to take measures for the promotion of industry.
(iii) The institutional organization of the public sector was not effective for the promotion of industrial development, since it had changed very little with respect to the previous normative model and its interactions with the private sector were very limited and subject to discussions in outdated sectoral chambers and forums on competitiveness which had no real influence.
(iv) Public financing of investments in industry was limited by budget cuts and by the emphasis that the National Economic and Social Development

Bank placed on privatization operations and those of a primarily financial nature.

(v) The National Scientific and Technological Development System had been weakened by years of budget cuts, despite the revitalization brought about by the Sectoral Funds as from 2001-2002.

(vi) There were no links between policy instruments in the fields of foreign trade (within the new framework of multilateral trade agreements and regional economic integration accords), fiscal incentives (federal, state, regional and sectoral), and competition and regulation.

(vii) After many years of cuts in public investment, and in spite of the privatization operations, the economic infrastructure had seriously deteriorated, and there were cases of inefficiency that generated negative externalities for firms.

(viii) Social problems had worsened: there was growing unemployment (especially in metropolitan areas), increased poverty (only momentarily relieved by the Plan Real in 1994-1995), worsening income distribution, crises in the public health and social security systems, and the educational system was lagging behind what was desirable in a democratic and republican society in the age of information and communication technologies.

These were the circumstances conditioning the industrial policy option at the beginning of 2003, and it was in this framework that the present Industrial, Technological and Foreign Trade Policy (PITCE) was formulated and implemented. In the following section, this policy will be evaluated as a development policy.[22]

IV

Brazil's Industrial, Technological and Foreign Trade Policy as a Development Policy

The implementation of PITCE at the end of 2003 is a positive event in itself, because it shows that the authorities thus finally overcame –at least in part– the bias against industrial policy which had prevailed for so long, and also because it shows that there was a political decision in that sense, even though we are still far from solving the wide range of problems raised by a development policy which is industry-centered, innovation-driven, and guided by technological and structural changes in firms and industries, in line with the neo-Schumpeterian/evolutionary approach. What is notable is that industrial policy once again came to occupy a place on the political and economic policy agenda.

In addition to some virtues, however, PITCE has many defects which make it hard for it to operate as a development policy. Its virtues include its goals, the emphasis on innovation and, to a certain extent, its recognition of the need for a new form of institutional organization to put policy coordination into effect. Its defects are due to its incompatibility with macroeconomic policy (especially as regards interest rates and the tax structure), the lack of links among the instruments involved and between those instruments and the demands of enterprises, the precarious nature of the infrastructure, the shortcomings in the science, technology and innovation system, and the fragility of the way the industrial policy process is run and coordinated. The following sections give a brief summary of these points.

[22] We do not aim to make a formal presentation of the Industrial, Technological and Foreign Trade Policy here or to evaluate its practical application. For updated information on the measures and programmes involved, see the document by the Ministry of Development, Industry and Foreign Trade (MDIC, undated). The newspaper *Valor Econômico* published a series of five reports on industrial policy, by the journalist Ricardo Balthazar, which include data and opinions that will help to understand the context of PITCE.

1. PITCE: its goals, and its emphasis on innovation and on a new form of institutional organization

As mentioned earlier, industrial policy is essentially a means for the coordination of strategic actions of the government and enterprises with the aim of developing activities that induce technological change or solve problems identified by those actors in the productive sector of the economy. This policy is not limited to the traditional industrial sector, as shown by some activities in which Brazil has reached international competitiveness, such as agribusiness and aircraft construction. The creation of the Brazilian Agricultural Research Corporation (EMBRAPA) and its interaction with enterprises in the agricultural sector, and the establishment of the Institute of Aeronautical Technology, which gave rise to the Brazilian Aircraft Corporation (EMBRAER), may be considered as typical industrial policy actions. The focus on industry is undoubtedly the most important aspect, however, because industry traditionally comprises most of the sectors that spread innovation and technical progress. Part of the innovations and production advances that many sectors manage to attain is incorporated in machinery and equipment, which, together with inputs of different characteristics and qualities, provides the means of development for so many activities. The services sectors also make a considerable contribution to change and development in many economic activities. Many of these services arose in industry, where they grew into autonomous activities classified under the general heading of "services". The informatics sector and software-related activities are the most obvious example of the way in which services perfect industrial processes and allow them to reach degrees of sophistication unimaginable under conventional methods. Consequently, industrial policy must necessarily be of broad scope, and it may be said that it is not just a policy for industry but also a policy for structuring, restructuring, improving and developing economic activities and the process of generation of wealth in general. If industry is the hub of that policy, it is because of its capacity to cause the effects to spread to the economic system as a whole.

