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FAPERJ Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro
INCT/PPED Instituto Nacional de Ciência e Tecnologia em Políticas Públicas, Estratégias e Desenvolvimento

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Summary

Presentation

This book compiles a series of articles reporting on research carried out through an academic partnership between the National Institute of Science and Technology in Public Policies, Strategies and Development and the Institute of Applied Economic Thinking. The main research objective was to analyse state capacities for the socioeconomic development of Brazil through a comparison with other middle-income economies at similar stages of development. Some of the articles were published in Portuguese in a book compiled by Alexandre de Ávila Gomide and Renato Raul Boschi and edited by IPEA in 2016 titled State Capacities in Emerging Countries: Brazil in Comparative Perspective.

Since the book was published, Brazil, Latin America and the entire world, went through a series of changes that questions the results presented in the chapters and opens up new challenges for the investigation of state capacities for development. These include the conservative reversal seen in some countries of the Latin American region that brought into power (by elections or irregular processes of regime change, right wing parties with platforms of governance that distance themselves from the centrality of the State in the economy and from the redistributive policies that had characterized the progressive governments. Second, the acceleration of technological and organizational changes in the capitalist mode of production (financialisation, primacy of the service sector, technification, fragmentation of global production chains) has challenged the capacity of peripheral states to control the drivers of the economy on a domestic scale. Third, social indicators have deteriorated due to the increase in unemployment. Last but not least, the emergence and rapid acceleration of the pandemic as a result of the COVID-19 virus have impacted economic activity and the degree of freedom States have with regard to maintaining production and ensuring social protection for the population. The combination of these elements, on top of the dismantling of progressive policies already underway, led to a critical situation in Brazil and other middle-income economies. The political transition that took place in different countries from interventionist coalitions to defenders of the free market and the individualization and atomization of social rights were in Brazil marked

by an unusual radicalism. This situation does not invalidate the conclusions of the articles written in the context of an interventionist *zeitgeist*; on the contrary, they invite a careful rereading. Seen from a context of policy dismantling and contempt for the public res, the contributions of this book shed light on the importance of the development agenda, management capacity, and, in particular, of the role of strategic actors and institutional arrangements in defining national objectives. Thus, it confronts the old dilemma of the social sciences between agency and structure. In terms of analysis of development policies, it represents an effort to study the State as an administrative apparatus and an arena governed by diverse and antagonistic social interests. Ultimately, it is a matter of apprehending the conditions under which the State engages in development efforts, which must be understood as a political, rather than an administrative, process.

Renato Boschi, Ana Célia Castro and Flavio Gaitán

Introduction

The recovery of the State's role in globalized capitalism

Renato Raul Boschi • Flavio Gaitán • Ana Célia Castro

1. INTRODUCTION

The texts collected in this volume share the general guideline of addressing the issue of the State's role in development processes from a particular viewpoint, that of the notion of State capabilities. This concept focuses on the State regarding its capacity to act, or rather to perform interventions, considering the combined action of institutions and political agents, including decision-makers and the public bureaucracy. From this perspective, support coalitions are also relevant, as pertains their ability to being brought together for a national project within a given timeframe. The recovery of the State's role as regards these capabilities, therefore, comprises the construction of bureaucracies efficient in specific areas in the formulation and implementation of public policies. In this sense, the analyses undertaken herein have reviewed the capabilities in important, concrete dimensions for the assessment of a developmental project within a context of a globalized capitalism under reconfiguration, resultant of the impact of the systemic crisis that originated at its center, the subprime crisis, and of changes in the relative position of a few emerging countries, with a strong driving role having been played by China. These dimensions, or aspects, were analysed through comparisons among Brazil and the other countries of the BRICS bloc (Russia, India, China and South Africa), according to the relevance of the topics covered in each case. Given the importance of regional issues, a comparison with Argentina regarding some dimensions was also included.

Understanding the recomposing and the success of the given countries in promoting policies to attain higher levels of development entails, as mentioned,

focusing on the strategic dimensions of State capability. In the first place, those dimensions bureaucratic in nature concern competences in processes required for the viability and the bringing to fruition of such strategies. In the second place, the specific capacities are those required for refitting the productive matrix through industrial policies and for driving a country forward by means of a vision of processes of technological innovation, which also requires considering sustainability and the availability and preservation of natural resources – energy and others – as central elements. From the viewpoint of structural dimensions, State capabilities were analysed in a number of strategic arenas in pursuit of a developmental project.

2. REDEFINING THE CONCEPT OF DEVELOPMENT: A THEORETICAL REFLECTION

Development is a polysemic concept, the meanings of which have changed over time since the first studies on productive factors and causes of arrested development up to the United Nations' current reports on sustainable development. In the present line of study, socioeconomic development is understood as a dynamic involving the diversification of the productive structure, innovation and national control over the economy, particularly among post-colonial nations and, at the same time, the creation of new jobs, distribution of income and social inclusion, in other words, a project involving social welfare correlated with citizens' rights. In this sense, development refers to both the qualitative aspects of the process of capital accumulation and economic growth and to social protection and sustainability, connecting short-term goals with a long-term perspective through concern for natural resources and environmental protection.

Policy is a key component of this dynamic, which is not limited to achieving economic growth, neither in terms of process nor of the institutions devoted to these goals. Thus understood, development is an internal process that nations undergo, closely associated with the emergence and consolidation of States with capabilities to intervene in the economy and in society. Furthermore, a central aspect of the notion applied herein is that development involves, simultaneously, internal processes and changes in the relative power among countries in the international sphere.

The project started from the assumption that institutional advantages are fundamentally connected to the State's role regarding the generation of capabilities for the formulation and implementation of policies and, at the same time, in the forging of support coalitions for a development agenda. In order to assess the conditions for executing this agenda, the project focused on a group of countries with which Brazil shares a few traits, such as an accentuated dynamism in recent internal trajectory and an expanding role in the international arena. Thus, relevant parallels were sought within the BRICS bloc with the addition of Argentina, often used as a benchmarking reference because of its regional importance and geopolitical similarity to Brazil. One of this study's research axes alluded to a particular understanding of how center-periphery relations are reconfigured in the international capitalist system after cyclical crises, and furthermore, the strong driving role played by China in this context.

As mentioned above, the reconfiguration certain countries undergo and their success in promoting policies to attain higher levels of development involves State capabilities, bearing in mind also that the central developed nations stand out for their solid State capabilities. To begin with, there are capabilities that are bureaucratic in nature and concern the practical enforcement of the implemented strategies; subsequently, the specific capacities for refitting the productive matrix through industrial policies and for enabling formulating a strategic vision for technological innovation, able to impelling the country forward, which also requires considerations of sustainability and of the available natural resources – energy and others – as central elements.

Another axis refers to the possibility of expanding the domestic market through the adoption of social inclusion policies with distributional effects, which, in turn, changes people's consumption patterns. It is important to note that this window of opportunity is relevant for a rather small number of countries, both given the size of their domestic markets and the specific elements of their respective trajectories. In other words, countries with large populations and repressed demand due to high economic inequality will grow the fastest as a result of such policies. Here, the importance of labour protection should also be highlighted as a central element in the development dynamics.

The change in direction of a development project or the change in national trajectory as a result of a development project with these characteristics presupposes another axis – the presence of support coalitions. In this sense, an inclusive project that benefits both the capital (most often, industrial capital) and labour sectors is essential for the formation of a social pact. The eventual definition of development as a national project thus acquires centrality, legitimized through democratic institutions. In this context, new arenas for negotiation and participation, resulting from the institutionalization and expansion of democracy, constitute comparative advantages.

In the field of political economy, the literature on the varieties of capitalism reviews the interaction patterns of strategic actors (particularly the company) in different production systems. Hall and Soskice (2001) present two idealized types of capitalist economies: coordinated market economies and liberal market economies. Within this theoretical framework, Becker (2009) makes a distinction between ideal types and empirical cases, noting that national economies may find themselves closer to one ideal type than another or may combine elements of the different types. Another line of studies (Schmidt, 2006; 2007; Boschi, 2011) highlights the importance of the State and its institutions for the configuration of the varieties of capitalism and of the modalities of development.

The central point of this literature – in an orientation similar to that developed by the French Regulation School – is precisely to point out that differentiated performance, competitiveness and even catching-up strategies are the result of a combination of different dimensions, or factors, in the production systems and institutional environments within which the economic actors and companies operate. In other words, endogenous processes are impacted by the standpoints of their modes of foreign insertion. This also means that internal productive arrangements are subject to changes that modify their configurations among the varieties of capitalism, whether trending towards market-coordinated systems or towards steering through centralized coordination with a greater or lesser degree of State activity. It would be worthwhile, thus, to identify the processes of institutional change over a period of time, verifying the extent to which a given country approaches or departs from these ideal types.

The different trajectories and institutional matrices engender different varieties of capitalism, in which State coordination plays a role marked by greater or lesser centrality. Certainly, in the case of emerging countries the State is a decisive vector in breaking with inefficient standards, hardened structures and vicious circles of inequities through the effective introduction of a new pattern of development. Hence the importance of assessing how State elites, placed in prominent positions, devise strategies for a country in the medium term in view of the available policy tools; it is equally important to map out the main lines of current policies that are capable of defining new trajectories. Comparative analyses of market expansion dynamics through proactive policies and the forging of domestic coalitions of support are central dimensions influencing the success of such national strategies, especially in terms of liaison building between political coalitions and the international arenas with a view to occupying competitive spaces in the new scenario.

Institutions shape the relations among actors, the modes of policy implementation, and their outcome and impact. In this sense, reviewing the political and institutional settings is a key dimension in the possibility of enhancing Brazil's relative position in the international scene. The strengthening of State capabilities is expressed both in the areas that are strategic for a development agenda (social policy, education and technical training, investment in science and technology, capacity for pursuing an international agenda, macroeconomic development policy) and in the potential ability for consensus building around a development agenda (establishing liaisons among strategic actors, the forging of support coalitions, the capacity to maintain policy stability).

It has been argued that trajectory continuity, as regards the role of the State, has generated an accumulation of capabilities in the sphere of the public bureaucracy, in terms of capacity for policy setting and implementation. The association between State capabilities and the strengthening of democracy (Tilly, 2007) moreover, favors the generation of negotiated, consensual results and builds credibility in the international system, which in turn has a positive impact on the level of foreign investment in the country (in this regard, China's extensive consensus-building process is a clear asset). Democratic institutions may raise transaction costs, but they reduce uncertainty deriving from erratic decision-making. Moreover, the neo-corporatist cores bridging government and civil society, as well as an efficient structure for representation of business interests, converge

towards producing more effective responses to external challenges. Consequently, changes in the relative power positions in the international trading arena may be expected. As regards Brazil, a more virtuous combination of State, market, civil society, and corporative interests could prevail (Crouch, 2011), which tends to wear out in several central countries as a post-subprime crisis of alternatives. However, the controversial Brazilian impeachment process of 2016, lubricated by a significant distribution of raises among the legislative and judiciary, belies the stability of progressive development coalitions in Brazil. In just a few months, social and environmental rights were slashed, social and development investments were severely curtailed, and labour rights have regressed to nineteenth-century levels (see http://www.nytimes.com/2017/01/05/opinion/the-end-of-the-world-in-brazil-its-already-here. html).

The marked degree of State action in strategic areas and its capacity to coordinate the demands of the several relevant actors, would lead one to highlight the relevance of *democratic governance*. The World Bank defines governance as a heightened degree of cooperation and interaction among State and non-State actors in public-private decision networks, including government, civil society, and the market. In another sense, governance can be understood as the creation of favorable conditions for government action, constituting part of its public management attributes and capabilities. In this sense, the nature of the political institutions bears a strong impact on the resultant economic performance: transparent political processes, guaranteed by a stable democratic regime, increase a country's credibility and positive external image. Governance, in short, relates to conflict resolution and involves the need to implement coherent, effective and sustainable policies in a democratic environment, which in turn requires the participation of strategic actors for the resolution of economic problems and pursuit of development strategies.

3. KEY FINDINGS

The present discussion on State capacities is adressed through a theoretical point of view by **Celina Souza** and **Flavio Fontanelli**, focusing on the concept of State capacity, defined as a a broad and ambiguous concept that involves several dimensions: political, institutional, legal, territorial, administrative and technical.

The authors make a significant contribution by demonstrating that the analysis of State and its capacities must include a thorough construction of concepts, variables and indicators.

In a similar way, **Celina Souza** demonstrates that the quality of State institution performance depends, to a large degree, on the proper management of its resources – financial, human and technological – and the effectiveness of its the benefits that accrue to its target audience. The author contends that amongst State institutions, the task of formulating and implementing public policies falls particularly to the government, in which three institutions are conjoined: the Executive, the bureaucracy, and the public administration. Her review, however, focuses on one of these institutions – the bureaucracy – from the perspective of the concept of State capability.

A major contribution this study brought was clarifying from a theoretical viewpoint that the rationalization of the bureaucracy was a political process that has not occurred in South America, contrary to Weber's predictions, based on a single bureaucratic model. Through a comparison between Brazil and Argentina, the author emphasizes that the construction of rational bureaucracies was the solution adopted by political leaders in face of an environment where political uncertainty was rife – especially during elections. Her review shows that the political rationales driving the bureaucratic processes in the two countries, despite their initial commonalities, followed different paths after the countries' redemocratization processes in the 1980s. The author makes the case that the political actors who engendered democracy in Argentina and in Brazil had different agendas, which led to different trajectories regarding the bureaucratic system. Where Brazil pursued the professionalization of the bureaucracy by recruitment through competitive admission tests, in Argentina the appointment system was maintained; however, in both countries this was seen as a strategy that would enhance institutional stability. Following this analytical key, the author combines the concept of trajectory with the thesis of the rationality of political actors as the determinant of the type of institutionalized bureaucracy that ensued. The course explains, albeit only partially, why Brazil was able to revitalize its system of bureaucratic recruitment after redemocratization, whereas in Argentina the old system remained in place.

Another important contribution was emphasizing the need to think bureaucratic capabilities in their concrete arenas, as bureaucratic quality is far from being evenly distributed across government agencies, in both Brazil and Argentina. The author identifies as the turning point of these different trajectories the decision made by the Brazilian Constituent Assembly, when drafting the 1988 Constitution, to change the form of recruitment of the bureaucracy to professionalized competitive admission exams, which did not occur as a result of redemocratization in Argentina. Although there is evidence that the Brazilian bureaucratic system and companies created in Brazil during the Vargas regime (1930–1945) were stronger and more resilient than those in Argentina created by Perón (1946–1955, 1973–1974), the explanatory power based on the trajectory is limited to elucidating why Brazil followed a path, and Argentina, another. (Alternatively, the anthropological approach could also be taken, and the contrast merely be noted, rather than elaborate an analytical key only to then reject it, and then offer no other solution.) For the specific case of Brazil the author showed, by developing a *bureaucratic quality index*, that even though the country ranks high, when the index is broken down several government agencies still reveal shortcomings, particularly when it comes to ensuring a professional and stable bureaucracy. Regarding Argentina, interviews reveal that redemocratization maintained a bureaucratic system that does not meet the Weberian requirements. Argentine public servants are governed by several different legal regimes; most are recruited based on personal or party ties. The Argentine bureaucracy also lacks clear rules and procedures capable of reducing uncertainty, beingstrongly constrained by election cycles.

3.1 – Innovation

A few chapters in this volume address the role of innovation in both the private and the public sectors. The relative position of a country or region in the international community is increasingly dependant upon its ability to generate and expand the use of technology, seen as a key factor for achieving competitive advantage that, in turn, enables the attainment of a greater presence in world markets. A historical review demonstrates that development processes are based on the massification of technological diffusion as a way of ensuring the irreversibility of social progress. This is suggested by the dynamics both in classic development

models, such as the industrial revolution during the nineteenth century (United States, Germany, Japan); the recent industrialization by the Newly Industrializing Countries (NICs) in the second half of the twentieth century (the pioneering Asian Dragons of Singapore and South Korea, and latter-day Tigers of Malaysia, Thailand and Vietnam); and is further illustrated by the most recent case of Ireland. Unlike Latin America, whose growth phases were based on the export of low-value-added raw materials and foreign industry subsidiaries without technology transfers, these countries invested vast sums in research and development, university systems, technological renovation and cutting-edge industrial manufacture.

This perspective, specifically applied to agricultural innovation, comprises the focus of **Ana Célia Castro**'s work. The author examined the present States' capability to formulate, conduct and implement (and, in some cases, to assess) science, technology and innovation policy, comparing Brazil, China and Argentina, to demarcate comparative advantages and institutional disadvantages. One of the main conclusions of the study is that the existence of a structured consensus as to which industries should be encouraged and promoted by the entrepreneurial State – and wherein the technological frontier in such sectors lies precisely – depends, first of all on the existence of a rearguard of institutions capable of carrying out prospective (and retrospective) studies that can effectively subsidize the decision-making process; second, on a continual exercise of technological foresight, subject to periodic reviews; third, on a capability to take into account conflicts of interest, but also the capability to neutralize them after a structured consensus has been defined; and last but not least, the possibility of having an innovation funding system that is well-grounded. Two preconditions seem essential to the coordination of the countries' modernization process: structured visions of the future must be established, and the State capabilities to implement such visions must be present. According to the author, this does not require a continuum of skills or competencies, but rather a variety of decision-making process regarding long-term strategies and proper coordination during the design and execution of technological policies.

The chapter by **Antônio Márcio Buainain**, **Solange Corder**, and **Maria Beatriz Machado Bonacelli** approaches innovation policies from a different point of view: it aims to review the evolution of innovation funding and point out factors

within the system that reduce its effectiveness. The article analyses the trajectory of the Brazilian policy for science and technology of the last 20 years by focusing on different strategic initiatives, such as the Sectoral Funds and the creation of the National Fund for Scientific and Technological Development (FNDCT). At the same time, it describes the main instruments available for innovation funding, their particularities, and the way resources are allocated. By examining the strengths and weaknesses, the authors demonstrate that Brazil has a robust and complex national innovations system that stands out when compared to the forms of institutional support for innovation that exist in middle-income countries as a group. This is due to the persistence of the importance of innovation for Brazilian society. On the other hand, there is room for improving Brazil's capacity in this area, given problems such as a lack of coordination between different agencies and levels of government, regional concentration, discontinuity between administrations, the negative impact of economic fluctuations, a lack of density and scope to support broader innovation processes among small- and medium-sized companies, and political constraints. In that sense, the article shows that political support and State capacities – in particular in planning and mechanisms for transparency regarding objectives, conceptualization, and instruments – are key elements for consolidating a national innovation system.

3.2 – Industrial policies

The second substantive dimension regarding State capabilities concerns the formulation and implementation of industrial policies and constitutes a specialization within the aforementioned innovative capability. As pointed out in a number of chapters in the present study, development necessarily involves change in the productive structure. In Latin America, this issue has been thoroughly discussed, especially because of the tense relationship that has historically prevailed between the agricultural and manufacturing industries. The "unbalanced manufacturing structure" argument, for instance, denounced an industrial sector that absorbed capital without having generated it and an agricultural sector that was responsible for the generation of such capital yet had much slower growth. The diversification of the productive matrix, as we have seen, has required the formulation and execution of sectoral policies – for which financing was as crucial as having a clearly defined strategy – for the rural, industrial and service sectors.

Neoliberalism imposed the idea that sectoral policies were not only unnecessary but even harmful, as they constitute a focus of corruption and rent-seeking.[1] From the viewpoint of developmental strategy, conversely, such policies are essential in order to generate competitiveness.

The chapter by **Ignacio Godinho Delgado** defends the view that the ability to innovate is even more crucial for sustaining growth in countries that have completed the rural-urban transition that follows industrialization. According to the author, these transitions, when completed without having generated the capability for endogenous innovation, may lead to a loss of competitiveness called the *middle-income trap*. Thus, policies capable of addressing these challenges are circumscribed by their historic catching-up and reform trajectories in the cases of China, India and Brazil. Drawing conclusions for the Brazilian case, Delgado suggests that country, having effected its rural-urban transition between 1950 and 1980, when the gross domestic product (GDP) grew at an average annual rate of 7.5%, currently lacks this drive to boost growth. The author points out that, when the country went through the same transition period as China and India (at a slower pace) are now, the participation of the manufacturing sector in the GDP reached 33%. A last 'second wind', typical of accelerated growth patterns observed only during transition processes, has as its basis simply the demand for overcoming the precarious urban and economic infrastructure built during Brazilian industrialization; and the possibility of incorporating the poorer population in the mass consumer market, for instance through income transfer and labour-rights policies. The author concludes that expectations of Chinese-level growth rates would be, however, a totally unrealistic outlook for Brazil.

The author also addresses the importance of macroeconomic policy, pointing out that in Brazil, far more so than in China and India, policies for productive investment must be formulated that can circumvent the pitfalls of high central bank interest rates and an appreciated exchange rate. In addition, as in China and India, the fundamental dilemma will be developing policies that enhance the innovative capability of economic agents.