In this sense, the selection of the activities which are to be the subject of industrial policy is strategic and must be the outcome of collaboration between the government and enterprises. The owners of enterprises, more than anyone else, know how to identify opportunities, but because of uncertainty about the expected profitability, they are often not willing to run risks: in this case, government support is of fundamental importance, and industrial policy is the most suitable form of coordination. Both these actors must collaborate within the framework of PITCE to identify the opportunities for change that the sectors generating technical progress offer to the rest of the economy.

It must be borne in mind, however, that there are now many more restrictions on the application of industrial policy than in the past. These are due to multilateral and regional trade and economic integration agreements; to the participation of big domestic and foreign enterprises which enjoy greater freedom of action and are less subject to the "dictates" of the State and public policies; to the macroeconomic policies themselves, and to the reduced willingness of society to bear the costs of policies, especially when they affect consumption and reduce the purchasing power of individuals and families or the competitiveness of the other enterprises.

All this does not represent a total impediment to the application of an industrial policy, however. In the case of international commitments, industrial policy can still be applied by using the arms provided by the agreements themselves, as for example in the case of the measures adopted by the Brazilian government within the context of the WTO to combat United States subsidies and other unfair trade practices. Moreover, as well as being even more necessary than in the past, the current policies are different and have more ambitious objectives in qualitative terms. Whereas before they were limited to the promotion of specific sectors, now they have much more qualitative and refined objectives: building up sectors and guiding them in particular directions is no longer the only way of ensuring that the policies are sustainable.

The differences compared with the past are very marked. Industrial policies and policies aimed at the overall development of Brazil were combined for half a century, and both of them were highly successful: they produced a diversified and integrated industrial system which was almost complete in terms of its components, and they led to extraordinarily high growth rates of GDP, income and employment. There came a time, however, when they ceased to be functional, and efforts are now being made to restore this lost functionality through the present Industrial, Technological and Foreign Trade Policy. The aim is not to put into place a new industrial structure but to endow the existing one with renewed and sustainable vigour.

This movement towards new objectives is largely dependent on the definition of a common vision, shared by the actors in the economic process and their public interlocutors. The construction of this common approach must necessarily be a gradual and ongoing process. It calls, among other things, for close collaboration, the exchange of information, the establishment of mixed forums, the continuity of its participants, the explicit and deliberate expression of points of divergence, and a determined search for convergence and the definition of the successive steps to be taken. It is a gradual process whose main result will be the firm establishment of a climate of mutual confidence and respect. Governments, ministries, public institutions and government agencies, on the one hand, and firms, business associations, trade unions, federations and confederations, on the other, have essential objectives which are not identical but can undoubtedly be combined to achieve results in keeping with the missions of each of them, which are different but compatible and complementary.

The main restrictions on the formulation and implementation of an industrial policy do not come from the outside but from within. The problem is not so much to know if the WTO allows or forbids a particular measure, but to find alternatives which are acceptable to Brazilian society within the available international space (which diplomacy is seeking to expand). Let us take the example of one of the biggest successes of Brazilian industrial policy in the twentieth century: EMBRAER. Up to the end of the 1980s and the early 1990s, this was still considered by many to be a company that was somewhere between downright failure and dubious success. To some, it was yet another of those abortive initiatives that Brazil persisted in taking, running counter to what was really needed and wasting opportunities. This criticism is now totally unjustified, however, and the silence of those who made it (who even seek to avoid being identified with their previous positions) is very understandable. The success of EMBRAER in the 1990s has both recent and more remote antecedents. The most recent date back to the 1950s, when the institution for training high-level personnel in this sector was formed, while the more distant antecedents go back to the 1920s and 1930s, when the main theses on Brazil's needs and possibilities in the aircraft industry were formulated. There was no less than half a century between the initial seeds and their fruits: a period in which substantial resources enriched the fertile ground of ideas and capabilities until finally aircraft became an important item in the country's export pattern.