[1] Rent-seeking means, literally, searching for income. It involves seeking to increase one's share of existing wealth without creating new wealth.

The chapter also makes the point that the dilemmas of Brazilian industrial policy in a scenario of escalating competitive pressures do not entail, nevertheless, merely defining the best policy instruments. In addition to coping with the currency and interest rate dilemmas, other issues that must be addressed pertain to certain legacies from the developmental trajectory whichtend to diminish today more strongly then in the past the effectiveness of industrial policy, amongst which are the Brazilian tax structure; the heavy participation of multinationals in the industrial structure, affecting the impact of innovation policies; and, of course, the deficiencies in the Brazilian infrastructure, another inheritance from *old developmentalism*.

The author holds, however, that in spite of the aforementioned dilemmas, *old developmentalism* bequeathed to Brazil, as well as a diversified industrial structure and an expressive domestic market, institutions that survived the economic reforms and that are pillars of development, such as the National Bank for Economic and Social Development (BNDES) and Petrobras. The latter's presence in the scenario opened up by the possibilities of the deepwater pre-salt oil and gas exploration fields enables the glimpsing of trajectories capable of overcoming the present difficulties, mitigating the sequelae from the balance of payments that have always accompanied periods of growth and, at the same time, meeting old demands in the areas of health and education. Thus, such a scenario creates a *window of opportunity* for making choices regarding what can and should be preserved in the current industrial structure, and what conversely should be promoted to hold *central* positions and constitute core activities under new technological paradigms, such as new energies and biotechnology.

From an institutional point of view, the author highlights one of the central ideas in the theoretical approach adopted in this work, which pertains to the need for making choices within the framework of a national project that will involve the creation of permanent arenas for interaction between the private and public sectors and thus for consensus building around the policies and initiatives to be implemented. According to Delgado, this requirement has been absent in the Brazilian industrial policy ever since the old developmental period, which prevented the creation of mechanisms to generate commitment and mutual trust.

A further positive consequence of institutional coordination mechanisms would be the fostering of the continuity of industrial policies endowed with greater accountability and, furthermore, relatively immune to the fluctuations inherent to the political cycle.

3.3 – Infrastructure

The third substantive dimension of State capability geared towards development is the possibility of generating infrastructure, defined as the set of engineering structures and facilities, usually with relatively long lifecycles, that form the basis for providing the services deemed necessary for the development of productive, political, social and personal purposes (IDB, 2000). This includes the provision of electricity, heating and other forms of energy; telecommunications; transportation; and water and sanitation systems, amongst other utilities. Following this approach, the chapter by **Alexandre de Ávila Gomide**, **Raphael Amorim Machado**, and **Ana Karine Pereira** analyses the influence of infrastructure project implementation arrangements on the production and reproduction of social inequalities, focusing on two cases, the Belo Monte Dam and Trans-Nordestina Railway. The authors show that, initially, both initiatives did not incorporate adequate consideration of social impacts, arguing that it was due to the limited capability of the implementation arrangements to identify the interests of vulnerable stakeholders, the delay in incorporating demands, and the asymmetrical distribution of power within the arrangement. In this sense, the planning instruments in both projects proved to be flawed in terms of anticipating impacts. That said, the authors do demonstrate the impact of social mobilization on the transformation of both projects over time. The study thus shows the importance of social coalitions in terms of influencing public policies, despite acknowledging that the changes made in response to the social mobilization were insufficient with regard to the reversal or mitigation of the negative impacts generated by the projects. This chapter contributes to the study of relational State capacities, the importance of strategic actors, the configuration of institutional arrangements – including the role of the representation of stakeholders' interests – and the timing of the implementation of public policies.

3.4 – Social protection

The forms of social protection that make up the fourth dimension, herein called structural, form the present research agenda on State capabilities. For this purpose, it is of fundamental relevance to the current development strategies that the centrality of social policies and the ensuring of labour rights be reaffirmed. The relevance of labour rights and their relation with social security policies is analysed by **Arnaldo Provasi Lanzara** by comparing the systems for social protection in South Africa, Argentina and Brazil. Having overcome the challenges of the neoliberal period, the author points to the recent resumption of social development strategies in a democratic environment – at least, until the recent regime shifts back to neoliberal regimes through elections in Argentina and a controversial impeachment process in Brazil claiming a fiscal rule that was legalized the following week – as having provided these countries with a new *critical context* that saw a trend towards converting distributive conflict into an axis based on labour and social protection.

With effect, the strife during these processes highlights the difficulties each of these countries faces in the current scenario in consolidating this developmental trend. Lanzara's study highlights, in particular, the importance of public regulation of waged labour and of social security for structuring heterogeneous labour markets that coexist with high levels of informality. In spite of the limitations that derive from the dilemmas typically associated to economic opening and competitiveness boosting, analysis reveals that there is still considerable leeway for the State to reproduce forms of labor regulation and social protection similar to those that prevailed during the Fordist cycle of capitalist regulation in Argentina and Brazil.

Regarding the reduction of socioeconomic inequality, the study demonstrates that it is very difficult to find a way out of poverty without an explicit commitment by the State to the creation of stable, quality jobs. Social inclusion attained merely through an increase in consumption, for instance through income redistribution policies, becomes, the author showed, extremely fragile without the support of stable employment and other forms of social protection.

3.5 – International insertion

The internationalization of the production matrix and of all processes that accompany the international projection of a country is also fundamental to the new development dynamics. In this sense, for Brazil, not only regional dynamics matter, but also – and primarily – the impact of China's action, both as an importer of raw materials and as a producer of manufactured goods, supported by the low cost of labour and low exchange rates. The relationship with China is liable to generate, as suggested in recent studies by Bresser-Pereira (2014), the so-called 'Dutch disease'. Ultimately, this could mean the risk of aggravated deindustrialization and productive specialization in lower-value primary products.

The chapter by **Anna Jaguaribe** stresses the importance of China the for Brazil, focusing on the evolution of China's technological development policy from 1985 to the present day. The author discusses the reform of the National Innovation System, the strategic objectives of technological planning, the main actors and policy instruments involved in planning and China's vision of global integration. The argument put forward by the author is that the reform process and in particular the pursuit of technology policy and its association with industrial policy led to the establishment of a particular technical- and industrial-policy paradigm in China, which was the product of its historical-structural peculiarities, the political evolution of its reform process, and an international context conducive to economic internationalization.

From the author's perspective, the prevailing institutional framework was the key to consolidating the available windows of opportunity. Thus, the national innovation system that was built starting in 1985 achieved consistency across objectives, interests, targets, rules and ongoing policy instrument reviews, so as to represent a particular modus operandi in the relation between the State and the market. In the Chinese experience, the State's role in technological policy assumed a strategic focus on *knowledge*, in contrast with modalities of innovation policies that simply capitalize on the market failures of other players. The technical and industrial policy in China also stands out from other Asian experiences of catching up, due to the use of foreign direct investment in the reform of industrial industries; the particularities of the financial system, which favors State companies; and the market creation process itself, which was unique in that it is driven by the State.

In this sense, the author concludes that the challenge facing Chinese innovation policy today, thirty years after the beginning of the reform process, lies not so much in the institutional deficiencies of the model, commonly attributed to the State, but in the difficult task of governing the choices and contradictions arising from the passage from an innovation system based on catching-up policies to a full-fledged innovation economy.

From the point of view of lessons applicable to the Brazilian case, it may be affirmed that the central aspect highlighted in Jaguaribe's analysis pertains not only to the need to establish goals for technological innovation policy with ampler consensus building, but also the generation of a technological matrix of one's own that is capable of making the country competitive in the international arena. Few countries have accomplished the transition from simple growth to a truly innovation-based development process.

Another chapter reviewing external, international factors as conditioning the building of State capabilities for development, is that by **Maria Antonieta Leopoldi**, who analyses the changes in Brazilian capitalism over the last two decades. The chapter investigates the development policies geared towards the internationalization of the economy, which were elaborated and executed by several agencies and ministries, that eventually became sedimented under the Brazilian foreign policy and diplomatic agenda. The author sets out to demonstrate in a particular manner how the Brazilian agenda over the last few decades has focused on the country's integration into the international economy through effective State action. To this end, the chapter examines the country's initiatives for the expansion of foreign trade: the attracting of foreign multinationals to the country, and also the implementation of policies for the strengthening and internationalization of Brazilian multinational companies; and the identifying of government agencies engaged in this project of active international integration and of the arenas created for the integration of the bureaucracy, the business community, organized labour, politicians, academia and consultants. The author's argument is that all of these industries were active in the country's international insertion process, whether through support coalitions that involved different State arenas (including forums, business chambers and councils) or through direct market liaising.

One of the chapter's contributions is to highlight that, in the current phase of globalized capitalism, economic growth depends on the construction of a domestic agenda that integrates with the international one. For this purpose, it is essential to understand that development depends on the strengthening of State capabilities to act simultaneously on the domestic and international levels. The author, however, does not propose a deterministic interpretation whereby national trajectories are driven by external factors alone. External processes, such as the long debt crisis in Brazil with escalating hyperinflation from the 1980s until 1994, provoke responses and reorient strategies, but do not dictate national trajectories by themselves – those trajectories depend on domestic choices and on the State's and society's capabilities to implement the latter. Thus, a new concept of development connected to the coalition led by the Lula administration was implied by the adoption of a new perspective on foreign policy that was not simply reactive, as during the neoliberal period, but entailed a more assertive posture in favor of national interests.

The analysis undertaken by Leopoldi, which also covers the case of Argentina, has the additional merit of incorporating the regional issue as an important element in this strategy. In a world marked by the formation of and competition between large economic blocs channeling investment and trade, regional association could be a factor that helps boost development. The differences between the experiences of Argentina and Brazil are appraised in this text regarding the possibilities of establishing domestic pacts for development with their respective strategic elites.

A third chapter addressing the issue of foreign influences on development policy is that by **Fátima Anastasia** and **Luciana Las Casas**, which deals with State capabilities regarding regional integration, the exercise of leadership and the dynamics of cooperaton among countries and their participation in multilateral organizations.

The authors examine the State capabilities for bilateral international cooperation between Brazil and China and between Brazil and South Africa in the areas of foreign trade and human rights, based on the theoretical assumption that political institutions affect the behaviour of actors, the dynamics of interaction among them, and the results of the game. Employing the distinction proposed by Acemoglu and Robinson (2012) between 'inclusive' and 'extractive' institutions, the authors formulate the hypothesis that under 'inclusive' institutions one would

expect to find State capabilities concurrently associated with the containment and expansion of the State, in line with the construction of a State committed to the promotion of freedom and prosperity. The analysis by Anastasia and Las Casas based on these concepts points out the different *types* of State capability present in the three countries. In China, a contrast may be observed between on the one hand heightened administrative and executive capability, and on the other, a deficit in legal, relational and political capabilities. (Rather, politically China employs an alternative concept to democracy, that of collectivism, wherein their *collective presidency* there is an extensive consensus-building process that is in many ways more comprehensive than decision-making under democracy, as it replaces the electoral dispute with giving everyone a say in concrete policy – leaving a smaller range of variables open for discussion, to be sure, but resulting in more cohesive planning nonetheless). In South Africa and Brazil, along with an increased complexity in the networks of actors and agencies constructed with a view to the design and implementation of international cooperation on the topics of foreign trade and human rights, one may also perceive a greater development of legal, relational and political capabilities. The authors understand international cooperation as an eminently political phenomenon that refers to the mutually agreed interactions among two or more actors in the international arena with no direct relation to their volume of bilateral trade. An important aspect of this analysis is the finding that the presence of similar capability (in kind and in degree) at the domestic level facilitates cooperation among States at the international level. In this sense, with regard to both both issues – human rights and foreign trade – Brazil would have a greater margin of cooperation with South Africa than with China, due to common values, albeit with the latter a greater trade agenda is present. In summary, the authors highlight in their analysis the importance of extra-economic elements in bilateral relations between countries and the presence of natural affinities. This point acquires centrality in view of the formation of new strategic partnerships in recent years to which Brazil is a party, such as the BRICS bloc, the Community of Latin American and Caribbean States (CELAC), the India-Brazil-South Africa Dialogue Forum, (IBSA) and even the Southern Common Market (Mercosur), which has Argentina, Paraguay and Uruguay as core members and Bolivia, Chile, Peru, Colombia, Equator and Venezuela as associates,

whose core purpose addresses a number of concerns that go beyond trade, such as a rejection of regimes established by military coup.

4. CONCLUSION

The discussion of the different dimensions of State capability shows that the concept of development in the current context is very complex, requiring liaising between the State capabilities in the domestic and foreign spheres. Thus the task at hand is to overcome a long tradition of industrialization producing for the domestic market, typical of closed economies, and the export of low-value-added products such as commodities, in which interest in exports trade, in addition to securing the necessary capital for the industrial process, has less relative weight. Holding that the resumption of a development process hitched to economic internationalization in this century has become more complex does not, however, disregard the relevance of windows of opportunity in international value chains.

On the contrary, even though a subset of the studies on the new developmentalism confines analysis to economic issues, the chapter by **Flavio Gaitán** and **Renato Raul Boschi** in this volume holds that the possibility of consolidating a developmental platform bears direct relation to the ability to forge support coalitions for a national development project, capable not only of designing and executing a development agenda, but also of blocking potential opposition from strategic actors with alternative propositions. The regime change in Brazil, in 2016, is a clear example of such opposition. The eventual formulation of a national development project – something increasingly fundamental in a world-spanning capitalism, under ongoing redefinition – closely depends on domestic support coalitions that internalize new common goals and visions in favor of a project that will unite sustainable growth with income distribution, i.e. reversing the vicious cycle of the neoliberal period in which the State played a less central role. The most relevant example in Brazil of such a developmental coalition, strengthening industrial capital (in detriment to financial rent-seeking capital) and labour rights, was the one brought together by Vargas (1930–1945). The fragility of the coalition forged by the Labour Party (2003–2015), in face of the controversial impeachment process of 2016, suggests that groundwork – specifically a media structure where the conservative press is counterbalanced by progressive vehicles of equal

weight to enable the plurality of messages, as is foreseen in media theory – will be required in the future to ensure the stability of any development coalition in face of neoliberal, rent-seeking interests. The importance of coalitions is expressed in the choices of productive modalities and welfare schemes observed in some cases in Latin America. On the one hand, there is a path that favors the internal market through the incorporation of masses into the consumer market, in which wage and social policies play a central role (Brazil, Argentina under Labour governments and Uruguay); and on the other, there are economies whose option for development are based on the foreign market and, consequently, wages and domestic consumption play a lesser role (Mexico, Chile and Colombia). In our view, the different modes of development reflect different choices in face of similar dilemmas of coordination. In turn, the central role of the elites in a regional perspective could be achieved in terms of the building of support coalitions that can overcome the pitfalls of adopting protectionist measures that may lead to conflict among some of the most important economies in the South Americanregion.

The elites have always acted under situations of uncertainty and constant redefinition of objectives and goals in their policy agendas, in particular in areas such as those highlighted here as being a priority for consolidating a development platform. The analyses that comprise this volume, specifying points of this agenda, strive to contribute to the strengthening of Brazil's State capabilities, to enable the meeting of the current challenges and the surpassing of the narrow confines of mere economic growth to attain the effective implementation of a new development platform.

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CHAPTER 1

RETHINKING THE CONCEPT AND THE MEASUREMENT OF BUREAUCRATIC CAPACITY*

Celina Souza • Flavio Fontanelli

* These notes were prepared for the International Conference on National Perspectives in a Global Economy: Rethinking State Capacities, Public Policies and the Brazilian Crisis, held 7–9 November, 2016, in Rio de Janeiro. The notes were a preliminary approach to extend the concept of state capacity in general and of bureaucratic capacity in particular.

1. INTRODUCTION

As we all know, state capacity is a broad and ambiguous concept that involves several dimensions: political, institutional, legal, territorial, administrative and technical. Generally speaking, the concept of state capacity is used to explain why certain states face more or less difficulties than others in achieving their goals. This apparently simple objective, i.e. to explain why a state succeeds or fails in achieving its goals, involves complex and not trivial theoretical and methodological challenges.

Searching for support in the existent literature can be more a problem than a solution for the following reasons. Firstly, the concept encompasses a wide variety of topics, e.g. internal and external conflicts, conflicts between social classes or interest groups, how institutions affect the economy, state formation, political regimes, bureaucratic characteristics, taxation, administrative organization and legal systems. Each of these topics addresses different questions and hypotheses derived from different disciplines. Secondly, there is hardly any consensus on how to measure the several dimensions of state capacity. This means that methodological choices are not trivial. Thirdly, understanding the reasons for variations in state capacity requires not only comparisons among states but also among different policy agencies internal to the state itself. Fourth, if one takes the policy component of state capacity, certain dimensions are related to the design of

policies: information, rules, legislative approval, conciliation with private interests, legacies of previous policies and policy learning. Other dimensions are related to implementation, notably financial resources, as infrastructure and territorial coverage. Bureaucratic capacity is a necessary condition both in the design and in the implementation phases. Finally, a last constraint is that state capacity is a process. This means that analyses of it capture a moment in time, although certain capacities may last for centuries.

This paper analyses the bureaucratic capacity of Brazil's federal government, mainly in terms of its quality. Instead of analysing bureaucratic capacity in the light of the literature on state capacity, as Souza (2015) has elsewhere, we searched for new avenues of research by taking up the challenge posed by Sartori (1984; 1970), Collier (1995) and especially Goertz (2006) of beginning an investigation by constructing a concept.

Goertz, based on J. S. Mill, argues that starting an investigation with concepts is a logical choice, because they are some of the main building blocks for constructing theoretical propositions. Goertz (2006) discusses how to construct substantive concepts and the implications for empirical (both qualitative and quantitative) research of different concept structures. Concepts, as defined by Goertz, are theories about the fundamental constitutive elements of a phenomenon, meaning the core characteristics of a phenomenon and their interrelationships. Goertz proposes the construction of multilevel and multidimensional concepts, constituted by three levels. The three-level concept is made up of a basic, a secondary and an indicator/data level. The basic and the secondary levels form the theory of the concept while the indicator/data level is the connection to measures and data collection. The latter level is when one gets down to empirical data. The importance of this framework is that it allows for a more rigorous theory and method for investigating state capacities as a whole and bureaucratic capacity in particular. This is because the framework displays how components of one level are combined or structured to produce dimensions at the next higher level (the theoretical relationship in Goertz's terms), hence overcoming several criticisms and gaps identified in the literature of state capacity. The framework also contributes to crossing the boundary between quantitative and qualitative methods by focusing on concept. This paper uses the three-level concept to analyse the bureaucratic quality of the federal government in Brazil in development policy areas.

1.1 – The concept of bureaucratic quality

State capacities may be defined as the set of tools and institutions available for a government to establish goals, shape them into policies, and implement those policies. Among state capacities, the quality and the professionalization of the bureaucracy is prominent in the literature as a way to predict how a public policy is likely to unfold. Bureaucratic quality can be conceptualized when different combinations of the following conditions are present: meritocratic recruitment; predictable, rewarding long-term careers; rules for hiring and firing that replace arbitrary dismissals; the filling of senior positions through internal promotion; skilled professionals able to act either as an expert or as a generalist; professionals free of external influences; and control through administrative and legal rules (accountability). To capture the importance of these several features, this paper proposes a concept of bureaucratic quality reflected in the ability to design and implement good policies based on a family resemblance structure (Goertz, 2006). This means that there are different combinations of conditions that enable a bureaucracy to participate in the design of and to implement policies. The family resemblance structure attaches the idea of equifinality to the concept, increasing the extension, i.e. the empirical coverage, of the concept. The key constitutive elements of bureaucratic quality are described in the next section.

1.2 – The secondary and the indicator levels of bureaucratic quality

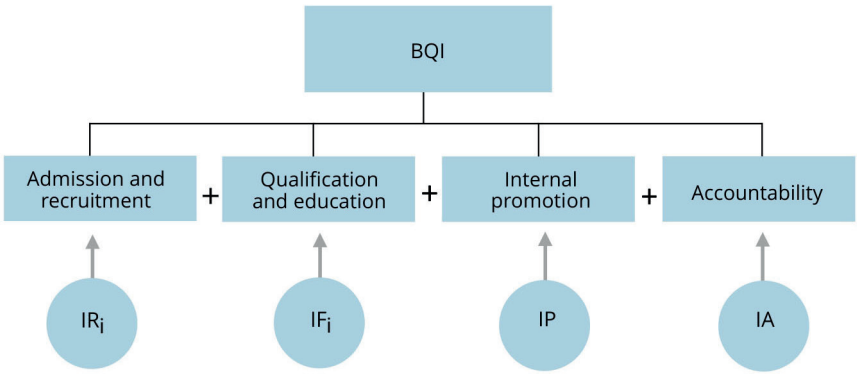
The concept of bureaucratic quality introduced above is disaggregated into four constitutive elements or dimensions, which, in turn, encompass the indicators calculated (IR_i, IF_i, IP and IA) in order to generate what we call Bureaucratic Quality Index (BQI), synthetized in Figure 1.