Would such an enormous Brazilian success, which restored our self-esteem and widened the range of opportunities and prospects, be possible today? Would we be willing to wait so long, without interrupting our efforts and investments, until the time came to harvest the fruits of our endeavours? The most likely answer to both these questions is "no". For this reason, we must temper the policies we wish to implement with the necessary doses of realism that society imposes on us. The eventual costs of an industrial policy must be measured against less distant benefits. In addition to the costs –which are generally easy to see– society must also be aware of the possible benefits of such a policy –which are generally not immediate– and its indirect effects, which are often forgotten. How much of the present prosperity of the Vale do Paraíba is due to the transfers of technology and human capital made by the Institute of Aeronautical Technology (ITA) and EMBRAER?

For these reasons, the orientation of industrial policies towards new objectives, which began in the last few months of the administration of Fernando Henrique Cardoso with the establishment of the Sectoral Funds and the proposed Innovation Act and was consolidated with the Industrial, Technological and Foreign Trade Policy (PITCE) in the first few months of the present administration, may be considered a positive event. Excessive emphasis ceased to be placed on the trade balance, especially in terms of import substitution, and export promotion gradually gained ground as a trade promotion policy, together with a tendency to pay more attention to diplomacy (of which the understanding with China is the clearest example). Quite rightly, and especially through the Industrial, Technological and Foreign Trade Policy, the emphasis was placed on innovation and technological development; sectors which help to spread technology and innovations (capital goods, software and semiconductors) were selected in order to extend the new solutions to the economy as a whole, and not just to industry in the strict sense, and two areas considered to "hold the key to the future" were defined as priorities for national scientific and technological development. It is well known that innovation is much more than just technological development, but the latter is nevertheless the main source of innovations and the only one which never dries up.

The sectors on which the Industrial, Technological and Foreign Trade Policy mainly concentrates are largely complementary and reflect the move towards more contemporary objectives. The capital goods,

software and semiconductors sectors are pervasive, since they affect both industry and the economy as a whole, and are ultimately of great importance for the productivity of the other sectors of industry, the primary and tertiary sectors and public services. In all three of these, there were heavy trade deficits which still persist even now. As already noted, capital goods incorporate technical progress and provide the other sectors with possibilities of change and development. The same can be said of semiconductors and software.

A sound trade balance must be a permanent objective of economic policy, and industrial policy is a powerful tool for attaining this goal. There is a fundamental difference, however, between seeking a trade surplus by any available means and doing so on the basis of the selected sectors. Let us take the case of capital goods. Everywhere in the world, but above all in the countries which are most advanced in industry and technology, these goods account for the major part of trade flows in both absolute and relative terms (compared with total output or consumption, for example). While the United States has a deficit, Germany and Japan have surpluses in this respect. All the advanced countries import large amounts of some capital goods and smaller amounts of many other goods. Capital goods mark a lasting commitment of firms with their future and incorporate much of their strategies. Properly chosen purchases will result in positive long-term prospects, whereas the opposite will be true in the case of unwise acquisitions. It is for this reason that firms usually give special attention to this point.

Developing a competent and dynamic capital goods sector must be one of the objectives of any development policy, but the reasons for this go far beyond those connected with the trade balance. The capital goods sector establishes close links with its main clients and users. Manufacturers listen to and check out the needs of their customers and seek to develop new attributes which will meet the latter's demands. They do not do so out of an unselfish desire to collaborate, but because of their need to gain the best possible position vis-à-vis their competitors. In this sense, having a well-qualified capital goods sector acts as a guarantee for covering needs. Gaining access to foreign markets and identifying the changes in clients' demands (whether present or potential) is more important than taking special measures to encourage the substitution of specific imports at a given moment. For this reason, the change of emphasis of industrial policy from import substitution to the formation of capabilities and areas of competence is both healthy and promising.

The new institutional organization created in order to implement the Industrial, Technological and Foreign Trade Policy may also be considered positive in some respects. As noted earlier, having a flexible and responsive form of institutional organization, with strong political management whose leadership is widely recognized, deliberative collegiate bodies, and properly linked executive institutions is of vital importance. It is well known that in Brazil there are executive institutions which are effective in the fields of finance (the National Economic and Social Development Bank – BNDES); support for research and development activities and innovation (the Ministry of Science and Technology, the Agency for the Financing of Studies and Projects – FINEP, the Sectoral Funds, and state foundations for supporting research); trade promotion and export development (the Ministry of Foreign Affairs and the Agency for Export and Investment Promotion – APEX), and others, but there are few linkages between them and, above all, few links between the instruments adopted and the needs of firms. An even more important problem is that political management and the capacity for coordination –which are basic functions of industrial policy par excellence– are rendered more difficult by the organizational superstructure and the bureaucratization of decision-making.