The BQI was crafted to capture the main dimensions of the quality of Brazil's federal bureaucracy, and was calculated assessing development policies in four areas: environmental, industrial, infrastructure and innovation. What was sought with the construction of this indicator was to highlight differences between government agencies regarding their ability to participate in the design and implementation of policies.

According to Goertz (2006), once a preliminary idea has been formed about a concept at the basic level one can begin to construct a multidimensional and multilevel concept and, while it is possible to construct hybrid structures, most

concepts can be seen as variants on the 'necessary and sufficient condition' structure or the 'family resemblance' one. In the case of the BQI, a family resemblance structure was used to conceptualize bureaucratic quality. A good way to think about the family resemblance structure is as a rule of sufficiency without necessary condition requirements. By definition, a necessary condition cannot be substituted for. The family resemblance approach, in contrast, allows for the absence of a given characteristic to be compensated by the presence of another (Goertz, 2006).

Figure 1. Family resemblance structure of bureaucratic quality based on an ontological concept of high bureaucratic capacity.



Using a family resemblance structure, the BQI is broken down into four major dimensions, seeking to show differences between agencies and policies. These dimensions are (*i*) admission and recruitment, (*ii*) qualification and education, (*iii)* internal promotion, and (*iv*) accountability.

Having defined the formal, structural relationship between the levels of the concept, it is necessary to define the theoretical relationship between these same levels. In the case of the BQI, it is assumed that there is no causal relationship between the secondary and the basic level (the ontological approach in Goertz's terms).

The dimensions defined as the secondary level constitute what the phenomenon is, so that the relationship is one of identity, not causation (Goertz, 2006). Meritocratic recruitment and rewarding long-term careers, for instance, are not indicators of a high-quality bureaucracy. Rather, they are what it means to con-

stitute a good bureaucracy. Therefore, the high-quality bureaucracy concept is understood here as a combination of an ontological approach to concepts with a family resemblance structure.

After defining the relationship between the basic and the secondary levels, the conceptualization of bureaucratic quality should move to the indicator/data level. According to Goertz (2006: 62), 'in a three-level concept structure the indicator level links the more theoretical analysis in the basic and secondary levels to the more practical requirements of converting these ideas into empirical practice'. Following Goertz's framework, a substitubility relationship at the indicator and the secondary levels was also used, as shown in Figure 1.

To calculate the BQI, used as a proxy for the quality of the bureaucracies responsible for implementing development policies, the secondary level, composed of four dimensions, was subdivided into six indicators. Two dimensions – recruitment and qualification – were subdivided into two indicators each, as shown in Table 1.

Table 1. Secondary and indicator levels of bureaucratic quality

Dimension	Indicator		Calculation
Recruitment	IR1	Proportion of civil servants with temporary contract	Number of civil servants with temporary contracts ÷ total number of civil servants in the agency hired through entrance exams
	IR2	Proportion of civil servants requisitioned from other agencies	Number of civil servants requisitioned from other agencies ÷total number of civil servants in the agency hired through entrance exams
Qualification	IF1	Proportion of civil servants with a generalist qualification (EPPGGs)	Number of generalists ÷ total civil servants with college degrees
	IF2	Proportion of expert civil servants	Number of experts ÷ total of civil servants with college degrees
Internal promotion*	IP1	Occupation of political appointments by career civil servants	Number of career civil servants appointed to selected political appointed positions ÷ 50% of the total number of the selected positions available for appointment
Accountability	IA1	Proportion of civil servants dismissed after administrative processes	Number of civil servants dismissed ÷total number of civil servants in the agency

Note: Only civil servants who participate directly in the design and implementation of policies were included.

The reason the BQI highlights the importance of generalist public managers is the complexity that characterizes the tasks under the responsibility of governments today, requiring a more comprehensive knowledge of public issues. Generalists have become of major importance in the structure of the Brazilian federal government, leading to the hypothesis that the higher the number of generalists, the greater the bureaucratic capacity of the agency. On the other hand, an indicator for calculating the participation of experts in the agency was included, because of the particularities of development policies. These two dimensions – experts and generalists – measure the complexity of the tasks handled by the federal government.

When grouping agencies according to policies, indicators IR1, IR2, IF1, IF2 and IA1 assumed values ranging between 0 and 1. With indicators where values close to unity signaled a lower-quality bureaucracy, as in the proportion of civil servants hired on temporary contracts or proportion of civil servants requisitioned from other agencies and those dismissed for wrongdoing, the difference between the unity and the observed value was used for each indicator. The indicator 'occupation of politically-appointed positions by career bureaucrats' was converted into an index with values from 0 to 1. This was done using as a parameter a maximum value of 1.8 and a minimum value of 0.3, meaning that the closer the indicator was to 1.8 the higher the bureaucratic quality. The following formula was used for the index transformation:

$$IP1' = \frac{IP1obs - 0.3}{1.8 - 0.3}$$

The indicators, transformed into indexes ranging from 0 to 1, were grouped according to the four policy areas. The BQI was calculated as follows:

$$IQB = (1 - IR1) \times p_1 + (1 - IR2) \times p_2 + IF1 \times p_3 + IF2 \times p_4 + IP1' \times p_5 + (1 - IA1) \times p_6 .$$

where p_1, p_2, p_3, p_4, p_5 and p_6 refer to the weights of the respective indicators.

2. BUREAUCRATIC QUALITY INDEX – DATA AND SAMPLE

The sample consisted of over 28,000 records and 19 agencies in charge of 4 development policies: environment, industry, infrastructure and innovation. Table 2 lists the surveyed agencies by policy area.

Table 2.Agencies surveyed by policy area

Policy	Agency
Environmental	Ministry of the Environment (MMA)
	Brazilian Institute of Environment and Natural Resources (Ibama)
	Chico Mendes Institute for Biodiversity Conservation (ICMBio)
Industrial	Ministry of Development, Industry and Foreign Trade (MDIC)
	National Institute of Metrology, Quality and Technology (Inmetro)
	National Institute of Industrial Property (INPI)
	Superintendence of the Manaus Free Trade Zone (Suframa)
Infrastructure	Ministry of Transport, Ports, and Civil Aviation (MT)
	Engineering, Construction and Railways S/A (Valec)
	National Department of Transport Infrastructure (DNIT)
	Ministry of Mines and Energy (MME)
	Electric Power Agencies of Brazil S/A (Eletrobras)
	Center for Energy Research (Cepel)
	Energy Research Company (EPE)
Innovation	Ministry of Science, Technology, and Innovation (MCTI)
	Brazilian Agency of Innovation (Finep)
	Nuclear Industries of Brazil (INB)
	Nuclear Companies of Brazil SA (Nuclebras)
	National Council for Scientific and Technological Development (CNPq)

The BQI data was extracted from official sources. The primary source wass the Transparency Site (Portal da Transparência), maintained by the General Comptroller of the Union (CGU). Civil servants in the surveyed agencies were filtered from the general database. The base contains around 1 million employees – civilian and military – distributed through 299 agencies, and is updated monthly.[1] Some of the agencies included in the BQI are not listed on the Transparency Site, because they are state-owned companies. In such cases, data was obtained from reports published online. Other sources consulted to complement the data were (*i*) for the workforce's level of formal education, the Personnel Statistical Report (MP 2012, Boletim Estatístico de Pessoal), supplemented by management reports issued by each state-owned agency; (*ii*) for generalist managers, data was obtained from

[1] This database provides data for the current month and does not contain historical series. It is, therefore, a snapshot of the moment.

the Ministry of Planning's website[2]; and (*iii*) data of the accountability dimension came from the Record of Dismissals from the Federal Administration (Cadastro de Expulsões da Administração Federal, CEAF), available on the Transparency Site. From these datasets, a synthetic indicator was created – the BQI. The sample consisted of over 28,000 records (Table 3).

Table 3. Agencies surveyed by policy area

Policy	Number of Agencies	Number of civil servants
Environmental	3	9,879
Industrial	4	3,130
Infrastructure	7	8,408
Innovation	5	7,348
Total	19	28,765

3. BUREAUCRATIC QUALITY INDEX: RESULTS

Table 4 details the BQI for each policy area.

Table 4. BQI by development policy area

Policy area	BQI
Industrial	0.71
Innovation	0.69
Environmental	0.62
Infrastructure	0.60

Like any other index, the BQI enables a ranking of bureaucratic quality. However, and like any aggregate index, the overall BQI does not capture the differences within each policy area nor identify differences among agencies. Furthermore, and as expected, the variation between policy areas is small, given the high number of competitive entrance examinations held in recent decades. The differences begin to appear more clearly, however, when the BQI is separated by dimension, as shown in Table 5.

[2] Available at www.planejamento.gov.br/secretarias/upload/Arquivos/seges/EPPGG/seges/EPPGG_setembro_2012.pdf.

In the first indicator of Recruitment – civil servants with temporary contracts (IR1) –, environment agencies had the highest score (0.50), followed by infrastructure (0.23). In the case of environment, however, the variable is increased by two of the agencies under the MMA coordination, Ibama and ICMBio. In the second indicator of Recruitment – civil servants requisitioned from other agencies (IR2) – a policy area that stands out is infrastructure, boosted by Valec, Elebrobras, and the MME. Interestingly, requisitioning civil servants was a common practice in the past and considered one of the obstacles to bureaucratic improvement because it brought uncertainties regarding staff availability.

In the first indicator of qualification – participation of generalists in the agency (IF1) – industrial policy has the highest score. The participation of experts (IF2) is significant in environmental policy, with a ratio of 0.83, while infrastructure has the smallest proportion (0.36). Innovation policy has the second highest proportion (0.78). Innovation and industrial policies scored equally (0.75). Note that among the four selected policy areas, the environment, the industrial and the innovation agencies created specific career plans and have had several entrance examinations in recent decades. Most of the agencies in charge of infrastructure, however, did not have a career plan for their officials by the time of our data collection and still do not have.

In Internal promotion, infrastructure is the policy area that has the highest score, followed by industrial, environmental and innovation agencies. In Accountability, environmental agencies have a relatively high percentage of dismissed civil servants (0.02), especially in comparison to infrastructure and innovation.

Table 5. BQI by dimension

Dimension	Indicator	Weight	Environmental	Industrial	Infrastructure	Innovation
Recruitment	IR1	0.2	0.50	0.01	0.23	0.04
Recruitment	IR2	0.2	0.02	0.01	0.06	0.01
Qualification	IF1	0.2	0.01	0.02	0.01	0.01
Qualification	IF2	0.2	0.83	0.75	0.36	0.75
Internal Promotion	IP1'	0.1	0.59	0.61	0.79	0.46
Accountability	IA1	0.1	0.02	0.01	0.00	0.00
		BQI	0.62	0.71	0.60	0.69

4. PRELIMINARY CONCLUSIONS

This paper describes a preliminary approach to the analysis of the quality of Brazil's federal bureaucracy in the light of the framework proposed by Goertz (2006). An index was crafted (BQI) to measure the quality of the bureaucratic staff who participate in the design and implementation of development policies.

Two theoretical contributions were made. The first is that one of the hypotheses in the literature of state capacity was confirmed: bureaucratic capacity is not evenly distributed across government agencies. The BQI shows that the quality of the Brazilian bureaucracy is comparatively high, but when the index is broken down into policy areas and intra-agencies, some shortcomings appear, particularly with regard to one of the characteristics of a professional bureaucracy, namely the existence of a stable career. Another theoretical contribution was the application of Goertz's (2006) three-level framework for analysing a social phenomenon and a political institution, i.e. the bureaucracy and its quality. A substantive concept of bureaucratic quality was proposed (the basic level of the three-level framework), which was combined to produce dimensions of the second-level framework (secondary level) and finally the operationalization of the third level through data collection. The three levels were combined, giving support to one another.

From an empirical point of view, the construction of the BQI constitutes a method that can be replicated in the analysis of other policies and/or policy sets. The BQI was designed to provide information to support decisions at the federal level, for a comparison of the quality of the bureaucracy, both within an agency and among agencies in charge of different development policies. Understanding where bureaucratic quality is lacking enables policymakers to know what needs to be done to improve the quality of policies. An assessment made with the BQI was able to identify which agencies reveal fragility in their role, given their relative bureaucratic weakness. The BQI also furthers our knowledge about why some policies are more likely to succeed than others, hence providing the government with a more comprehensive and systematic diagnosis of the role of the bureaucracy in charge of the four policies analysed here.

Finally, the BQI demonstrates that a substantial change in the way the Brazilian bureaucratic system works has taken place. In less than twenty years, a patronage-driven system or an "island or pocket of excellence" system was

replaced by competitive entrance examinations in which meritocracy is the key condition for entering the civil service. This change was a key commitment to the strengthening of the democratic system and was a result of the mandates of the 1988 Constitution, which restored the rules of a democratic system.

Although this study is a contribution to the still-incipient debate about bureaucratic quality and policy implementation, it is only a beginning. A larger sample of countries, in particular those where bureaucratization occurred later than in others, is necessary. By the same token, the addition of other policy areas in Brazil may deepen the understanding the policy preferences of different governing coalitions over the course of redemocratization. Furthermore, the application of Goertz's framework in order to evaluate bureaucratic capacity may be expanded to other components of state capacities.

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CHAPTER 2

BUREAUCRATIC CAPACITY IN BRAZIL AND ARGENTINA: WHEN POLITICS MAKES THE DIFFERENCE*

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1. INTRODUCTION

The performance of state institutions depends largely on the management of available financial, human, and technological resources. It also depends on the effectiveness of their actions, meaning the real benefits to the targeted population. The task of designing and implementing public policies rests primarily upon the government and is executed by three institutions: the Executive, the bureaucracy, and the public administration. This chapter analyses one of these institutions – the bureaucracy – through the lens of state capacity.

The concept of state capacity has been the subject of theoretical and empirical research from several different angles and by authors such as Mann (1984); Tilly (1981,1985; 1996); Skocpol (1979, 1985); Skocpol and Finegold (1982); Evans, Rueschemeyer, and Skocpol (1985); Chubb and Peterson (1989); Geddes (1994); and Grindle (1997, 2007, 2012). More recently, several authors have called for greater clarity and means to measure the concept (e.g. Bersch et al., 2016; Fukuyama, 2013).

State capacity is a comprehensive concept covering several dimensions that will not be reviewed here. Suffice it to say, the concept combines political, institutional, administrative, and technical variables. Put simply, state capacities may be defined as the set of tools and institutions available for a government to establish goals,

shape them into policies, and implement those policies. Among state capacities, the quality and the professionalization of the bureaucracy is prominent in the literature as a way to predict how a public policy is likely to unfold.

The present analysis of bureaucratic capacity focuses on the federal governments of Brazil and Argentina and measures the level of professionalization, qualification, and the methods for recruitment of the bureaucratic staff in order to predict their capacity to design and implement policies. The study also calculates a Brazilian Bureaucracy Quality Index (BQI) for federal government agencies responsible for development policies and investigates the perception of political, bureaucratic, and social actors in order to analyse the quality of the federal bureaucracy in Argentina.

Brazil and Argentina have shared several governmental features and institutions since the 1930s: federalism, presidential system, and experiences of authoritarian regimes followed by returns to democracy, as well as several political and economic upheavals. More importantly, their bureaucratic systems, both established in the 1930s, remained similar for over a century, but have since redemocratization grown apart. The analysis of the countries' bureaucratization, therefore, is associated with the political processes that have unfolded following redemocratization.

This study addresses two important issues. The first is the bureaucratization process in both countries in order to explain their late bureaucratization vis-à-vis other countries. I argue that their trajectories only partially explain why Brazil, but not Argentina, was able to change several rules governing the bureaucratic system. The hypothesis of a political rationale, as will be shown later, provides a more robust explanation for why the bureaucratic systems followed different paths after redemocratization.

The second issue is the bureaucratic capacity of the Brazilian federal government in four selected areas of development policy, and of the Argentinian federal bureaucratic capacity as a whole. The question to be answered is why in Brazil but not in Argentina it was possible to break with recruitment based on personal or partisan ties, which was considered recurrent in Latin American countries. My argument is that political actors in Argentina and Brazil had different redemocratization agendas that in turn had different impacts on their bureaucratic systems.

This study is innovative both theoretically and empirically. From a theoretical perspective, it tests the hypothesis that bureaucratic capacity is unevenly distributed across agencies that formulate and implement policies. This was done through the creation of an index (BQI) for Brazil and through the results of a questionnaire on bureaucratic capacity in Argentina. The BQI enables comparison of bureaucratic performance on an intra-agency level and across agencies responsible for development policies. Furthermore, like any other index, the BQI is the result of a sequence of percentage variations of something which can be measured. And what is intended to be measured here is how bureaucratic quality can predict the outcome of a policy.

The second theoretical contribution is the testing of Silberman's (1993) claim that the rationalization of bureaucracies arose as a political process and not, contrary to Weber's prediction, according to a single bureaucratic model. Unlike theories that understand bureaucratic organization as a response to the technical and social complexities of economic relations emerging from industrialization and urbanization, Silberman emphasizes that the construction of rational bureaucracies was the solution adopted by political leaders, given uncertainties in face of elections and contracts. Following Silberman, the theoretical challenge taken up by this study is to identify the political rationale that guided the bureaucratization processes in the two countries.

The theoretical basis of this research lies on the concept of bureaucratic capacity and, in the case of Brazil, of its public policy component. This component relates to institutions and strategies that influence decisions about the design and implementation of policies. Among these components, two are analysed: (*i*) the degree of professionalization and the quality of the bureaucracy, in order to investigate the conditions under which policies are designed and implemented; and (*ii*) the trajectory of the bureaucratization process.

From an empirical point of view, the study makes the following contributions. In the case of Brazil, the sample does not comprise all civil servants, unlike Bersch et al. (2016). The Brazilian BQI instead comprises only those who participate in the design and implementation of policies and those holding high government positions (Direção e Assessoramento Superior [DAS] orHigh-Level Direction and Advisory, levels 4, 5, and 6), because one of the goals is to investigate the quality

and professionalization of staff who participate in the design and implementation of development policies. The BQI also highlights the importance of generalist public managers, given that the complexity characterizing the tasks under the responsibility of governments today requires a comprehensive knowledge of public issues. In Argentina, there was an increase in the number of participants of the survey as compared to a previous survey (Evans and Rauch, 1999). The questionnaire given in Argentina and the BQI criteria were inspired by Evans and Rauch (1999), Evans (1992), and Peters (1995) and were adapted to the political and bureaucratic features of the two countries. The questionnaire assessed criteria similar to those in Brazil's BQI, thus enabling a comparison between the two countries. Finally, by describing and analysing the bureaucratization process in Argentina and Brazil, the study sheds light on the relationship between political regimes and bureaucratization processes and explains these countries' late bureaucratization.

The data was collected between 2013 and 2014, an important political period in both countries, when the Partido Justicialista under the Kirchners and the Workers' Party under Lula da Silva and Dilma Rousseff govnerned Argentina and Brazil, respectively. In 2015 in Argentina and in 2016 in Brazil, however, both parties were thrown out of office, ending twelve years of electoral successes. The countries' bureaucratic systems remained unchanged for more than a decade, and thus this study provides a relatively accurate picture of those systems.

Because the study has several innovative aspects and because it makes use of the concept of state capacity, still largely unexplored in the literature on Brazil and Argentina , it is useful to highlight that its findings are proxies for the implementation possibilities of certain policies. One must also remember that state capacity in general and bureaucratic capacity in particular are ongoing processes that capture a moment in time, even though some capabilities may be maintained for centuries.[1]

This chapter is organized in four sections. The first details the research design. The second describes the study's contributions to a better understanding of the federal bureaucracies in the two countries analysed. The third presents the research

[1] Common examples include the diplomatic and the military corps.

findings and is divided into three subsections: the process of state formation and bureaucratization in Brazil and Argentina; the results of the BQI in Brazil; and an analysis of who it is made up of, how it is recruited, and what bureaucrats in Argentina do. The last section presents some conclusions.

2. RESEARCH DESIGN

The topics defined above comprise two dimensions, analysed using the frameworks described below, that involve different analytical and methodological strategies. The first dimension is a comparison of the processes of state formation and bureaucratization in Argentina and Brazil. It tests two hypotheses of the relationship between the formation of a state and its bureaucratization. The first, based on Silberman (1993), focuses on the political choices that shape this relationship, and the second is the concept of trajectory (path-dependence).

The second dimension is the analysis of the quality of the federal bureaucracy in Brazil and Argentina. Quality is measured through selected indicators. Comparative approaches are marked by the challenge of selecting the indicators that best illustrate the comparison. In analysing bureaucratization in Argentina and Brazil, the indicators that may best illuminate the degree of professionalization and the quality of the bureaucracy are the methods of recruitment, level of professional qualification, the degree of internal promotion, and accountability. An index was created to assess bureaucratic capacity in Brazil, the Bureaucratic Quality Index (BQI). Bureaucratic quality indexes are among the most common indicators used by multilateral organizations and business sectors for allocative decisions. Many comparisons of bureaucratic capability across countries make use of the International Country Risk Guide (ICRG), the Business and Environmental Risk Intelligence (BERI), The Worldwide Governance Indicators (WGI) of the World Bank, and of Data Gov of the Inter-American Development Bank(IDB) and the Department for International Development (DFID). All are based on the respondents' perceptions. Because these indexes are aggregated and often used to rank countries in terms of the possibility of bureaucratic corruption, these data do not always capture relevant details of bureaucratic capacity. Indexes have also been used by the academic community to investigate why some policies are more

successful than others and why certain countries are more successful than others in the pursuit of their policy agendas.

There is also a challenge in studying bureaucratic capacity, namely the availability of data. Brazil has a comparative advantage when investigating bureaucratic capacity because there are several online databases that provide information on the federal bureaucracy. To overcome the limitation of data in Argentina and to enable comparison between the two bureaucratic regimes, a questionnaire was applied to eighteen respondents among politicians, bureaucrats, academics, think tank members, and trade union leaders and comprised eleven multiple-choice questions. Respondents were not asked to evaluate the performance or the quality of the bureaucracy. Instead, the questionnaire focused on specific descriptive features of the bureaucracy that are subject to objective estimation. Following Evans and Rauch (1999), I then combined these descriptive features to construct a simple measure that reflected a Weberian bureaucratic structure built on the same characteristics investigated in the Brazilian case. This option, however, has pitfalls, one of which is that no Argentinian index could be created. The second is that the respondents, many of whom were from outside the public sector, were only able to provide perceptions of the Argentinian civil service as a whole and could not comment on particular policy areas.

The reasons for the selection of four policy areas in Brazil are twofold. The first was to further the literature on the subject, which focuses mainly on agencies in charge of economic policies and on assessing the likelihoods of corruption. The second was to contribute to a research project sponsored by IPEA and the INCT/PPED comparing the advantages and disadvantages of Brazilian developmental policies vis-à-vis those of Argentina and the BRICS countries (Brazil, Russia, India, China, and South Africa).

The BQI did not include the salaries of civil servants or a comparison with those in the private sector for two reasons. First, in the index by Evans and Rauch (1999), the item "competitive wages" was significant in only one country in the sample. Second, over the last two decades a career at the federal level in Brazil has become the object of desire of people with university degrees, as shown by the high number of candidates in all entrance tests. In Argentina, wages in the public sector have traditionally been lower than in the private sector. In the last years, however,

trade union negotiations raised public-sector wages and the difference has been reduced.

Methodologically, the study does not investigate policy outcomes, given that a results-based analysis alone does not always establish a causal relationship between bureaucratic capacity and policy outcomes. Instead of analysing input-output correlations or policy outcomes, the explanatory power of the concept of state capacity lies in demonstrating that the state attributes are complemented by mechanisms capable of inducing the implementation of the policies, i.e. bureaucratic capacity is seen as one possible means, though not the only one, to achieve certain policy objectives and to operationalize state attributes.

3. STATE FORMATION AND BUREAUCRATIZATION IN ARGENTINA AND BRAZIL

State formation and state capacity are two sides of the same coin. In other words, how a state is formed will condition its capacities. Therefore, a few discussion of the formation of the state in Latin America is in order. The research agenda on state formation and state capability was first advanced by Tilly (1981; 1985; 1996), who investigates the relation between war, taxation, and the centralization of power in Europe. His argument is that the instruments used for the preparation of wars produces not only centralization of power but also capabilities, in particular the capacity to levy and collect taxes, which in turn requires the building of a bureaucratic machine. The different trajectories taken by countries (more or less resources, greater or lesser popular or oligarchic resistance, forms of organized violence, etc.) explain the variations in autonomy and capacity among states.

Although Tilly (1996) warns that his theory is applicable only to developed countries, Centeno (1997) and Enriquez and Centeno (2012) tested it on Latin American states. They acknowledge the existence of weak states in the region was explained by low taxation and low coercive capability. The financing of Latin American countries has been historically through royalties, tariffs, foreign loans, and the printing of money. Although wars have taken place in the region, they were not interstate or total wars, as was the case in Europe. Centeno (1997) suggests a validation of Tilly's theory for Latin America, where the taxation-coercion circuit was less intensive than in Europe, thus generating weaker states. In certain

countries such as Brazil, Centeno (1997) shows that war efforts helped to create relatively strong states pushed by domestic military industrial production. He also shows that the winners of the 1870s war – Brazil and Argentina – saw an increase in the size of their governments. In other words, Centeno argues that war efforts were not enough to reduce the relative weakness of countries in Latin America. Historical factors became obstacles to the development of a causal relationship between war, state formation, and state capacity.The lower level of taxation and coercion generated weaker states and therefore weaker bureaucracies. In short, in Latin America the state survived, but did not prosper or build capacities. This explains the late bureaucratization in the region.

If on the one hand state bureaucracies were established in most European countries in the late nineteenth century to collect taxes in order to finance wars, on the other hand different patterns of bureaucratic rationalization emerged (Silberman, 1993). Equally different were the various forms of rationalization of the state itself, as well as the relationships between the states and their societies. If traditional authority was no longer the dominant modus operandi, this did not mean that (*i*) bureaucratic rationalization followed a single path, as expected by Weber; or that (*ii*) the relationship between state and society based on personal connections were abolished altogether, even in countries where democratic rules were already institutionalized and political parties consolidated.

Silberman's (1993) contribution is seminal. He uses the rational choice perspective to identify the variable that determined the different types of bureaucratization throughout the nineteenth century to explain the two rationalization patterns. His objective is to understand why one type of bureaucracy arose, which he calls professional or a professionally oriented rationalization, with more generalist bureaucrats than experts, and another, which he calls organizational or organizational ly oriented rationalization, in which specialization is more likely to prevail. He also seeks to understand what kind of problem in state organization each type of rationalization addressed, why bureaucratization took different paths, and what the explanatory variables were. According to Silberman (1993), this variable was related to the level of uncertainty faced by governments when ensuring their permanence in power or when dealing with succession. The two trajectories responded to different political contexts: one, marked by high uncertainty, generated the

organizational bureaucracy; and the other, marked by low uncertainty, generated the professional bureaucracy.

The review above forms the basis for a deeper investigation into the bureaucratization processes in Argentina and Brazil that seeks (*i)* to identify similarities and differences between the two countries; (*ii*) to determine whether trajectories can explain the subsequent different decisions concerning how the bureaucratic system should work; and (*iii)* to determine why, if both countries adopted political-partisan-technocratic criteria for the recruitment of its bureaucracy, Brazil has chosen to alter its civil service system after redemocratization while Argentina maintained its traditional model. The question is whether different bureaucratic systems in two countries with similar development and political agendas can be explained by different political motivations triggered by redemocratization. The literature traditionally analyses the bureaucracy in the two countries broadly as rampant territories of patronage, paternalism, clientelism, and personalism, disregarding the political dimensions behind these choices, and the existence of numerous enclaves of bureaucratic excellence in organizations where merit and competence have prevailed.[2]

This section is based on secondary data and draws on the literature that compares the two countries and on the literature on each country separately. As regards comparative analysis, Sikkink (1991) and Grindle (2012) stand out. The former focuses on the influence of organizational structures on developmental policies, as implemented by the Juscelino Kubitschek (JK) and Arturo Frondizi administrations in the late 1950s. The latter seeks to understand what enabled the reforms that led to the creation of a bureaucratic body whose members were selected more on the basis of merit than of patronage, and particularly the strategies adopted by reformists and the motivation of political actors in favor of institutionalized public employment systems. Both authors highlight the importance of legacies from the past and conclude that institutions created during the government of Getulio Vargas placed Brazil in a more advantageous position than Argentina with regard to institutionalizing the bureaucratic system. One of the points highlighted by Sikkink (1991) is that during the period she considers,

[2] In the Brazilian case, Schneider (1991), Sikkink (1991), and Evans (1992; 1995) are exceptions to this view.

in both countries patronage and meritocracy coexisted as rationales. According to her, what distinguished the countries was the existence of what she called a small "island" sector in Brazil used by JK to formulate and implement his economic policy.[3] The staffing process of this bureaucracy was not subject to political pressures, but was based on merit, level of college education, and technical skills.

The core of Sikkink's (1991) evaluation of the positive results of JK's development policy and the difficulties faced by Frondizi rests on the training and qualifications of civil servants. Unlike most studies by Brazilian authors, Sikkink (1991) not only notes the importance of the Department for Public Service Administration (Departamento Administrativo do Serviço Público, DASP) but also highlights the fact that the training of technical staff was carried out by the Brazilian School of Public Administration (Escola Brasileira de Administração Pública, EBAP) established in 1952 within the Getulio Vargas Foundation (FGV) to provide undergraduate and graduate public administration courses, a task that the DASP was not up to. For four years the EBAP relied on technical and financial assistance from the US government, which included the visits of experts in public administration and scholarships for Brazilian academics to study in the United States.[4] Argentina opened a college for civil servants in 1957, the Higher Institute for Public Administration, (Instituto Superior de La Administración Pública, ISAP), but it was never as dynamic as that of Brazil. Vargas's legacy in organizational building included the creation of several federal state-owned companies such as Companhia Siderurgica Nacional (CSN), the National Economic Development Bank (BNDE) and the oil company, Petrobras. These remained the backbone of an insulated bureaucracy, while many of the organizations created by Perón were abolished after his fall. The Brazilian institutional architecture endured as a basis not only for development programs during the JK period, but also for subsequent democratic and authoritarian governments. Sikkink (1991) concludes that the conditions enabling the existence of solid and lasting specialized institutions and state-owned companies relatively insulated from the political game and strengthened by recruitment, training, and promotion processes based on merit

3 See also Evans (1992), Santos (1979), and Schneider (1991).

4 Later, the US Ponto IV program continued to support EBAP and public administration schools at the Federal Universities of Bahia and Rio Grande do Sul.

(such that qualified personnel were retained), made a significant contribution to the success of development policies in Brazil.

Grindle (2012) discusses institutions ruled by patronage in six developed countries and in four Latin American countries, including Argentina and Brazil. She points out that in many countries in Latin America legal requirements for a civil servant career have existed, most prominently the passing of competitive entrance examinations, have existed since the beginning of the twentieth century. Civil servants, however, continued to be hired by other – although not illegal – means: work contracts were ruled by the CLT labour law, which did not mandate entrance tests. The prevalence of forms of patronage in Latin America is explained by Grindle as a remnant of the colonial past. Spain and Portugal transferred their practices of civil service recruitment to their colonies, conditional on criteria that included race and religion, but not necessarily skill, even though control over the colony was weaker in Brazil than in Spanish America. From the mid-twentieth century on, however, Brazil and Argentina were able to rely on relatively strong states, capable of generating industrialization strategies, providing some social services, and consolidating their national identities. Grindle's contribution is to demonstrate, as does Sikkink (1991), how the legacy from the past has influenced subsequent reforms, but also why reforms that sought to minimize patronage occurred in some countries but not in others. What Grindle notes in relation to Brazil and Argentina was that reformist waves always occurred more strongly in Brazil than in Argentina.

If we agree with these analyses, i.e. that the past explains the present, how should we interpret them in the light of Silberman's thesis that different forms of bureaucratization were the result of rational choices by politicians? Weberian-molded bureaucracies were built in Argentina and Brazil during the 1950s, when both countries were under authoritarian regimes. This runs counter Silberman's argument of electoral uncertainty. The challenge remains, however, of how to explain the political motivation and the rationale of why a Weberian bureaucracy was built in Brazil and not in Argentina after redemocratization. If the answer partly lies in their trajectories, this concept alone does not fully explain political decisions taken at the same critical moment, i.e. during redemocratization. My argument is that the difference between Brazil and Argentina is a result of decisions

deriving from distinct redemocratization agendas and is not only a result of past trajectories.

As shown by Hagopian (1992), Kinzo (2001), and Souza (1997), the main agenda in Brazil was the building of democratic institutions. Furthermore, the introduction of a competitive entrance examination for public service served to break patronage and enforce the requirements of an advanced democracy. These ideals were embedded in the 1988 constitution. Argentina, on the other hand, only chose to reform its constitution in 1994, and the agenda did not focus on institutional reforms, but rather on legislating against the abuse of human rights that had occurred during the dictatorship. In other words, Brazil looked at the future and Argentina at the past. These different foci, one on building a solid democratic system, the other bent on punishing crime, is the main reason for the contrast between the two countries.

4. BUREAUCRATIZATION IN ARGENTINA AND BRAZIL AFTER REDEMOCRATIZATION

The military dictatorships that dominated Latin America in the middle of the last century left the subsequent democratic regimes with the burden of numerous social, macroeconomic, institutional, and political challenges.[5] The landmarks for the restoration of democracy were, in Brazil, the enactment of a new constitution in 1988, and in Argentina, a popular election for president in 1983. If one of the main goals of redemocratization is to create a democratic system of governance, a logical step is to adapt the government apparatus to the new order. As Reis and Cheibub (1996) point out, the consolidation of new democracies depends to some extent on the relationship between bureaucracy and politics. It is in this light that the changes promoted by the constitution of 1988 in Brazil and the attempts to reform civil service in Argentina in 1993–1996 are explained.

In Argentina, these reforms strengthened the National Administrative Profession System (Sistema Nacional de Profesión Administrativa, Sinapa) that had been established in 1991 and led to the introduction of entrance examinations

5 O'Donnell (1982) labels Latin American military regimes as 'bureaucratic-authoritarian' by way of explaining their functioning during the 1960s.

and training programs (Iacoviello, Zuvanic and Tommasi, 2003). In Brazil, the rules of the new constitution were a keystone for change, particularly in relation to the recruitment of civil servants, while in Argentina there was no change over this period. The 1988 constitution limited the means of entering the civil service without taking entrance examination, prohibiting contracts under the CLT labour law except for temporary work. These decisions were in response to the widespread view that public jobs had been used as an instrument for patronage and were therefore undemocratic. After this decision, thousands of civil servants, whose contracts were formerly governed by the CLT labour law and were thus without job stability, now enjoyed not only stability but also full pay upon retirement.[6] Another consequence was that about 45,000 civil servants, most of whom had recently been incorporated into the new system, applied for retirement. Between 1988 and 1994 the number of federal employees fell from 705,548 to 587,802, partly due to layoffs during the Fernando Collor administration and partly due to retirement. The cost of pensions, albeit high, was barely noticed at the timem because of the high inflation (Gaetani and Heredia, 2002). Transitional periods in regime change and from one system to another are, after all, marked by unexpected consequences and at times by high costs of all kinds.

Both before and soon after redemocratization, inflation control in Brazil remained difficult, preventing the restructuring of the bureaucratic ranks. After 1994, however, with the Real Plan, which successfully controlled inflation, and democratic stability, the time came to seek ways to meet the new constitutional mandate and to restructure the civil-servants career paths. In this transitional period, several forms of public servant recruitment methods coexisted: the entrance examination, the expansion of politically appointed positions, hiring via UN agencies, and temporary contracts. Over the past two decades, however, the predominant form of recruitment has become the competitive entrance examination, with nearly 300,000 new civil servants joining the federal administration via this route between 1995 and 2012 (Table 1).

6 It is estimated that between 400,000 and 500,000 civil servants acquired job stability at this time. Available at: <http://www.innomics.wordpress.com/2007/11/23/entrevista-com-francisco-gaetani/>.

Table 1. Staff hired through the entrance examination(1995–2012)

Year	Entry into federal public service via Siape[1]	Entry into federal public service via PGPE[2] system
2012	18,986	552
2011	20,059	415
2010	36,600	2,949
2009	29,728	2,436
2008	19,360	332
2007	11,939	645
2006	22,212	1,650
2005	12,453	426
2004	16,121	544
2003	7,220	-
2002	30	-
2001	660	2
2000	1,524	67
1999	2,927	117
1998	7,815	1,892
1997	9,055	1,989
1996	9,927	3,388
1995	19,675	13,258
Total	246,191	30,662

Source: MP (2012).

Notes:
[1] Siape: Sistema Integrado de Administração de Recursos Humanos (Integrated Human Resource Management System).

[2] PGPE: Plano Geral de Cargos do Poder Executivo (Executive General Career Plan).

Several events resulted in differences between the two bureaucrat systems after the return to democracy. The first was the decision by the Brazilian Constituent Assembly to eliminate access to the civil service through ways other than the entrance examination, which did not happen in Argentina. The second was the election in 1994 of Fernando Henrique Cardoso (FHC) as president, who had the reforming of the bureaucracy on his agenda. Argentina during that period saw the election of Carlos Menem as president, one of whose main reforms was to reduce the size of the federal government (Wibbels, 2001). Notably, a large number of civil servants were transferred to the provincial administrations, which were then tasked with providing services formerly under the purview of the federal government.

Illustrative of this decision is the percentage of civil servants distributed across the three levels of government in both countries. In 2012, in Argentina 17.75% of civil servants were federal; 20.13%, local; and 62.12%, provincial. In Brazil, the federal government employed 18%; the states, 40% (reduced between 1992 and 2010 by 5%); and municipalities, 42% (having grown 7% from 2000 to 2012).

The third event was the 2002 election in Brazil of Lula da Silva, a former trade union leader who was committed to expanding workers' rights, including those of civil servants, who had traditionally voted for the Workers' Party (Partido dos Trabalhadores, PT). At the same time, in Argentina a former governor, Nestor Kirchner, was elected president, who strengthened the policy of decentralization to the provinces.

The fourth event was the work of members of administrative and judicial control bodies, who deemed the hiring of civil servants through the UN system and the renewal of temporary contracts for unlimited periods unconstitutional. Under the Cardoso government, the hiring of civil servants through UN agencies was extensive, although it is not possible to know the exact figures because of the lack of centralized records. Gaetani and Heredia (2002) estimate the figure at around 8,000. In Argentina, the contracting was done by the United Nations Development Programme (UNDP), Inter-American Development Bank (IDB) and the World Bank, a system maintained during previous administrations. As in Brazil, it is impossible to know the exact number of professionals hired by these agencies. Oszlak (2003) believes that Argentina used this type of contract most extensively in Latin America.

The fifth was the intensity of the so-called structural reforms of the mid-1990s. Orlansky (1995) considered Argentina's case as one of the "wildest" and most extreme. Both countries engaged in what became known as state reforms. The objectives and roles played by various actors in these reforms, however, were different. The first difference is that in Argentina in just over three years (1989–1992) the educational system (except universities) was completely decentralized and much of the provision of health care was transferred from the federal level to the provinces. The magnitude of this shift may be gleaned from the massive transfers of civil servants from the federal government to the provinces. In 1985, federal and provincial governments employed 50% and 40%, respectively, of all public

workers; ten years later, the federal government employed 15% and the provincial governments 65% (Cao, 2008). Between 1989 and 1992, the federal health and social care workforce dwindled from 44,000 to 12,000. In the case of the Ministry of Education, the drop was even sharper, from 360,000 to 28,000 (Orlansky, 1995, p. 397). Several studies indicate that the intensity and the uncoordinated nature of this rapid decentralization jeopardized the development of the Argentinian administrative-bureaucratic system. Some suggest an exhaustion of the regulatory-federal system, which transferred sectors of the bureaucracy that had already deteriorated to the provinces, such as health care and education (Orlansky, 1995; Cao, 2008; Rubins and Cao, 1998). In Brazil, in spite of the initial mistrust of many analysts, decentralization only actually occurred after a clear definition of the roles of the three levels of government, in particular the financing and the provision of social policies by each of the three levels.

None of these changes occurred in Argentina, where the recruitment of civil servants remained similar to that under previous regimes, despite several attempts at reform. As noted by Iacoviello, Zuvanic and Tommasi (2003), the public employment system was modified several times, starting in 1992with the enactment of the Ley de Negociación Colectiva del Sector Público, the creation of Sinapa, the signing of the first collective labour agreement for the public sector, and the approval of the Marco de Regulación del Empleo Público. These efforts, however, were not coordinated and inconsistencies resulted. In spite of reform efforts, a wide variety of public employment schemes remained in place, with the transformation of temporary workers into permanent jobs, the hiring for positions via a selection process that did not involve an entrance examination, and the hiring of personnel via international organizations (Iacoviello and Zuvanic, 2006).

In contrast to Argentina, the Brazilian federal government today has three entry-level gateways to the public sector. The first is by political appointment, with 22,376 positions in 2013. The highest concentration of these jobs, however, (17,715) are in lower-paid positions (DAS levels 1 to 3). Political appointees' positions are occupied by both members of the governing political coalition and career civil servants and experts.[7] Later the federal government ruled that 75% of

7 For the profile of appointees in the federal government, see D'Araújo (2007) and Lopez (2015).

lower-paid appointments (DAS 1-3) and 50% of medium-paid appointments (DAS 4) should be occupied by career civil servants. The second way is by temporary contract, governed by the CLT labour law. In 2007 this type accounted for 5.7% of all civil servants. Temporary contracts vary from six months to four years. In contrast to Argentina, their renewal is limited.