The establishment of an agency for linking instruments and means (the Brazilian Industrial Development Agency (ABDI), which was officially implemented in February 2005 together with the National Industrial Development Council (CNDI)), is a favourable element. The CNDI is presided by the Minister of Development, Industry and Foreign Trade, and is made up of 12 ministers, the president of BNDES, and representatives of the private sector and of the workers. In theory, this structure should help to improve linkages and make possible better coordination. As it was set up as an autonomous social service forming part of System S,[23] however, ABDI has no power to force other institutions to collaborate with it, and it had difficulty in forming its board of management, which is made up of representatives of the ministries of

[23] System S, set up in accordance with article 149 of the Constitution of the Federative Republic of Brazil, is made up of 11 institutions with specific sources of income deriving from the social security payroll contributions paid by firms. Most of the institutions are bodies providing social services.

Finance, Planning, Budget and Management, and Science and Technology.

2. The weak points of the Industrial, Technological and Foreign Trade Policy

The implementation of this policy has been made more difficult by the adverse effects of macroeconomic policy, the lack of linkages among the instruments adopted and between them and the demands of firms, the precarious nature of the economic infrastructure, the shortcomings in the science, technology and innovation system, and the fragility of the way the industrial policy process is run and coordinated. These problems will be briefly analysed below.

The adverse effects of macroeconomic policy on industry are well known and include, among others, the use of the base interest rate as the main or even the only instrument for controlling inflation under the system of goals. The repercussions on the cost of capital are also well known: finance for current production flows and marketing is made more expensive, and investments in the productive sector are discouraged. This policy also implies great exchange rate volatility under the floating exchange rate system and –more recently– the revaluation of the real, cancelling out the efforts at export promotion made under the Industrial, Technological and Foreign Trade Policy. Furthermore, there are the effects of tax policy, which call for some more detailed remarks.

The fiscal aspect, which does not always come up in the discussions on industrial policy (and on the PITCE), needs to be clearly visible. We do not intend to repeat here the criticisms which are always levelled at high taxes. The State and the government turned a deaf ear to these criticisms and paid the price of this insensitivity in having to adopt Provisional Measure No. 232, which provided for a number of incentives for productive activities (and especially for investments).[24]

The equality of all citizens before the law and fiscal rationality are the main factors to be taken into account. Quite apart from the actual level of the present fiscal burden, which might be considered high by those who pay their taxes in full, the tax burden and structure have some characteristics which are very harmful for any policy that seeks to promote efficiency and competitiveness. The more the authorities delay in correcting this irrational structure, the more difficult the transition will be, because the resumption of investments in industry –which follows a natural course but is speeded up by industrial policy– promotes a form of location of industry which adapts to the prevailing fiscal irrationality but is uneconomic in all other aspects. The desire to take advantage of some fiscal loopholes, possibly connected with inefficiencies in the tax enforcement structure, leads some businessmen to take investment decisions which would be untenable in other circumstances. Two of these decisions which are quite common concern location and scale of operations.

The location of some firms is sometimes decided on the basis of fiscal advantages, which may be real, or may be created through procedures which are either frankly irregular or are typical of a "grey area". For this reason, some ventures become structurally dependent on advantages stemming from a lack of fiscal equality, which should be corrected without delay.

The problem of scale is just as important as that of location. Incentives which are necessary and desirable for small firms must not be confused with turning a blind eye to irregular fiscal and labour practices.

Industrial location based on specious advantages and unsuitable scales of production are sources of fragility for the other firms and sectors involved, and sometimes they also affect the competitiveness of sectors situated upstream or downstream of the respective production chains. Modern industrial policies try to encourage and induce firms to adopt different forms of behaviour that promote more rational use of natural resources and the products made from them and ongoing upgrading of labour skills. By their very nature, these gains are incremental, except in just a few cases such as "radical" innovations, which are rare. How can we turn innovation into a collective and self-sustaining form of behaviour if loopholes that permit unfair competition nullify a large part of the genuine efforts made? Recognition of the fundamental role of small and medium-sized enterprises in creating jobs, increasing employment and forming business skills must on no account be confused with turning a blind eye to irregularities. If support policy for small and medium-sized enterprises is really intended to support them, even more vigorous instruments than those currently existing must be established, but without ever confusing support with the toleration of