The third and the dominant gateway by far is the civil service, governed by the Unified Legal Regime (Regime Jurídico Único, RJU). These civil servants are hired only after passing competitive entrance examinations and enjoy tenure after a three-year probation period. In 2000, the total number of public servants under the RJU was 864,408, of which 536,321 were civilians. In 2011, the total number was 984,330 and 635,743 civilians. In Argentina, the available figures are either contradictory or outdated, but according to one public administration expert, Horacio Cao, who was interviewed, the federal government has about 500,000 employees, of whom 150,000 work in universities and in the healthcare service, 150,000 are military personnel, 100,000 are under decentralized agencies, and 100,000 are under centralized direct management. Of the latter, 30,000 are part of Sinapa, i.e. are permanent, and 70,000 are temporary.

In Argentina, since the 1957 Constitution the job stability of public servants has been guaranteed. In Brazil, however, the job stability of public servants has been a constitutional mandate since the enactment of its first republican constitution. In Argentina in the 1980s, several special positions were created, increasing the diversity of schemes. With the election of Raúl Alfonsín (1983–1989), reform efforts began to focus on the qualification of civil servants in order to form a professional body whose members would hold key posts in the administration. This continued in the 1990s with the creation of a unified public service administered by Sinapa. In spite of these efforts, analysts agree that there is a wide variety of employment schemes. An attempt that was made to create a general system based on merit through Sinapa covers only a quarter of all civil servants and is stagnant. In sum, the Argentinian bureaucratic system has been extraordinarily resistant to change, and the competitive merit-based recruitment of staff for the bureaucracy has not been part of the redemocratization agenda.

4.1 – Bureaucracy quality in comparative perspective: Brazil and Argentina

Data from different sources show that the Brazilian bureaucracy is better positioned than the Argentinian (Table 2). In the 'Bureaucratic Merit Index', a ranking of Latin American countries according to the professionalism of their civil servants and the degree to which the latter are protected from arbitrariness, politicization, and rent-seeking, Brazil holds the top position with 90 points on a scale of 0–100, and Argentina the fifth, with 55 points[8]. In the ranking by Evans and Rauch (1999), made fifteen years ago and thus does not take into account recent changes, Argentina obtained a score of 3.8%, below the average for Latin America, and Brazil 7.6%.

Table 2. Governance indicators

Index	Brazil	Argentina
Meritocratic practices in the public service	87.00	31.00
Capability of external oversight institutions	43.00	36.00
Competence of civil servants	78.00	53.00
Confidence in the public administration	-	22.30
Consistency/predictability of interpretation of rules by civil servants	58.00	26.03
Efficacy of public service incentives	50.00	-
Efficiency of the public service	56.00	-
Functional capability of the public sector	61.00	-
Capability of integration in the public sector	56.00	-
Consistency of leadership in the public sector	50.00	-
Distribution of authority between levels of government	23.00	57.00

Source: Indicators built from questionnaires with experts from each country and from DataGov (available at: <http://www.iadb.org/datagob/home_esp.html>).

Note: The index covers 180 countries and the range is 0–100.

4.1.1 – Brazil: Bureaucratic Quality Index

The BQI was crafted to capture the main dimensions of the quality of the federal bureaucracy and was calculated by assessing development policies in four areas: environmental, industrial, infrastructure, and innovation. What was sought

8 See *The Politics of Policies,* Inter-American Development Bank, available at <http:/idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=1600271>.

with the construction of this indicator was to highlight the differences between government agencies regarding their ability to participate in the design and implementation of policies. Unlike other indices, the BQI is broken down into four major dimension areas, two of them subdivided, seeking to show differences between agencies and policies. These dimensions are: (*i*) admission and recruitment; (*ii*) qualification and education; (*iii)* internal promotion; and (*iv*) accountability.

The selection of the dimensions reproduces the indicators identified by Evans (1992; 1995) and Peters (1995) for the degree of quality and professionalization of a bureaucracy: meritocratic recruitment, rules for hiring and firing that replace arbitrary and politically motivated hiring and layoff without criteria; the filling of senior positions in the bureaucracy through internal promotion; relations with pressure groups, parties, trade unions, and non-governmental organizations (NGOs); and control of the bureaucracy, that is, its accountability and relations with elected politicians. Most of these features are reflected in the indicators that make up the BQI, which also incorporates the existence of generalists mentioned above, known as Specialists in Public Policy and Government Management (Especialistas em Políticas Públicas e Gestão Governamental, EPPGG).

To obtain the indexes, weighted sums were calculated of the key selected indicators for each of the four dimensions analysed. The BQI is the sum of the indexes for each indicator, multiplied by their corresponding weights, listed below, using the formula defined for the calculation. The weights used correspond to the relative importance of each indicator and were assigned on an ad hoc basis. The result of this calculation corresponds to a general index for the quality of a bureaucracy. Table 3 lists the surveyed agencies by policy area.

The BQI data was extracted from official sources. The primary source is the Transparency Site (Portal da Transparência), maintained by the General Comptroller of the Union (CGU). Civil servants in the surveyed agencies were filtered from the general database. The base contains around 1 million employees – civilian and military – distributed through 299 agencies, and is updated monthly.[9] Some of the agencies included in the BQI are not listed on the Transparency Site because

9 This database provides data for the month being accessed and does not contain historical series. It is, therefore, a snapshot of the moment.

they are state-owned companies. In such cases, data was obtained from reports published online. Other sources were consulted to complement the data, including (*i*) for the workforce's level of formal education, the Personnel Statistical Report (Boletim Estatístico de Pessoal, MP 2012), supplemented by management reports issued by each state-owned agency; *(ii)* for generalist managers, data was obtained from the Ministry of Planning's website;[10] (*iii*) data on the accountability dimension came from the Record of Dismissals from the Federal Administration (Cadastro de Expulsões da Administração Federal, CEAF), available on the Transparency Site. From these datasets a synthetic indicator was created – the BQI. The sample consisted of over 28,000 records (Table 4).

Table 3.Agencies surveyed by policy area

Policy area	Agency
Environmental	Ministry of the Environment (MMA)
	Brazilian Institute of Environment and Natural Resources (Ibama)
	Chico Mendes Institute for Biodiversity Conservation (ICMBio)
Industrial	Ministry of Development, Industry and Foreign Trade (MDIC)
	National Institute of Metrology, Quality and Technology (Inmetro)
	National Institute of Industrial Property (INPI)
	Superintendence of the Manaus Free Trade Zone (Suframa)
Infrastructure	Ministry of Transport, Ports, and Civil Aviation (MT)
	Engineering, Construction and Railways S/A (Valec)
	National Department of Transport Infrastructure (DNIT)
	Ministry of Mines and Energy (MME)
	Electric Power Agencies of Brazil S/A (Eletrobras)
	Center for Energy Research (Cepel)
	Energy Research Company (EPE)
Innovation	Ministry of Science, Technology, and Innovation (MCTI)
	Brazilian Agency of Innovation (Finep)
	Nuclear Industries of Brazil (INB)
	Nuclear Companies of Brazil SA (Nuclebras)
	National Council for Scientific and Technological Development (CNPq)

10 Available at <www.planejamento.gov.br/secretarias/upload/Arquivos/seges/EPPGG/seges/EPPGG_setembro_2012.pdf>.

Table 4. Agencies surveyed by policy area

Policy area	Number of agencies	Number of civil servants
Environmental	3	9,879
Industrial	4	3,130
Infrastructure	7	8,408
Innovation	5	7,348
Total	19	28,765

Unlike Bersch et al. (2016), who created an index and selected 73 agencies from the Transparency Site, covering all civil servants in those agencies and all political appointees, this study confines the sample to civil servants who take part in the design and implementation of policies, as well as appointees occupying medium – and high-level positions (DAS 4 to 6), in line with the study's stated objectives. Accordingly, some categories of civil servants, even those with college degrees, were excluded, such as doctors, accountants, and lawyers, if they did not act in a policy-design or -implementation capacity.

Furthermore, this investigation collected data on employees from state-owned companies (who are not included in the Transparency Site's database), thus adding six organizations to those investigated by Bersch et al. (2016). Within the category of innovation policy, INB and Funding Authority of Studies and Projects (Financiadora de Estudos e Projetos, Finep) were included, and within that of infrastructure, Eletrobras, Cepel, EPE and Valec were included. These agencies are considered fundamental for development policies and without their inclusion the assessment of the quality of the bureaucracy in the selected policy areas would be incomplete. Table 5 lists the indicators assessed in this study.

Both indicators for Recruitment – temporary contracts and number of civil servants requisitioned from other agencies – measure the fragility or the degree of sustainability of the bureaucracy associated with a given policy area. In other words, the higher the number of the two indicators, the lower the bureaucratic capacity of the agency. The dimension Qualification represents the number of civil servants with a college degree who have a generalist qualification, a measure not used by previous surveys. This dimension was selected because of the importance of generalists in the structure of the federal government, leading to the hypothesis

Table 5. Calculation of indicators (by dimension)

Dimension	Indicator	Calculation
Recruitment	Proportion of civil servants with temporary contract	Number of civil servants with temporary contracts ÷ total number of civil servants in the agency hired through entrance exams
Recruitment	Proportion of civil servants requisitioned from other agencies	Number of civil servants requisitioned from other agencies ÷ total number of civil servants in the agency hired through entrance exams
Qualification	Proportion of civil servants with a generalist qualification (EPPGGs)	Number of generalists ÷ total civil servants with college degrees
Qualification	Proportion of expert civil servants	Number of experts ÷ total of civil servants with college degrees
Internal promotion	Occupation of political appointments by career civil servants	Number of career civil servants appointed to selected political appointed positions ÷ 50% of the total number of the selected positions available for appointment
Accountability	Proportion of civil servants dismissed after administrative processes	Number of civil servants dismissed ÷ total number of civil servants in the agency

Note: Only civil servants who participate directly in the design and implementation of policies were included.

that the higher the number of generalists, the greater the bureaucratic capacity of the agency. On the other hand, an indicator calculating the participation of experts in the agency was included because of the particularities of development policies. These two dimensions – experts and generalists – measure the complexity of the tasks handled by the federal government. The dimension Internal Promotion measures the holding of career employees of senior positions in the administration. The higher the participation of career employees in politically appointed positions, the higher the meritocratic quality in that agency. Finally, the Accountability dimension measures the level of compliance with legal and administrative rules. To calculate the BQI, used as a proxy for the quality of the bureaucracies responsible for implementing developmental policies, the following indicators were used:

Table 6. Selected indicators by dimension

Dimension	Indicator
Recruitment	IR1 – Proportion of civil servants with temporary contract
Recruitment	IR2 – Proportion of civil servants requisitioned from other agencies
Qualification	IF1 – Proportion of civil servants with a generalist qualification (EPPGGs)
Qualification	IF2 – Proportion of expert civil servants
Internal promotion	IP1 – Occupation of political appointments by career civil servants
Accountability	IA1 – Proportion of civil servants dismissed after administrative processes

When grouping agencies according to policies, indicators IR1, IR2, IF1, IF2, and IA1 were assigned values ranging between 0 and 1. In indicators where values showed lower bureaucratic quality, such as civil servants with temporary contracts, civil servants requisitioned from other agencies and civil servants dismissed for wrongdoing, the difference between the unity and the value for each indicator was used. In indicators where values close to unity signaled a lower-quality bureaucracy, as in proportion of civil servants hired on temporary contracts or proportion of civil servants requisitioned from other agencies and those dismissed for wrongdoing, the difference between the unity and the observed value was used for each variable. The indicator "occupation of politically appointed positions by career bureaucrats" has been converted into an index with values from 0 to 1. This was made using as a parameter a maximum value of 1.8 and a minimum value of 0.3, meaning that the closer the indicator is to 1.8, the higher the bureaucratic quality.

The following formula was used for the index transformation:

$$IP1' = \frac{IP1obs - 0.3}{1.8 - 0.3}$$

The indicators, transformed into indexes ranging from 0 to 1, were grouped for the four policy areas.

The BQI was calculated as follows:

$$IQB = (1 - IR1) \times p_1 + (1 - IR2) \times p_2 + IF1 \times p_3 + IF2 \times p_4 + IP1' \times p_5 + (1 - IA1) \times p_6 .$$

where p_1, p_2, p_3, p_4, p_5 and p_6 refer to the weights of the respective indicators.

Table 7. BQI by development policy area

Policy area	BQI
Industrial	0.71
Innovation	0.69
Environmental	0.62
Infrastructure	0.60

Like any other index, the BQI enables a ranking of bureaucratic quality. However – and as with any aggregate index – the overall BQI does not capture the differences within each policy area nor identify differences among agencies. Furthermore, and as expected, the variation between policy areas is small, given the high number of competitive entrance examinations held in recent decades. The differences begin to appear more clearly, however, when the BQI is separated by dimension, as shown in the following tables.

Recruitment

For the first dimension of Recruitment – civil servants on temporary contracts (IR1) – environment agencies had the highest score (0.50), followed by infrastructure (0.23). In the case of environment, however, the variable is increased by two of the agencies under the MMA coordination, Ibama and ICMBio.

For the second dimension of Recruitment – civil servants requisitioned from other agencies (IR2) – a policy area that stands out is infrastructure, boosted by Valec, Elebrobras, and the MME. Interestingly, requisitioning civil servants was a common practice in the past and considered one of the obstacles to bureaucratic improvement because it brought uncertainties regarding staff availability.

Qualification

For the first dimension of Qualification – participation of generalists in the agency (IF1) – industrial policy has the highest score. The participation of experts (IF2) is significant in environmental policy, with a ratio of 0.83, while infrastructure has the smallest proportion (0.36). Innovation policy has the second highest proportion (0.78). Innovation and industrial policies scored equally (0.75). Note that among the four selected policy areas, the environmental, the industrial, and the innovation agencies created specific career plans and have had several entrance examinations in recent decades.

Internal promotion

Infrastructure is the policy area that has the highest score, followed by industrial, environmental and innovation agencies. In Accountability, environmental agencies have a relatively high percentage of dismissed civil servants (0.02), especially in comparison to infrastructure and innovation.

Accountability

Environmental agencies have a relatively high percentage of dismissed civil servants (0.02), especially in comparison to infrastructure and innovation.

Table 8. BQI by dimension

Dimension	Indicator	Weight	Environmental	Industrial	Infrastructure	Innovation
Recruitment	IR1	0.2	0.50	0.01	0.23	0.04
Recruitment	IR2	0.2	0.02	0.01	0.06	0.01
Qualification	IF1	0.2	0.01	0.02	0.01	0.01
Qualification	IF2	0.2	0.83	0.75	0.36	0.75
Internal Promotion	IP1′	0.1	0.59	0.61	0.79	0.46
Accountability	IA1	0.1	0.02	0.01	0.00	0.00
		BQI	0.62	0.71	0.60	0.69

Table 9 isolates dimensions by agency. It shows the relatively high proportion of civil servants with temporary contracts at the Ministry of the Environment, the Ministry of Energy, the Ministry of Transport, and two environmental agencies – ICMBio and Ibama.. This is an unusual situation and does not occur in agencies in other policy areas. As stated previously, the relatively high number of temporary workers reveals fragility in a bureaucracy. Temporary hiring may be justified when an agency's remit is broadened, which, however, does not seem to have been the case with these agencies.

Discussing whether the relatively high proportion of temporary workers affects the successful implementation of policies lies beyond the scope of this study. Explanations for why such agencies differ can be found in the main feature they have in common: some do not have career plans, or career plan creation has occurred only recently. The Ministry of Energy (MME) for instance, has not yet created an expert career plan; its current forty-nine college-educated staff

work under the PGPE. The Ministry of Transport did establish a career plan for infrastructure analysts, but entrance examinations were introduced only in 2007.

Agencies responsible for infrastructure policy have been criticized for difficulties in addressing the country's infrastructure bottlenecks (Bersch et al., 2016). To improve the qualification of the bureaucracy to support infrastructure, the government made use of two strategies. The first, starting in 2012, was the creation of the career plan of 'senior infrastructure expert,' with eighty-four positions, with the purpose of supporting infrastructure programs in the areas of roads, sanitation, energy, mineral production, communications, and urban and regional development. These experts are not connected to sectoral ministries, but are under the purview of the Ministry of Planning and Management, which distributes them among agencies. The second strategy was the creation of new state-owned companies such as Valec and EPE, both addressing road infrastructure. Ibama, the main environmental licensing agency, created a career plan for an 'environmental analyst', and the first entrance examination (intended to fill 108 vacancies), was only held in 2012. ICMBio lacks a career plan for experts.

Despite the significant increase in the number of civil servants hired through entrance examinations in recent decades, the proportion of civil servants with temporary contracts is still sizable in the above mentioned agencies – 0.47 in Ibama and 0.70 in ICMBio. At the Ministry of Transport and at the Ministry of Energy, temporary workers outnumber career civil servants under the RJU regime, as shown in the tables below. The decisions not to create career plans for all public administration agencies or hold regular entrance examinations for all positions are likely to influence the implementation of policies, as well as in diminishing civil servant commitment to the agency. This finding supports the hypothesis that bureaucratic capacity is unevenly distributed across the government portfolio.

Table 9. Recruitment: Temporary workers and civil servants requisitioned from other agencies

Policy	Agency	Proportion of civil servants with temporary contract	Proportion of civil servants requisitioned from other agencies
Environmental	MMA	0.19	0.03
	Ibama	0.47	0.02
	ICMBio	0.70	0.01
Industrial	MDIC	0.04	0.05
	Inmetro	0.00	0.01
	INPI	0.00	0.00
	Suframa	0.00	0.00
Infrastructure	MT	1.07	0.05
	Valec	0.00	0.29
	DNIT	0.00	0.01
	MME	2.30	0.14
	Eletrobras	0.00	0.16
	Cepel	0.00	0.01
	EPE	0.00	0.00
Innovation	MCTI	0.06	0.01
	Finep	0.10	0.00
	INB	0.00	0.00
	Nuclebras	0.00	0.00
	CNPq	0.00	0.07

Table 10 shows that the participation of generalists is especially significant in Mines and Energy (0.21), followed by Environment (0.08) and Industry & Foreign Trade (0.07). Generalists are selected through the most competitive entrance examinations for federal careers and are among the best paid. A higher proportion of these professionals in the MME offsets the high number of temporary civil servants. The existence of experts and of career plans for civil servants shows another variation among agencies. According to Table 10,proportions are extremely low in the Ministry of Transport (0.01). Still according to Table 10 there are no such professionals in the Ministry of Mines and Energy cadres. Their few experts have been assigned to other agencies. Conversely, in the Ministry of the Environment 96% of the staff recruited through entrance examinations are hired as experts. An important distinction between generalists and experts is reflected in their salaries. In May 2013, the monthly starting salary of a generalist was R$ 13,608.81, while that

of an expert at Ibama with a college degree was R$ 5,867.48 and that of an expert in transport infrastructure with a college degree was R$ 8,369.83. Infrastructure experts hired by the Ministry of Planning, however, had an entry-level starting salary of R$ 12,195.82.[11]These salaries point to a possible problem in attracting talented workers for expert careers: because everyone is required to have a college degree for all of these positions, why would the best candidates choose an expert career over a generalist? In other words, expert careers offer lower wages, reducing the incentives for attracting the "best". This may have been the reason why the government introduced the career plan of infrastructure expert, with a salary well above that of the specialist career plan, at the Ministry of Transport, and created two new state-owned companies.

Table 10. Qualification: Generalists versus experts

Policy	Agency	Proportion of generalists at the agency	Proportion of experts at the agency
Environment	MMA	0.08	0.96
	Ibama	0.00	0.82
	ICMBio	0.01	0.79
Industrial	MDIC	0.08	0.50
	Inmetro	0.00	0.91
	INPI	0.00	0.86
	Suframa	0.01	0.00
Infrastructure	MT	0.01	0.01
	Valec	0.00	-
	DNIT	0.00	0.43
	MME	0.21	0.00
	Eletrobras	0.00	0.69
	Cepel	0.01	-
	EPE	0.02	0.67
Innovation	MCTI	0.01	0.60
	Finep	0.00	0.88
	INB	0.00	0.81
	Nuclebras	0.00	0.21
	CNPq	0.00	1.72

[11] At the time the exchange rate was R$2.15 = US$1.00.

Regarding internal promotion and the empowerment of career civil servants, all agencies have such staff in politically appointed positions. This shows the quality of career civil servants admitted by exams and also shows the government's support for internal promotion. This dimension is particularly significant in the Ministries of Mines and Energy and of the Environment, and less so in the Ministries of Transport, Industry & Foreign Trade, and Science, Technology and Innovation.

In accountability, the scores are low, which means that the number of fired civil servants is small. However, it may not be a coincidence that the agencies that have the highest numbers are those that have no specific career plan (Suframa) or have only recently established one (Ibama). It is important to remember, however, that the system of competitive entrance exams is a safeguard, albeit an insufficient one, against the capture of public interest by private parties. Dismissed civil servants not only lose a well-paid job but also tenure. This can be particularly sensitive in agencies such as Ibama, responsible for the surveillance of large areas and of licensing, which is subject to the conflicting interests of powerful economic groups. In an agency like ICMBio, responsible for overseeing parks, the large number of temporary workers may not have the same meaning as in Ibama, given that the service is less prone to conflict.

The data presented thus far has demonstrated that according to the criteria set forth by Evans (1992) and Peters (1995), the Brazilian federal bureaucracy today exhibits most of the characteristics of a Weberian bureaucracy. In less than twenty years, there have been radical changes with regard to recruitment, level of education, qualification, and internal promotion. Among these changes, the one with greatest impact was the replacement of the patronage-driven hiring system or of "islands or pocket of excellence" with hiring on the basis of competitive entrance examinations. This change was a key commitment to the strengthening of the democratic system. However, if the BQI demonstrates the relatively high quality of the Brazilian bureaucracy in relation to previous periods, this quality is not evenly distributed. The BQI for development policy areas supports the following conclusions.

Table 11. Internal promotion and accountability

Policy	Agency	Proportion of civil servants politically-appointed[1]	Proportion of civil servants dismissed for misdeeds
Environment	MMA	1.50	0.01
	Ibama	0.67	0.03
	ICMBio	0.29	0.00
Industrial	MDIC	1.09	0.00
	Inmetro	1.58	0.00
	INPI	1.29	0.00
	Suframa	1.20	0.06
Infrastructure	MT	1.30	0.00
	Valec	-	0.00
	DNIT	0.90	0.01
	MME	1.79	0.00
	Eletrobras	1.50	0.00
	Cepel	1.67	0.00
	EPE	1,24	0.00
Innovation	MCTI	0.92	0.00
	Finep	-	0.00
	INB	0.74	0.00
	Nuclebras	1.74	0.00
	CNPq	-	0.00

Note:
[1] In state-owned companies, these positions are not reported.
Appendix A details the data by policy area.

First, the availability of online information that is regularly updated provides Brazil's policymakers with a comparative advantage in relation to other countries. If the goal of presenting data is transparency of government activities, the dissemination of those data enables the timely detection of policy areas in need of improvement. Second, the proportion of temporary civil servants signals that some career plans have still not been consolidated. The influence of this dimension on the bureaucratic capacity of agencies, however, is not uniform. This means that in agencies that perform activities that involve conflicts between stakeholders, such as Ibama, the influence from this modality of contract on bureaucratic capacity

is greater than on, for instance, ICMBio, which oversees national parks. Third, the government has prioritized the strengthening of the bureaucracy of agencies in charge of industrial and innovation policies, not only by implementing annual entrance examinations, but also by structuring career plans. In addition, the industrial policy area has the largest proportion of generalists. In contrast, several career plans in infrastructure were either structured very recently or still not have been. Regarding careers, one of the main conclusions of this study is that the wage gap across career tracks makes some, especially in infrastructure, less attractive to the best candidates. Fourth, the BQI revealed that some agencies, notably the Ministry of the Environment, have a stronger internal promotion policy than others.

Finally, the BQI identifies two recent trends in the bureaucratic system. The first is the establishment of new state-owned companies, especially in infrastructure. This may be a response both to the high cost of test-based recruitment and to the bottlenecks of this policy area. If, on the one hand, recruitment by merit is a response to the fact that the public sector was previously marked by patronage and therefore antidemocratic, on the other, this form of recruitment carries all sorts of costs, including that of court appeals. It is worth noting that companies such as Petrobras and the National Bank for Economic and Social Development (BNDES), hiring by the new state-owned companies is also by merit-based exams. What seems to be occurring is the growth of these arrangements, where state-owned companies, rather than public agencies, hire under the CLT labour law for jobs without tenure but maintain the requirement of entrance examinations. The second trend is the creation of new career plans, following the format of the 'career plan of generalists,' with salaries higher than those earned by experts and linked to the Ministry of Planning, which redistributes these professionals among ministries. Seven new career plan types are already in this category. These trends point to the adaptability of the bureaucratic system established in 1988, albeit without abandoning the meritocratic nature of entry into public service.

4.2 – Argentina's bureaucrats: Who are they, what do they do, and how are they recruited?

The questionnaire given to eighteen respondents was partly inspired by Evans and Rauch's questionnaire (1999), and the dimensions analysed are the same

as those in Brazil's BQI. The ex post evaluation of the questionnaire revealed consistency in answers but, as expected, some answers are conditioned by the institutional position of the respondents. The standard questionnaire applied in Argentina can be replicated in future research endeavors.

Recruitment

The heritage of patronage in Latin America led to the institution of entrance examinations becoming one of the most highly pursued objectives during reformist waves. Competitive examinations, however, are still not the rule in Argentina, despite several attempts to reform the bureaucratic system. The vast majority (82%) of respondents said that fewer than 30% of civil servants are hired by means of competitive entrance examinations, confirming what analysts of the Argentinian bureaucracy say. The lack of entrance examinations, however, does not preclude other forms of selection based on meritocratic criteria. The process of hiring civil servants in Argentina involves a variety of instruments which, to a certain extent, indicate the capacity of civil servants.

The lack of entrance examinations does not mean that the current Argentinian bureaucracy lacks capacity, or that the filling of all positions are subject to patronage. Respondents say that some agencies are characterized by having a qualified and highly skilled bureaucracy, the members of which are often recruited through entrance exams, such as the Ministries of Foreign Affairs and Finance and the federal universities. In other areas, the perception is that a minimally Weberian bureaucracy is lacking: Social Development and Health Care, for instance, have parallel bureaucracies, i.e. outside of the civil service system. In the words of the respondents, they are also "decadent" agencies. More recently established ministries, such as that of Science, Technology, and Productive Innovation, have qualified bureaucracies in which most experts hold a university degree. Agencies once considered highly qualified, such as the Ministry of Economy and the Central Bank, have lost much of their most qualified staff in recent years.

Argentina, in fact, does still require competitive entrance exams for some careers plans and for less-complex positions, typically more administrative than policy oriented. In the perception of respondents, a strategy for getting a civil service position combines personal or partisan loyalty with qualified training and education. Loyalty is not only to a political party; it may also be personal, according

to most respondents. In the words of one interviewee, there is currently a "militant bureaucracy," committed to the success of the priority policies of the ruling party. These civil servants, however, do not necessarily lack qualification.

Unlike Brazil, politically appointed positions are not limited and do not require congressional approval. As in the past, "islands of excellence" exist; one example is the Administración Nacional de la Seguridad Social (Anses). Civil servants in these "islands" do not always take part in the design of policies, but rather are responsible for implementation of policies that the government prioritizes, as was the case with the Asignación Universal por Hijo (AUH). Furthermore, and also unlike in Brazil, nine out of ten occupants of high-level direction position have not been selected through entrance exams (Pomares et al., 2015).

Other respondents recognize that the Kirchner administrations favored the state as a designer and implementer of policies, moving away from the strategy of previous governments that strengthened the role of the private sector in allocative decision making. Recovering the former role of the government after the privatization of several services, however, was no easy task. It is recognized that sometimes the government lacks the competence to carry out some policies. Many respondents say that elected politicians have a relatively high capacity in terms of decision making, but the government as a whole has low implementation capacity.

Qualification

Across the respondents as a whole, 46% believe that between 30% and 60% of civil servants have a college degree, but according to 50% of the bureaucrats interviewed, 90% of all civil servants have a college diploma. The difference in perception can be explained by the institutional position of the respondent, i.e. respondents who are not bureaucrats have little interaction with policy-formulating agencies. Nine out of ten employees occupying high positions in the civil service have a college degree (Pomares et al., 2015).

Acrossall respondents, 64% believe that between 30% and 60% of civil servants work on temporary contracts. Unlike in Brazil, Argentinian law allows temporary employment for unlimited duration, which ultimately transforms these positions into permanent posts. It can be said that in general permanent employees occupy administrative positions and the technical staff are temporary. Temporary staff are

generally hired via UNDP, IDB, and the World Bank, as in Brazil between 1994 and 2000. These organizations charge a fee for administering these contracts and are paid by the government. As in Brazil, less than 30% of civil servants work part-time. This means that the great majority of public servants in Argentina have full-time employment.

Of the respondents, 46% believe that between 30% and 60% of civil servants are experts, but also agree that the participation of experts varies from one policy area to another. Civil servants in the Ministries of Foreign Affairs, Economy, Education, and Health have a certain level of specialization. Regarding generalists, the Alfonsín administration established a career plan with characteristics similar to the Brazilian model. Later, the Menem government incorporated them into some policy areas. According to respondents, the number of generalists was significant, but the career carried little prestige and most of them tended to leave the civil service. The Argentinian experience with the creation of a career plan for generalists contrasts with that of Brazil, in which the number of generalists has grown as they earn among the highest salaries in the public sector and occupy politically appointed positions in government agencies.

According to 64% of respondents, the average length of employment of civil servants is between five and ten years. This is explained by the high number of temporary contracts that are subject to electoral cycles. This also distinguishes Argentina from Brazil, where, after passing the entrance examinations and completing a probation period, civil servants have positions for the entirety of their working lives.

The attractiveness of a public career for those who have attended the best universities can be used as a proxy for bureaucratic quality. Respondents (73%) believe that it depends on the circumstances and the incentives offered. This exacerbates the uncertainties faced by civil servants in Argentina.

Concerning what bureaucrats in Argentina do, there is great divergence between what the bureaucrats themselves think compared to other interviewees: 75% of the former claim that they participate in the design of policies, while 71% of the remaining interviewees believe that bureaucrats rarely participate in policy formulation. Most respondents who are not bureaucrats believe that during the Kitchener administrations the main policymaker was the Presidency and that

bureaucrats were not involved. Sometimes government agencies are informed through the media about policies announced for their area, as was the case of the AUH and the nationalization of the Administradores de Fondos de Jubilaciones e Pensiones (AFJP). Some decisions are made in light of the political moment and with little technical evaluation. The roles of some agencies in terms of policy-making have also been weakened. This is the case of the Ministry of the Environment, where the main position is that of lawyers, indicating that the agency's capacity is less oriented towards policy-making and more towards enforcing compliance with legal procedures.

Internal Promotion

Internal promotion is not common practice and civil servants are rarely promoted more than twice during their careers.

Accountability

Among the respondents, 91% acknowledge that civil servants are rarely fired due to misdeeds and that investigative journalism and investigations by judicial or administrative control bodies that oversee bureaucratic activity are rare. This contrasts with the situation in Brazil, which is currently experiencing a period of scandals involving politicians, bureaucrats, and the business community, attracting media coverage and strengthening the scrutiny of internal and external control agencies and the justice system.

Summing up, in Argentina the bureaucratic system has not undergone significant changes after redemocratization. Associating competitive merit-based recruitment with the return of the democratic regime was not on the political actors' agenda and was not pursued by the federal government. The absence of entrance examination sand the existence of different rules governing the hiring of Argentinian civil servants do not necessarily mean that patronage mechanisms alone prevail. As reported by respondents, on the one hand access to public employment is through personal or partisan ties rather than by entrance examinations, but on the other it is still based on criteria of technical expertise in policy areas seen as a priority for the governing political group. This form of recruitment, however, suggests bureaucratic instability when there is a change in the ruling party. The analysis of the Argentinian bureaucracy also reveals that attempts have been

made to professionalize the bureaucracy, but these were poorly supported by the government and short-lived. It also reveals that Brazil and Argentina share a common characteristic: their bureaucratic systems combine features both of the professional-oriented bureaucracy, i.e. a generalist, and of organizational-oriented bureaucracy, i.e. an expertise model, as set forth by Silberman (1993), though generalists are more common in Brazil than in Argentina.

5. CONCLUSION

This chapter discussed the bureaucratization processes in Brazil and Argentina and the role and the quality of their federal bureaucracies. In the case of Brazil, an index was crafted to measure the quality of the bureaucratic staff who participate in the design and implementation of development policies. In Argentina, a questionnaire sought to overcome the absence of systematized data. The analysis was rooted in the concept of state capacity and drew on the literature on state formation and its relationship with bureaucratization.

Two theoretical contributions were made. The first is that one of the hypotheses in the literature was confirmed: bureaucratic capacity is not evenly distributed across government agencies, neither in Brazil nor in Argentina. The BQI, the results of a questionnaire in Argentina, and data from secondary sources show that the quality of the Brazilian bureaucracy is comparatively high, but when the index is broken down into policy areas and intra-agencies, some shortcomings appear, particularly with regard to one of the characteristics of a professional bureaucracy, namely the existence of a stable career. In Argentina, redemocratization did not change the bureaucratic system, which retains characteristics from the past. Argentinian federal civil servants are governed by several different legal regimes and most are recruited on the basis of personal and/or party connections. This does not mean, however, that the Argentinian government lacks the capability to design and implement policies, but rather that this ability is restricted to policies considered a priority by the administration. The Argentinian bureaucracy also lacks rules and procedures capable of reducing uncertainty and remains subject to electoral cycles.

Another theoretical contribution has been the analysis of the late bureaucratization process in both countries. A political decision to reform the bureaucracy was made in Brazil after redemocratization, but this did not occur

in Argentina. Although there is robust evidence that the Brazilian bureaucratic system and large state-owned companies created during the Vargas administration were stronger and more resilient than those created under Peronism, an explanation based solely on trajectory has limited power in terms of elucidating why after redemocratization Brazil followed one path and Argentina another. The variances can be explained by different responses to the same political agenda: in one country the strengthening of democratic institutions was a high priority, while in the other coming to terms with what was considered one of the most violent military regimes in Latin America was deemed most important. The reason for their differences, I argue, lies more in decisions taken by rational political actors rather than on legacies from the past.

From an empirical point of view, the construction of a Brazilian index constitutes a method that can be replicated in the analysis of other policies and/or policy sets. The BQI was designed to support decisions at the federal level and for a comparison of the quality of the bureaucracy, both within agencies and between ones in charge of different development policies. Understanding where bureaucratic quality is lacking enables policymakers to know what needs to be done to improve the quality of policies. An assessment made with the BQI was able to identify which agencies reveal fragility in their role, given their relative bureaucratic weakness. The BQI also furthers our knowledge about why some policies are more likely to succeed than others, hence providing the government with a more comprehensive and systematic diagnosis of the role of the bureaucracy in charge of the four policy areas analysed here.

The difference found between the bureaucratic systems of Brazil and Argentina over the last two decades can be traced to their redemocratization agendas and the different moments of their institutional and constitutional reforms. The Brazilian elite sought to ensure the building of stronger democratic institutions via the constitution, within which a Weberian bureaucracy was inserted. In Argentina, on the other hand, redemocratization focused on an agenda of strengthening human rights and punishing violations that had occurred during the military regime.

Although this study contributes to the still-incipient debate about bureaucratic capacity and policy implementation, it is only a beginning. A larger sample of countries, in particular those where bureaucratization occurred later than in

others, is necessary. By the same token, the addition of other policy areas in Brazil may explain better why some policies are more successful than others. Furthermore, given recent changes in the role of the state in Latin American countries, in particular in Argentina and Brazil, there is a need for new analyses of the consequences for bureaucratic capacity and for policy implementation, which will require a longer time-series investigation.

BQI by policy area

ENVIRONMENTAL POLICY

Dimension	Dimension	MMA	Ibama	ICMBio
Recruitment	Proportion of civil servants on temporary contracts versus those hired by exam	0.19	0.47	0.70
Recruitment	Proportion of appointees versus total number of civil servants	0.03	0.02	0.01
Qualification	Proportion of generalists in the agency	0.08	0.00	0.01
Qualification	Proportion of specialists in the agency	0.96	0.82	0.79
Internal Promotion	Proportion of career civil servants hired by exam in high-level politically appointed positions	1.50	0.67	0.29
Accountability	Proportion of civil servants fired for misdeeds	0.01	0.03	0.00

INDUSTRIAL POLICY

Dimension	Dimension	MDIC	Inmetro	INPI	Suframa
Recruitment	Proportion of civil servants on temporary contracts versus those hired by exam	0.04	0.00	0.00	0.00
Recruitment	Proportion of politically appointed civil servants versus total number of civil servants	0.05	0.01	0.00	0.00
Qualification	Proportion of generalists at the agency	0.08	0.00	0.00	0.01
Qualification	Proportion of specialists at the agency	0.50	0.91	0.86	0.00
Internal Promotion	Proportion of career civil servants hired by exam in high-level politically appointed positions	1.09	1.58	1.29	1.20
Accountability	Proportion of civil servants fired for misdeeds	0.00	0.00	0.00	0.06

BQI by policy area

INFRASTRUCTURE POLICY

Dimension	Dimension	MT	Valec	DNIT	MME	Eletrobras	Cepel	EPE
Recruitment	Proportion of civil servants on temporary contracts versus those hired by exam	1.07	0.00	0.00	2.30	0.00	0.00	0.00
Recruitment	Proportion of politically appointed civil servants versus total number of civil servants	0.05	0.29	0.01	0.14	0.16	0.01	0.00
Qualification	Proportion of generalists at the agency	0.01	0.00	0.00	0.21	0.00	0.01	0.02
Qualification	Proportion of specialists at the agency	0.01	-	0.43	0.00	0.69	-	0.67
Internal Promotion	Proportion of career civil servants admitted by exam in high level politically-appointed positions	1.30	-	0.90	1.79	1.50	1.67	1,24
Accountability	Proportion of civil servants fired for misdeeds	0.00	0.00	0.01	0.00	0.00	0.00	0.00

BQI by policy area

INNOVATION POLICY

Dimension	Dimension	MCTI	Finep	INB	Nuclebras	CNPq
Recruitment	Proportion of civil servants on temporary contracts versus those hired by exam	0.06	0.10	0.00	0.00	0.00
Recruitment	Proportion of politically appointed civil servants versus total number of civil servants	0.01	0.00	0.00	0.00	0.07
Qualification	Proportion of generalists at the agency	0.01	0.00	0.00	0.00	0.00
Qualification	Proportion of specialists at the agency	0.60	0.88	0.81	0.21	1.72
Internal Promotion	Proportion of career civil servants hired by exam in high- level politically appointed positions	0.92	-	0.74	1.74	-
Accountability	Proportion of civil servants fired for misdeeds	0.00	0.00	0.00	0.00	0.00

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CHAPTER 3

COMPARED INNOVATION POLICIES AND STATE CAPABILITIES: BRAZIL, CHINA AND ARGENTINA[1]

Ana Célia Castro

[1] This chapter is a modified version of Castro (2015).

1. INTRODUCTION

Industrial development policies, gradually abandoned worldwide throughout the 1990s, have had a strong comeback after the recent economic crises, today tending to coalesce with science, technology and innovation policies. These policies reaffirm the fundamentally strategic nature of their choices and goals, and highlight the relevance of good governance or coordination in their implementation.

In this paper, the main focus of analysis is governmental capability and potential to not only reach technological parity with more advanced countries (catching-up) but, above all, wherever possible, to overcome the leaders (leapfrog) in certain industries or areas of knowledge – even if active leapfrogging to surpass the frontier leader is an unlikely phenomenon, as the structure that would enable this would also have enabled not falling behind in first place, and vice-versa; passive leapfrogging, such as African countries reaching online banking before traditional banking, does not enable overcoming the leaders at the frontier, only to reduce the gap. Therefore, the main objective of this study is to review State capabilities to formulate and implement innovative strategies and bypass and avoid pitfalls among middle-income countries, namely Brazil, China and Argentina (Angang, 2003; Wade, 2012).

A comparison is done among middle-income countries through a review with cross-fertilization potential, i.e. capable of generating knowledge that may be relevant not only for strategic decision-making processes, but also for the governance of knowledge[2] on innovation policy. More than appointing an exemplary or model case for emulation,[3] what is striven here is to examine the extent case studies suggest challenges or reveal impasses and bottlenecks that will hinder Brazil from to best applying existent institutional advantages during the design and implementation of innovation policies.

For an appraisal of decision-making processes regarding science, technology and innovation policies, this study will consider:

- the complex institutional architecture of the national innovation systems wherein such strategies are formulated – which institutions support them, and how is knowledge governance coordinated,[4] in Brazil, Argentina and China;
- the relation between the decision-making level and the supporting structure – research institutes, think tanks, universities, among others – i.e the institutional structure that supports the strategic decisions;
- the existence, or lack thereof, of an effort to carry out technological foresight;
- the governance structures and relations of power, where these are discernable; and
- the conventions, shared beliefs, and consensuses behind the visions of the future that influence the overall direction and choices made.