[24] Provisional Measures are a kind of legislative decree originating from the Executive which make it possible to delineate the limits and judicial mandates of the Legislature. This type of measure has been frequently and increasingly used since the early 1990s.

tax evasion or laxity and labour irregularities. From this point of view, the bureaucracy connected with business ventures in general and enforcement in particular is just as serious a problem for micro-, small and medium-sized enterprises as the tax burden itself. Industrial policy, which seeks to promote investment and development, is sidelined by the fiscal dimension, which largely opposes or weakens its effects. In other words, industrial policy is weakened by tax policy, or, rather, the lack of a real tax policy. Some advances[25] are possible in both these fields and should form part of the political and economic agenda, with industrial policy as development policy.

Perhaps the most serious and important problem that hampers the application of the Industrial, Technological and Foreign Trade Policy is the lack of linkages of the mechanisms and instruments and the lack of coordination with their beneficiaries. In the present study we have tried to show that this policy benefits small sectors which do not have the power of entrainment of other economic sectors or segments, and it is therefore more difficult for it to become a development policy (the only sector with this characteristic is capital goods, but it is restricted by the adverse effects of macroeconomic policy on investments in the productive sector). The selection of three of the four sectors which warrant priority action is very positive, however.

The role that the small sectors can play as important vectors of a growth and development policy does not consist of influencing industry and the economy through their volume, but of providing the other sectors with renewable means for increasing their productivity and differentiating their products. It is not a question of quantity, but of quality.

In order for this to happen, it is essential to link up the capacity of the priority sectors of industrial policy to supply products and services with the demands of the other sectors and activities. In other words, in order to promote growth and development on the basis of the selected sectors, links must be established between supply and demand, capacities and needs, and solutions and problems.

For example: there are hundreds of thousands of firms in all sectors, and especially those of the Local Production Arrangements or localized production systems, which could benefit from software developed to meet their special needs in terms of modern integrated business management. In this case, industrial policy must provide these firms with the credit resources needed in order for the production sector to set itself in motion and deal with their needs, which exist potentially but are not materialized because of the lack of linkages.

The bodies that represent industry could take a concrete initiative and link up the interests of the software producers with those of the organizations representing the firms in the Local Production Arrangements. The public authorities could finance a system for providing basic business management software for small and medium-sized enterprises by offering non-repayable resources from the National Scientific and Technological Development Fund, the Sectoral Funds, or the Informatics Act. This system would make it possible to provide small and medium-sized enterprises with management improvement programmes and business management software in a coordinated manner. The main aim of the programme would be not so much to reduce costs as to provide firms with an efficient cost management system suited to their level of development. With the financial resources linked with industrial policy (Sectoral Funds or funds under the modified Informatics Act), the various local production systems could develop applications specific to their needs based on the basic generic module, protected by modest property rights (along the lines of common rights).[26]

The coordination of industrial policy mechanisms and instruments, which are essential links in the relations with their beneficiaries and a necessary condition for industrial policy to function as an effective development policy, is usually of dubious quality, however. In the absence of the financial resources and taxation capacity that industrial policy was given in the past (not only in Brazil but also all over the world, and especially in Asia), the efficacy of the policy will depend on the harmonization of interests and coordination on the strategic and operational levels. This brings us to the question of the discussion and evaluation of the institutional problems associated with industrial policy implementation (headed by the Brazilian Industrial Development Agency): a delicate matter which is far from being completely settled.

[25] Such as those achieved through the tax relief measures forming part of the Social Integration Programme/Contribution for the Financing of Social Security (PIS/COFINS).

[26] Forms of industrial or intellectual property rights which are midway between the traditional absolute and rigid protection and what is known as free software.

One of the biggest difficulties of the Industrial, Technological and Foreign Trade Policy and indeed of any present-day industrial policy is the view that its own main actors have of it, which is usually not devoid of stigmas and prejudices. The oft-repeated phrase "when I hear industrial policy mentioned, I put my hand on my pocket to protect my money" sums up this general view. Although many of the main arguments in favour of industrial policy are based on solid facts and explanations, they do not manage, explicitly or implicitly, to refute a number of the arguments against such policy once and for all. Close collaboration between private firms and public bodies –which is of fundamental importance for the achievement of the goals set and their broad application– is an indispensable ingredient of such policies. Far from being a source of corruption, it is a way of ensuring the regular and systematic follow-up of policy formulation and implementation, and when there is full visibility and transparency, it actually serves as an antidote against corruption. Industrial policy coordination depends precisely on the existence of close relations between the actors. The coordination and results of the process are largely conditioned by the image those actors have of the legitimacy of their intentions and roles.