2 On this concept, see Burlamaqui, Castro and Kattel (2012).

3 The notion of *exemplary case* is in stark contrast to the belief that paths are multiple, that trajectories are dependent on the past, and that variety is conducive to the development of creative solutions. 'Institutional monoculture', as Evans warned (1993), is harmful and vicious.

4 The set of institutions and policies that regulate the production, dissemination, use, and protection of knowledge. The study focuses, based on a comparison among these three countries, on the industrial and technological policies, national innovation systems, competition regulation, and the intellectual property protection system in place and the legal framework that defines it. See Burlamaqui, Castro and Kattel (2012).

Field research was conducted in the three countries, through a questionnaire built upon the assumptions listed below.

1. The learning processes that occur in national innovation systems are inseparable from the international experience in that technological field. In this sense, national innovation systems should consider global innovation and networked technology generation processes: international experience counts.
2. The institutional diversity characteristic of each case study is relevant to explain their different trajectories and each State's capability regarding its technological policy.
3. Geography carries explanatory power, in that it reveals a particular allocation of resources. Furthermore, industrial chains, even though adopting international standards, have national characteristics. Institutions are essentially national and local, resulting in singularities that would be missed if abiding by hypotheses of globalized processes and products. Finally, history and trajectory count; there is noticeable path-dependence.
4. The participation of domestic companies in global value chains does not ensure their technological catching-up. Their success will depend on the value chain, and the position the company occupies in the overall production process.
5. Science, technology and innovation policies have a prospective dimension and reveal shared beliefs, expressed in the innovation strategies for the future within each country. Considerations for a low carbon economy and sustainable development are recurrent and widespread. These conventions could be summarized, particularly in the Brazilian and Chinese cases, as *promoting sustainable development with social inclusion.*

2. THEORETICAL AND CONCEPTUAL INSPIRATION

According to Celina Souza, regarding the definition of State capabilities: 'Simply put, one may define State capability as a set of tools and institutions

available to a State to set goals, shape them into policies, and implement them' (Souza, 2015, p.8),[5] or, according to Evans (1993), a State's capacity for *action*.

Regarding the definition of State capability, specifically policy implementation capacity, the following definition is extremely useful – especially when it comes to innovation (Karo and Kattel, 2014): 'Policy capacity - three interlinked policy choices: nature and sources of technical change and innovation; funding economic growth; public management to deliver and implement policy choices. It is not a continuum of abilities but rather a variety of modes of making policy'.

As mentioned above, a state's capability to formulate, drive, implement and, in some cases, evaluate science, technology and innovation policy is the theme of this paper. The goal is to compare state and policy-driving capacities in the national innovation systems in Brazil, China and Argentina, to the extent that they shed light on the identified dimensions: institutions, strategies, coordination mechanisms, funding, and implementation of innovation policies. As observed by Evans (2011, our italics), comparisons in this case are relevant 'for looking at how innovation is actually organized *and how it might be organized better*'.

The most recent literature on innovation and its public systems emphasizes the role of the entrepreneurial State and its fundamental contribution to the development of middle-income country policies, and also of developed countries such as the US (Weiss, 2014; Mazzucato, 2013; Block and Keller, 2011; Primi, 2014). This literature, with robust interpretative power, contributes to building consensus around the role of innovation in catching-up and leapfrogging processes in developing countries. However, these processes are vulnerable to being ensnared

5 'Considering the concept's comprehensive scope, a breakdown of its components could help guide empirical application. The *political* component concerns the "rules of the game" that govern political, social and economic behavior. Worthy of note here are the formal and informal institutions that influence the political party system; Executive-Legislative relations; and the channels of intermediation of interests and of conflict resolution. The *public policy* component concerns the *institutions* and *strategies* that influence *policy* decisions, their formulation and execution. This component comprises (a) the identification of the main characteristics of the systems that govern specific policies; (b) analyses of the specific political trajectories; (c) *maps of the intra-governmental coordination mechanisms, or of executive coordination*; (d) the construction of the bureaucratic capacity and of degree of professionalization of the bureaucracy, to assess the conditions under which policies are formulated and implemented; and (e) the fiscal and tax system, i.e. income and expenses, to assess a State's ability to levy taxes in order to fund policies, for the provision of public goods, and the redistribution of income between different social groups' (Souza, 2012).

in the technological pitfalls most common among countries under rapid productive transformation. Industrial policy – and with it, the innovation policy – has been considered key to overcome the so-called developmental threshold.

Wade (2012, pp. 223–240) states:

> Industrial policy can be seen as a strategy of the State, from a medium to long term perspective, with the goal of promoting new technological and industrial capacities in companies of a higher order than already existing in the economy and beyond what so-called market forces could promote. These capacities determine productivity, the quality of products and ability to eliminate product lines or introduce new products or processes and, therefore, determine the capacity of competing with other companies in other economy, especially in the third wave of globalization we are experiencing.

In this journey, innovation as a core component of developmental industrial policy seems to be crucial for success; perhaps even, metaphorically, the very key to open the gate that separates developed from developing countries. Countries that have crossed this threshold were capable of reaching the technological frontier, in the most important industries of their economies. Moreover, these countries are in many cases those that today effectively define the technological frontier in these industries.

Topics such as those developed by Coriat, Orsi and Weinstein (2002),[6] above all the existence of a technological paradigm strongly based on science (classified as *science based 2*), are important for the analysis of national science, technology and innovation systems. In industries on the technological frontier such as biotechnology and information technology, financial dimensions (capital markets) and intellectual property (the local relevance of patents and of the intellectual property system) are inextricably intertwined, are all integral components of the new paradigm.

The same may be said of the concept of *secondary innovation*, developed by Wu, Ma and Xu (2010), which places at the center of the discussion the education and training (Teece, 2009) required to ensure that middle-income countries will not be jeopardized by the pitfalls at the technological frontier. There are at least three

6 The classification proposed by the authors is rooted in the seminal paper by Pavitt (2005), which defines these industries as 'science-based, scale-intensive, and supply-driven'.

considerations regarding the technological pitfalls that middle-income countries must overcome. The first refers to the position of industries and companies in some countries as suppliers (subcontractors) in a given global value chain (Wade, 1997). In this case, the trap lies in their difficulties with technological qualification, and the hindrance that derives from their position within the value chain. Even technological catching-up seems difficult to attain, even when becoming the main objective to be sought. This goal is facilitated by the fact that these technological paths are well known, having been trodden by leading countries. At the opposite end of the scale are the industries and companies with the ability to not only keep up with, but to overcome technologically, the countries trailblazing the frontier. This was, or might still come to be, the situation of the few countries that have been capable of crossing the threshold of technological development. In an intermediate situation are countries such as Brazil and China, where some industries already are at the technological frontier – in Brazil, low-carbon tropical agriculture, deepwater oil prospecting and production, and small and medium aircraft production, for example – while other industries definitely cannot claim international competitiveness. In these cases, the coexistence of paths called *secondary innovation* is possible.

When the technological trajectory is not yet fully defined in a particular industry sector, according to Wu, Ma and Xu (2010), countries may move in different ways or through alternative paths, but tend to come across limits in their technical expertise – situations characterized as crises in the development process. When these limits are overcome, a national trajectory comprising a particular correlation of factors is established, providing the country with a competitive advantage with which to blaze ahead. Innovation and the national system in which it is embedded seem to be the 'trick' or secret to enable the industries where a country enjoys comparative institutional advantage to reach the technological frontier. This is another element that the comparative analysis among Brazil, China and Argentina sought to pinpoint.

This seems most all the more likely to occur when the structuring of a consensus is plausible – or rather, where structured consensus is present – regarding (*a*) which industries should be encouraged and promoted by the entrepreneurial

State,[7] (*b*) where exactly does the innovative frontier lie and (*c*) which countries have attained it. The compared case studies seems to suggest this consensus-structuring process depends on (*i*) the existence of a supporting infrastructure of institutions capable of carrying out prospective and retrospective studies, which are in turn actually taken into account during the decision-making process; (*ii*) the continuous exercise of technological foresight, subject to periodic review; (*iii*) the capacity to take into account the conflicting interests among stakeholders, but also to neutralize them after structured consensus is built; and finally, (*iv*) a financial system is present to fund innovation – a necessary condition, but which must be subject to effectiveness reviews. This is not about the need for, returning to Karo and Kattel (2014), a *continuum of skills* or competencies but, above all, a variety of decision-making processes regarding the long-term strategies, and of proper coordination during the elaboration and implementation of technological policies.

3. COMPARED INSTITUTIONAL ARCHITECTURES OF THE NATIONAL SYSTEMS FOR SCIENCE, TECHNOLOGY AND INNOVATION: BRAZIL, ARGENTINA AND CHINA

3.1 – Design and legal framework

When comparing the institutional architecture of the national systems for science, technology and innovation in the three countries, the methodological approach taken this study, it may be pointed out that Brazil has by far, taken as a whole, the most complex and articulate institutional arrangement, compared to those in Argentina and China.

In Argentina, the arrangement of components is similar to that in Brazil; nevertheless, the entire structure is at an earlier stage of construction, but revealing a similar configuration when envisioning the near future.

In the case of China, the institutional design, or architecture, does not seem to reveal the existing, and possibly effective, decision-making ability – much less its characteristic *consensus-structuring* process on the innovation strategies to be

[7] The structuring of a consensus on which industries shall be primarily supported by the innovation policy is not, to be sure, the only possible strategy, but it seems necessary or at least the most effective in middle-income countries. In countries such as the United States, as Block and Keller (2011) pointed out, the consensus is to support companies at all technological frontiers, wherever these may be.

adopted – which will be seen as follows, a unique characteristic, and a definite strong point.

The complex Brazilian institutional architecture – it must be pointed out once more, more complete than those in Argentina and China[8] – characterizes its national innovation system (annex figure A.1). As an example of how the system's coordination or governance evolves, there is, in Brazil, a National Council for Industrial Development (Conselho Nacional de Desenvolvimento Industrial, CNDI),[9] established by the 'Greater Brazil' Plan (Plano Brasil Maior, PBM – 'Greater' in this sense meaning not spatially, as an extended area such as commonly used in metropolises, but 'Bigger' in the temporal sense of inducing growth), which seeks to integrate the several different interests in the formulation of innovation policies.

First of all, the importance must be noted, starting in the 1950s, of a research generation system with emphasis on the education of qualified personnel. The structure of the Brazilian SNCTI (Sistema Nacional de Ciência, Tecnologia e Inovação – National System for Science, Technology and Innovation,) sought to integrate educational, research and innovation funding systems; the latter is composed mainly of the National Bank for Economic and Social Development (Banco Nacional de Desenvolvimento Econômico e Social, BNDES), the Funding Authority of Studies and Projects (Financiadora de Estudos e Projetos, Finep)

8 It can be said that the concern with agricultural innovation and world leadership in tropical agriculture dates from remote periods of Brazilian economic history, including the sugarcane (ca 1550–1750) and coffee (ca 1830–1930) cycles of. In this regard, see Castro (1976).

9 The CNDI is structured as follows: 'CNDI consists of thirteen ministers, the President of National Bank for Economic and Social Development (BNDES) and fourteen representatives of civil society, and has the function of establishing the general strategic guidelines and support the management system's activities. Competitiveness Councils – the management committee is the body that monitors and supervises the implementation of the "Greater Brazil" (PBM) program, while the executive secretariat handles administration. The two are coordinated by MDIC, the Ministry of Development, Industry and Foreign Trade. The secretariat's duties include establishing Executive Committees and Sector Competitiveness Councils, the former competitiveness forums. The members of Competitiveness Councils are appointed by the Production Development secretariat in MDIC, in partnership with the private sector. The group is responsible for the deployment of objectives and for strategic guidance of PBM regarding their industry's value chains. The Brazilian Agency for Industrial Development (ABDI) is responsible for administrative support to the Steering Committee, the Executive Secretariat, and the CNDI'.

and 'sector' or industry-specific funds,[10] the National Council for Scientific and Technological Development (Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq) and the Higher Education Personnel Improvement Coordination (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, CAPES).

As the systems in Argentina (figure A.2) and China (figure A.3), the Brazilian arrangement has a legal framework composed of several laws and decrees.

In Brazil, the legal framework has been established since 1951 with the creation of CNPq and CAPES (Box 1, below). In this sense, the building of a national science and technology system occurred early, compared to Argentina.[11] In the case of China, the current framework is far more recent than the Brazilian, but on the other hand the tradition of innovation remounts to ancient Chinese history.[12]

The Argentine legal framework (Box 2), by contrast, has much more recent changes, and is marked by high discontinuity. The Argentine arrangement has, today, the following principal elements:

- an Intellectual Property Law of 1996, similar to Brazil's and passed the same year, both under the umbrella of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS); and

[10] The Sector Funds of Science and Technology, created in 1999, are funding instruments for research, development and innovation. There are 16 Sector Funds, 14 industry-specific and two 'transverse', the first focused on university-company interaction (Fundo Verde-Amarelo, FVA), the second intended to support the improvement of the infrastructure of ICTs (Science and Technology Institutes). Revenue derives from contributions levied on the exploitation of natural resources belonging to the Union, tax on Industrialized Products (VAT) of certain sectors, and Intervention Contribution in the Economic Domain (CIDE) levied on the acquisition of technology transfers from abroad. Except for the Fund for the Technological Development of Telecommunications (FUNTTEL), managed by the Ministry of Communications, the resources of the other funds are allocated to the FNDCT and managed by Finep through its Executive Secretariat. The Sector Funds were created as additional funding sources for the development of sectors strategic for the country. http://www.finep.gov.br/a-finep-externo/fontes-de-recurso/fundos-setoriais/o-que-sao-fundos-setoriais

[11] Concern with technological progress has been present since the end of the sugarcane cycle, in the late eighteenth century, in the Brazilian Colonial period, with the modernization of sugar mills. The introduction of machines in coffee processing, and of systematic agricultural research for export products, were done precociously by research institutes, such as the Agronomic Institute of Campinas, founded in 1887 by Emperor Dom Pedro II.

[12] In this regard, see the classic *The Man Who Loved China* (Winchester, 2008).

- an Innovation Law of 2002, which redefines the Science, Technology and Innovation System and creates the Technological Scientific Office (Gabinete Científico Tecnológico, GACTEC) – another law similar to its Brazilian counterpart.

Box 1. Legal framework of the National Innovation System (Sistema Nacional de Inovação, SNI) in Brazil – main laws and decrees (1951–2011)

1) Law 1310, of 01/15/1951. Creates **CNPq**, then called National Research Council, and has as primary responsibility to coordinate and stimulate national scientific research.

2) Decree 29741 of 11/07/1951, creates **CAPES**, whose acronym originally meant National Campaign for Higher Education Personnel Training, in order to "ensure the availability of qualified personnel in sufficient quantity and quality to meet the needs of public and private enterprises aimed at the development of the country" (Decree No. 29741/1951, art. 2, item A).

3) Decree 61056 of 07/24/1967, creates **Finep**.

4) Decree 1808, of 02/07/1996, passes Finep's Statute or by-laws.

5) Decree 9146 of 03/15/1985, creates the **Ministry of Science and Technology**.

6) Law 9257 of 01/09/1996, creates the National Council of Science and Technology (Conselho Nacional de Ciência e Tecnologia, **CCT**) as an advisory body to the Presidency.

7) Decree 4728 of 06/09/2003, passes the Statute and the Decree 4728 of 06/09/2003, with CNPq by-laws and organizational chart.

8) Law 10973 of 12/02/2004, the **Innovation Act**, with incentives for investment funds for innovation; regulates the relationship between universities, research institutions and companies.

9) Law 11080 12/30/2004, creates the Brazilian Industrial Development Agency (Agência Brasileira de Desenvolvimento Industrial, **ABDI**). It was regulated by Decree No. 5.353, of 01/24/2005 which also created the Brazilian Industrial Development Council (Conselho Nacional de Desenvolvimento Industrial, **CNDI**), advising the President and recommends national policies and measures to promote industrial development.

10) Law 11196 of 11/21/2005, the Technological Goodwill Law or Lei do Bem, established tax incentives for innovation. However, this law was repealed under austerity measures in 2016.

11) Decree 5563 of 10/11/2005, regulates the Tax Incentives for Innovation Law (Law 10973 of 2/2004).

12) Decree 7540 of 2/11/2011, creates the PBM program and regulates a new CNDI responsible for managing the PBM.

Source: *Red de Indicadores de Ciencia y Tecnología* (RICYT).

Box 2. Legal framework of the Argentine SNI: main laws and decrees (1996–2007)

1) Law 25,030 / 1996. **Intellectual Property** Law.

2) Law 25,457 / 2002. Determines the institutional structure of the **National Science and Technology System**.

3) Law 25,922 / 2004. Law for the Promotion of the **Software Industry**.

4) Decree No. 380/2005. Creates the Argentine **Nanotechnology Foundation**.

5) Law 26,270 / 2007. Modern **Biotechnologies** Development Law.

Source: RICYT.

These laws are complemented by decrees that either introduce or strengthen forms of scientific assessment, instruments such as government procurement policy, and public-private partnerships (PPPs).[13]

3.2 – The importance of innovation funding as a SNCTI requirement

The Brazilian SNCTI framework sought to integrate, as has been shown above, the educational system (public and private universities), research institutions, and funding sources for innovation through BNDES, Finep and industry and sector funds managed by the Ministry of Science, Technology and Innovation (MCTI). In this sense, defining the funding sources for science, technology and innovation activities is an explicit and, from the angle of the legal framework, an integral and distinctive trait of the Brazilian institutional architecture. This does not occur in the cases of Argentina and China - even though the latter funds innovation far more effectively, with much less red tape and hassle. Even though resource sources in Brazil are formally defined, in practice they already were scant and highly bureaucratic to acess, even before the profound institutional, political and economic crisis the country faces, starting in 2015.

In the Chinese case, the funding sources are not explicitly shown in the innovation system's organizational charts, which however does not seem to represent an obstacle to innovation funding, because funding is provided directly via the banking system. The proximity of the agencies with companies at the

13 Information extracted from the interview with Fernando Peirano, Secretary for Science Policy, Technology and Innovation of Argentina.

national, sector, regional, and especially the local level, ensures funding, provided that the companies:

- have been positively evaluated with regard to their actual contribution to China's technological and industrial development;
- operate within the industries elected as a priority; and
- are preferably state-owned, or are partners of state-owned companies.

This structure lends support to the conclusion that (product or process) innovation is the starting point for the Chinese funding process. In this sense, the company is the relevant unit of analysis – particularly, of course, state-owned companies. This is undoubtedly a difference to be emphasized.

Innovation funding, by contrast, is identified as a definite weakness in the Argentine system. In this case,[14] a proper innovation funding system integrated to the institutional architecture is absent, as can be seen in figure A.2 in the annex. Only starting in the Plano Argentina Inovadora 2020 has strengthening the national technological system been sought – rendering it coherent, bringing it closer to the productive industrial apparatus. Recently, Argentine sector funds were created. Unlike the Brazilian sector funds, negotiated during the privatization of state companies and based on contributions from these companies, Argentine sector funds are financed by multilateral credit agencies such as the Inter-American Development Bank (IDB) for the industries, and the World Bank, for general purpose technologies.[15] Also, there are college-funding programs to educate the

14 This was explained during an interview with Argentina's Minister of Science, Technology and Productive Innovation, Lino Barañao.

15 These are associative instruments split between the public and private sectors, with ample resources (between $5 million and $10 million per project) for initiatives that are implemented through public-private consortia (universities and companies). This is one of the requirements to be eligible for financing. The other is that the result of the initiative produces as a counterpart a marketable product. The projects have an expected duration of four years, and its assessors are international. In turn, funding by multilateral organizations has decreased over time, since the latter became discredited after the 1990s. The Development Bank of Latin America (Corporacion Andina de Fomento, CAF) is gaining enough prominence in recent years. Concerning government procurement, it is not geared to productive innovation. This information was extracted in an interview with Fernando Peirano, Secretary for Science Policy, Technology and Productive Innovation; and Ruth Lanheim, Secretary of Planning and Policies of the Ministry of Science, Technology and Productive Innovation.

so-called *technology managers*, through the Fondo Argentino Sectorial (Fonarsec). As in Brazil, partnerships with the private sector are sought, to mitigate the shortage of funding for innovation. There is a significant limitation in Argentina of capital for funding projects, compounding to the shortage of human resources.[16] The opportunities identified in science and technology are hindered, to a point, by the limitations in State capability to pursue them – whether through failure in intrastate liaising, management of innovation projects, or shortage of trained personnel.

In the Brazilian context, in spite of the existence of a solid legal framework, established innovation funding institutions, available resources, and policies that seek to promote funding to companies, the actual, effective result is far from assured. The relation between government agencies and companies is very distant, in comparison with in the Chinese system. The requisite flexibility to tend to the companies is absent, as is an intersection between the demand and the supply of innovation funding. According to the interviews requirements and constraints, legal procedure, red tape, and controls are all too abundant, especially regarding the Courts of Auditors, equivalent to the General Accounting Office. There is an absence of new companies actually able to deliver what they promise. Regarding an explanation as to the causes of these anomalies, this will be seen below.