Other problems which affect the economy in general but can impede the success of the Industrial, Technological and Foreign Trade Policy in particular are connected with the obvious shortcomings in the physical infrastructure (energy, transport, communications, ports). Despite some recent advances, the development of the national innovation system is still insufficient for a strategy like that of the PITCE. Although the advances made thanks to the Sectoral Funds and the prospects for the effective functioning of the Innovation Act are undeniable, other problems persist such as the insufficiency of the budgetary resources for the Ministry of Science and Technology and the Fund for the Financing of Studies and Projects, the weakening of the public universities, research organizations and laboratories, and the lack of adaptation of the educational system to the needs of a development strategy which emphasizes innovation and respects the rights of citizens.[27]

The infrastructural problems are long-standing and reflect the macroeconomic restrictions – especially of a fiscal nature – which have historically affected public investments. They also show that the privatization operations and the new management model based on concessions for the provision of services under public regulation and the control of regulatory agencies have not worked as expected. It is now considered that public-private partnerships are the best –if not the only– possibility for securing the resumption of investment in this area. According to Monteiro (2005), however, this form of public action suffers from "*great complexity, because of its economic, political, constitutional, organizational, administrative and accounting aspects*", so that that author comes to the conclusion that "*the best way to strengthen the establishment of public-private partnerships is to improve the deliberative quality of the national political process, which would enable the public actors to understand the demands of the population as citizens, electors and taxpayers at least as well as private enterprise understands the realities of its consumer market*" (Monteiro, 2005, p. 24). The fact that the public-private partnerships will be under a Board of Management brings us to the general problem of the political mandate and coordination of the Industrial, Technological and Foreign Trade Policy.

In reality, the biggest impediment to the effective implementation of the PITCE as a development policy derives from the difficulty it will have in fulfilling the role that a policy of this type must carry out par excellence: the *ex ante* coordination of concerted actions by public and private actors. The political line of command is vague: although the Minister of Development, Industry and Foreign Trade presides over the new National Industrial Development Council, linked to the Office of the President of the Republic, his political leadership is watered down in the extensive range of deliberative bodies of the same or higher level. These include the Economic and Social Development Council, the Council of Government, the Economic Policy Chamber (presided by the Minister of Finance), the Economic Development Policy Chamber (presided by the Minister in charge of the Casa Civil), the Governing Council for Public-Private Partnerships, and the Inter-Ministerial Council on Local Production Arrangements. The faculties of the Brazilian Industrial Development Agency –PITCE's executive arm– are limited, and its ability to use the policy mechanisms and instruments adopted depends on a complex network of relations with other ministries –some of which are more powerful than it is– and relatively autonomous institutions such as BNDES and the Agency for the Financing of Studies and Projects

[27] The present budgetary constraints imposed on EMBRAPA are eloquent in this respect.

(FINEP). This deliberative superstructure and the division of powers hamper the legitimization of leadership, hold up the taking of decisions on industrial policy, and impede the linking-up of instruments and the coordination of actions in line with the needs of firms.

In view of all these difficulties, it is understandable that Rodrik (2004) suggested that the industrial policy process should be directed by the President of the Republic himself or by a Minister of State with powers delegated by the President.

V

Final remarks

The Industrial, Technological and Foreign Trade Policy, and industrial policies in general, will not be able to act as the panacea they might have been in the past. We say "might have been" because many of their defects and the ostracism they have suffered are due to past excesses which we might call, with a little exaggeration but not without some cause, "caprices of omnipotence".

In order to be effective, industrial policy must be ambitious but prudent. It must be conceived as an instrument for change and development, yet without demanding unlimited amounts of scarce resources. Emphasis must be placed on the objectives of the industrial policy and on the mobilization of the main actors in economic life and in public and private institutions in order to be able to carry out the immense tasks of coordination involved. In a macroeconomic regime characterized by severe restrictions, but in which firms have shown their great dynamism and public and private institutions have always acted creatively, it is vital that the Industrial, Technological and Foreign Trade Policy should take advantage of the available business and institutional skills in order to create the intricate architecture of coordination. This is a challenge calling for persistence, gradual and patient building on achievements, follow-up, review and redefinition, and it necessarily calls for a long-term view.

(*Original: Portuguese*)

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