The Chinese case is quite exemplary in this respect. Regarding the implementation of the Twelfth Five-Year Plan, still in progress, and specifically its innovation policies, six dimensions are highlighted which set it apart from all previous Plans: first, it ensures the necessary and required capital investments – or rather, direct investments – are supported by corresponding indirect instruments such as tax credits and preferential tax policies.[17] The second difference is the emphasis on demand-side policies, to promote innovation activities. The third feature refers to an emphasis on the trade and industrialization of the research projects, that is, in their innovative dimension, which required marginal changes

16 Interview with Horace Cao, from the Instituto Universitário Ortega e Gasset.

17 By the end of 2012, spending on research and development of the entire economy reached ¥1.2 trillion, or slightly more than $300 billion in direct resources, added to another $100 billion in indirect resources. Information from the interview with the vice president of the Chinese Academy of Science and Technology for Development (Casted), Wang Yuan, and Professor Zhang Junfang.

in China's Law of Science and Technology. The fourth difference is an emphasis on the promotion of employment, on creating jobs, in the policy formulation process. The Chinese government introduced preferential policies for start-ups and small and medium enterprises. The fifth change are the new funding instruments, especially the promotion of innovations funding through the capital market: (*i*) new financial instruments and products to support start-up companies, from the beginning of research and development activities, up to the process of product incubation and funding; and (*ii*) the establishment of government guidance funds in different cities of China, such as Beijing, in order to reduce risk at an early stage, when venture capital is most necessary for a company.

With regard to the last point, the Association for the Promotion of Funding and Investment in Science and Technology conducts research on the required funding and investments. This institution is organized into two departments. The first is concerned with physical investments themselves and with tax policies, while the second is geared towards strengthening the banks and the capital market. Regarding investment, since 1985 the Chinese government seeks to connect science and technology with their financial aspect and the funding that will enable their pursuit. In 2007 a cooperation system was created bridging several science- and technology-intensive industries and the financial departments, not only of the central government, but also of local governments. Entrepreneurship-support policies, with an emphasis on funding in particular of small and medium companies, complement the support framework.

4. COMPARED STATE CAPABILITIES IN THE SCIENCE, TECHNOLOGY AND INNOVATION SYSTEMS: BRAZIL, ARGENTINA AND CHINA

4.1 – General questions

In Brazil, the ministries' performance[18] on behalf of innovation occurs through the research and development government agencies. Essentially their research institutes, which operate on Open Innovation principles,[19] integrating

[18] MCT; MDIC; Ministry of Agriculture, Livestock and Supply (MAPA); Ministry of Mines and Energy (MME); Ministry of Health (MOH); and Ministry of Defense (MD).

[19] See, in this regard, Chesbrough (2006).

the research centers of the institution or ministry itself, universities – in specific occasions – and, eventually, companies. As an example, we could cite:

- the Ministry of the Environment, through the Leopoldo Americo Miguez de Mello Research Center (Cenpes), Petrobras, and Eletrobras' Center for Electric Energy Research (Cepel);
- the Ministry of Agriculture, through the Brazilian Agricultural Research Company (Embrapa);
- the Ministry of Health, through the Oswaldo Cruz Foundation (Fiocruz);
- the Ministry of Defense, through the Air Force Technical Center, of Nuclebras Heavy Equipment (Nuclep), and the Army Technology Center; and
- the Ministry of Industry and Trade, through various institutions belonging to its structure – the National Institute for Industrial Property (INPI), the National Institute for Metrology, Standardization and Industrial Quality (Inmetro), the National Institute for Technology (INT), among others – as may be seen on the right side of figure A.1 in the annex.

In Brazil, the role of government agencies such as the Center for Strategic Management and Studies (CGEE) and ABDI is exercised, amongst other triggers, by the commissioning of relevant systemic studies, mainly retrospective, on the characteristics and challenges the Brazilian innovation process faces or has faced. However, pending better judgment, the level of synergy observed in China is clearly absent – among the studies, consensus building and strategic choice of industries to be supported.[20] Recent programs such as Finep's Inova Empresa may be changing this perception. However, the relationship between the advisement rearguard with its studies and projects, and the strategic decision-making leadership, does not seem to exhibit the same behaviour or the same level of synergy. Processes are slow, bureaucratic, and arbitrary.

Comparison with the Argentine system illustrated in figure A.2 in the annex, reveals the following differences: (*i*) the presence of the Argentine Ministry of Foreign Affairs, which does not happen in Brazil, in the National Commission

[20] It was not possible to assess the Argentine case in this regard, because the interviews took place before the fieldwork in China, where this hypothesis was developed.

on Space Activities and the Argentine Antarctic Institute – while the equivalent Brazilian agencies are connected to Defense or Development; and (*ii*) lower structural complexity of Argentine research and development agencies, more recent than their Brazilian counterparts.

China has a more centralized structure, in which the main ministries that coordinate research and development activities are, basically, the Ministry of Science and Technology (MOST), responsible for the National Science and Technology Program, and the Ministry of Education (MOE). The other ministries are represented by the scientific academies, such as the Chinese Academy of Science (CAS) and, to a lesser extent, the Chinese Academy of Social Science (CASS). The coordinating role of China's National Natural Science Foundation is the key to the governance of knowledge in China.

Two important differences between Brazil and China are worthy of note. First, the science and technology government agencies in Brazil, connected to the ministries, enjoy relative autonomy, and are undeniably centers of production of innovation, in many cases producing the knowledge of the frontier of their respective fields. Embrapa and Cenpes, in particular, among the several public research companies, are acknowledged as world leaders in their fields – low-carbon tropical agriculture and deepwater oil production.

In the Chinese case, according to interviews, coordination is done through MOST, through CASTED (Chinese Academy of Science and Technology for Development) and CAS, which act as think tanks. It is responsible for the non-obvious task of integrating all technology foresight activities under a single strategic long-term vision, embodied in the choices on the supported industries and technologies. What is emphasized here is that the tighter, more coherent coordination that occurs, in principle, in a system where the knowledge governance and strategic coordination are two sides of the same coin, a structure which seems more effective. The construction of structured consensuses depends on this interaction between foresight exercises and strategic choices. This process is what Angang (2003) calls *collective presidency*.

The second difference is that the integration between government agencies and college education is being built, in Brazil, in a sporadic manner. This connection

- involving public research companies, federal and state government research institutes, and state universities and research support foundations – has depended on special programs, projects and actions by initiative of research institutes, which have enabled the little that has been achieved in this direction.

Paradigmatic, showcase, noteworthy examples include the Crop Consortia (coffee, sugarcane, soy) coordinated by Embrapa, which join universities, institutions, and several stakeholders. The coffee consortium joins over fifty institutions, with many different objectives. The agreement between Cenpes and the Federal University of Rio de Janeiro (UFRJ) is another case in point. This partnership provides funding for postgraduate scholarships – for the education of human resources in oil and gas – as well as research on deepwater prospecting, drilling and production, done in partnership with universities and institutes. One of the programs supported by the consortium is UFRJ's ocean research program.

Accepting the representation described in figure A.1 in the annex, the Brazilian university system, represented on the left side of the figure, does not spontaneously connect with government R & D (research and development) agencies, located on the right side of illustration. Of course, the autonomy and management of graduate education cannot be subject to the whims of medium-term government plans, which may change in emphasis according to policy, and to programmatic government strategies. Strictly speaking, CAPES seeks to mitigate this trend by launching programs and projects of interest to ministries and agencies, guiding graduate research in the direction of desirable long-term goals.

Up to this point, a comparison was sought of the most preeminent knowledge governance structures in the SNCTI architectures (National Systems for Science, Technology and Innovation). The following subsection highlights the key aspects of the strategic decision-making and government coordination processes, noting their similarities and differences and, particularly, seeking to determine comparative institutional advantages and disadvantages among the countries.

4.2 – Decision-making processes and governmental coordination

With regard to a comparison among the institutional architectures of the national innovation systems, the dimension or aspect that most closely converges with the main objective of this study – the coordination of decision-making for

innovation policies – sheds light on their comparative State capabilities. The figures presented in the annex, and in particular the interviews, are the main grounds for the following analysis. Within lies highly relevant material for understanding what is effective, and what is not, in the conduct of science, technology and innovation policy. What is sought is to understand how State capabilities to formulate and implement strategies for institutional change and innovation will reflect and determine this process. In this sense, through the greater or lesser coordination of strategic decisions, it is possible to clarify their compared State capacities to formulate and implement innovation policies, and identify the comparative institutional advantages that each country was able to build.

Regarding this last issue, some specificities from each country are deserving of mention in the next subsections.[21]

4.2.1 Brazil

First of all, it is necessary to cast a glance upon the governance structure and coordination of the PBM, wherein management and decision-making occurs at the MCTI. Figure A.4 in the annex details in first place the levels of (*i*) senior advising, (*ii*) management and decision-making and (*iii*) liaising and detailing. However, fieldwork results suggest that systemic coordination seems to act more in an advisory capacity, recommending policy directions, than effectively in the formulation and coordination of policies, in stark contrast to the Chinese practice. There is a high degree of autonomy at the decision-making management level. This feature seems common to the three cases. What sets them apart, perhaps, is the degree of influence on the strategic decisions that the advising structure seems to hold. Coalitions of interest are relevant for pipelining of indications from the industry-specific instances and institute coordinations to the higher advising level – in Brazil through the CNDI, whose management is the President's responsibility.

The CNDI consists of thirteen ministers, the BNDES's president and fourteen representatives of civil society. Its function is to establish general strategic guidelines and support the management system's activities. The Competitiveness

21 This last point, in fact central in our analysis, will be approached from a comparison Brazil-China (subsections 4.2.1 and 4.2.2), because we understand that our fieldwork in Argentina was insufficient to clarify the strategic decision-making processes.

Councils – their steering committees being the supervision and monitoring body, overseeing plan implementation – rely on an executive secretariat responsible for system management, all of which is coordinated by the MDIC.

Among the duties of the executive secretariat are the creation of executive committees and industry-specific Competitiveness Councils, the former competitiveness forums. The members of the competitiveness councils are appointed by the Production Development Secretariat of the MDIC in partnership with the private sector. As a whole, the group is responsible for the breakdown of the objectives, and the strategic direction of PBM within their industry's value chains. ABDI is responsible for administrative support to the steering committee, the executive secretariat, and the CNDI.[22]

With regard to the vision of the future contained in the PBM, which exercises a coordinating role in decision-making processes, it is inferred that the plan sought further integration of industrial policy along the axes of the Brazilian chains that have proven more dynamic, focusing on short-term bottlenecks but, supposedly, with a prospective vision. However, it must be observed that the PBM was in force before the current political and economic crises, and before the investment-slashing law PEC 241 which severely curtails State outlays, passed by the current non-elected administration. Their effects on the PBM must be evaluated – and it is likely that the PBM has been, in effect, revoked.

Regarding the addressed bottlenecks the foremost priority seems to be the qualification of human resources for the manufacturing industries. There is a permanent investment in capital that not necessarily finds a counterpart in human resources. There is clearly a gap in human resources in Brazil, as in Argentina, in the latter a more extensive one. The industrial structure does not induce, or produce, significant human resources training. The increase in investment entails in formation of fixed capital, which is renewed but suffers rapid obsolescence. Rapid loss of competitiveness tends to occur, with the upgrade of machinery and equipment without the necessary technological capability to skip steps, obtain new patents, or create intangible assets, resulting in a set of innovations that generates

22 The PBM's website contains relevant information on its operation - <http://www.brasilmaior.mdic.gov.br/noticias/1017>. Accessed: 13 May 2014.

lower value at the technological frontier and quickly loses its additional added value.

In second place, the Brazilian economy remains specialized in the exploitation of natural resources – some requiring high technological capability, others less so – but the specialization in primary resources is incontestable. Part of the equipment and capital goods, as well as the microelectronics, are imported. Dependence on certain imports contributes to low generation of positive externalities and an incomplete productive structure.[23] There is also a great heterogeneity in the Brazilian productive structure, in which low-tech industries coexist with high-tech ones. Labour is still largely unskilled, and rarely will the machinery and equipment industry lie at the technological frontier.

As shown in the figure A.4, systemic coordination and industry-specific bodies – executive committees and competitiveness councils – lie on the liaising and detailing level of strategies and policies. These dimensions that appear in the figure – foreign trade; investment; innovation; education and professional qualifications; sustainable production; strengthening of small businesses; special action for regional development; and consumer welfare – are all on the innovation policy agenda, but is in fact at the policy management and decision-making level that the major decisions are taken, often in an isolated, arbitrary manner. In fact, the CNDI, under the coordination of the Presidency is the PBM's decision-making body, to which the industrial, technological and innovation policies are subordinated.

In figure A.5, Governance of the Inova Empresa (Company Innovation) Plan, the same observation as before applies. The steering committee, formed by the Chief of Staff, MCTI, MDIC, Treasury Department, and the Secretary for Medium and Small Enterprises, is responsible for the guidelines, monitoring and evaluation of the plan, and decision-making and coordination. The executors of the Inova Empresa Plan – BNDES, Finep, and partners – are the main Brazilian institutions for funding investment and innovation. Once again, funding innovation is an

23 One interviewee cited the example of the livestock: 'For example, Brazil has the largest herd in the world, insertion in exports as well as imports. But this does not necessarily generate positive externalities, and may even generate negative ones such as deforestation, and does not complete the productive structure'.

integral and fundamental part of the plan – which does not necessarily ensure, however, that its modus operandi will ensure agility and flexibility during implementation. The 'Innovation Room' seems to be the locus of manifestation of interest, both by companies and business associations, and it is this instance that conflicts of interest are handled and coalitions architected.

Neither in figure A.4 nor in figure A.5 will one find or envision science and technology's role as a supporting rearguard behind production, carried out by government institutions for research and development, nor any role that private sector research institutes could play. This feature contrasts glaringly with organizational routines and decision-making processes in China – as in Argentina – as we shall see. This seems to be the main difference between the experiences in China and in Brazil, and this poses an undeniable institutional comparative advantage for China:[24] a solid supporting research rear-guard, rooted in strategic decision-making.

The decision-making and the liaising among the several different instances and levels in Brazilian innovation policy-making may be described as follows. Initially (1990–2000s), the board that makes the main decisions had not been formally appointed, but this was subsequently formalized. At first, the council was formed by the of BNDES's president and board, Finep, MCTI and its executive secretariat, Embrapa, the Ministry of Development (MD), MDIC and the Ministry of Communication.

The Executive Committee of the PBM is scheduled to meet every two or three months to assess ongoing policies and outline future proposals, seeking to accommodate all ministerial bodies. In the case of innovation, the Systemic Committee for Innovation draws policy from the findings of the industry-specific committees endorsing, in principle, those pertaining innovation and making any necessary adjustments. The Executive Secretariat is the dispute settlement body, responsible for periodically summoning the ministry secretariats. The Chief of Staff of the Presidency is the liaising and dialogue instance, which takes place between the Chief of Staff, the MCTI, MDIC and BNDES. CGEE (Centro de Gestão e Estudos Estratégicos, Strategic Studies and Management Center) and

[24] The concept is discussed by Coriat and Weinstein (2002).

ABDI work together with the Executive Coordination of the 'Greater Brazil' Plan. The main executors of the plan are BNDES, Finep, the MCTI and the MDIC. The Treasury Department has the power to summon and define government proposals.

Finally, the governance of the National Fund for Scientific and Technological Development (Fundo Nacional de Desenvolvimento Científico e Tecnológico, FNDCT) is somewhat complex with regard to the interaction among resources, grants, policy – making and decision-making – figure A.6 in the annex illustrates the process.

Conflicts within the bureaucratic structure exist, largely, as a result of the conflict between the demand for innovation and the choice of strategic industries to be privileged. The Chief of Staff is the final arbiter, connected to the Presidency, choosing topics and industries, examining policy measures and expenses. The negotiating and conflict resolution process does not only include the concerned ministries; the Treasury Department also exerts discretionary power.

4.2.2 China

The Chinese case bears very specific characteristics, which are key for understanding the construction of their comparative institutional advantage. It is important to note that the mere architecture of the Chinese innovation system, described in figure A.3 in the annex, does not reveal these peculiarities. We started out with the hypothesis that technological choices in China were geared towards catching up with the technical frontier dictated by the United States, and in this sense, parity was originally its main objective. However, the concept of *endogenous innovation*, which has guided the formulation of innovation policy in China, contrasts with the notion of a process of mirroring external sources. On a smaller scale, one may question the existence of so-called national standards, or if the concept of 'endogenous innovation' is used as a policy tool.

The main conclusion reached during field research is that the Chinese innovation system successfully reverts – or rather, subverts – the structure that has been described thus far, characterizing the Brazilian and Argentine systems. The technological innovation that emerges from their economic system is at the top of the innovative system, and not its base. Private and public research is not at the point of arrival, but of departure, of the process. The second layer of the

system is the strategic decision advising apparatus, exercised by research institutes, think tanks, universities, and other entities. The strategic choice-making process is the result of consensus building, of a collective creation process of structured consensus.[25] And herein lies their greatest contribution to innovation policy theory.

The Chinese national innovation system, based on the allocation and distribution of science and technology resources, may be characterized, according to the structured consensus on this system, by its five constituent parts, as follows.

1. The technological innovation system. The Chinese government supports the principle that companies should play a leading role in innovation activities, and believes that the market should guide innovation, which should integrate universities and research institutes. This consists of innovative companies, technological innovation consortia, and technology innovation platforms.
2. The production of scientific knowledge, led by universities and academies, such as the Chinese Academy of Sciences.
3. The National Defense System, based on civil and military use. It is focused on development, sharing and usage, and focuses on dual-use technology for civilian and military purposes.
4. The regional innovation apparatus, based on different regions and their distinct needs for economic and social development. In these cases, there are different science and technology resources. For example, the eastern region is very different from the western region, thus their respective regional innovation systems are quite different.
5. Action through science and technology platforms, such as science and technology parks, promotion centers, and incubators. The goal is to commercialize and industrialize research results, and put them on the market.

From the point of view of decision-making, MOST (Ministry of Science and Technology) practices routine consultation with provincial governments and other ministries, on a regular basis. The purpose of the query is solving the

25 See, on this topic, Angang (2003).

problems faced by local governments. There is also an ongoing dialogue among the several departments of the central government. For example, MOST maintains a coordination mechanism with the Chinese banking system to guide banks in the promotion of innovation funding. There are also coordination mechanisms among public policies such as industrial, investment, import and export policies. These policies are formulated by different departments, and therefore must be coordinated to achieve common goals. Not necessarily will the prime minister or high-level government officials lead these processes; usually, they are conducted among different departments within the same hierarchical level in a natural, regular, ongoing manner. One would emphasize here the close, organic relation between research, think tanks, and strategy formulation, as this seems to be a unique trait that sets the Chinese system apart from the Brazilian and Argentine ones.

The five-year plans are characterized by a lengthy, comprehensive gestation and policy-making process. Full-scale plan reviews occur every five years, complemented by interim midterm assessments, which is currently done by key departments committed to the industries or issues under evaluation. In the recent past, however, when the Council of State made policies for science and technology, almost all the ministries had to be involved in the final decision process. Currently, the government holds meetings to collect opinions and recommendations from companies, universities and research centers – and even the public, through online participation through the Casted website. These reflections, it seems, actually subsidizes the decision-making processes, according to the interviewees.[26]

It is important to draw attention to this process, which corresponds to what has been called by Hu Angang, a main ideologist in the Chinese Communist Party and economist at Tsinghua University with great influence over policy, as *collective presidency*. According to the author, consensus building for policy through ample consultation is an important, fully institutionalized feature in the strategic

26 'And the great projects in the plan, such as the Strategic Emerging Industries project. I am also the head redactor of the two public policy documents relating to the development of strategic emerging industries. In this case, there were sixteen ministries. So we had several chances to meet with local governments and entrepreneurs through a consultation process. They took up two years to do it, from the beginning until the end, when the plan was formulated, perhaps more than two years'. Interview with Dr. Mu Rongping, CASTED.

decision-making process for industrial and science, technology and innovation policy.[27]

Regarding this issue, whether or not the consultation process is institutionalized, the think tanks are responsible for strategic studies for the development of science and technology, and of the emerging strategic industries, for the five upcoming years. The Five-Year Plan for Economic and Social Development, among the most important five-year plans, focuses specifically on the development of strategic emerging industries and specific (industry-specific) skills and capabilities required for innovation, science and technology. Thus, the plan is also implemented by research organizations such as CASTED.

China's Twelfth Five-Year Development Plan, regarding science and innovation, points to two sets of goals: (*i*) comprehensive – benchmarking with forty countries with relative technological leadership in certain industries, observing their trajectory and development trends; and (*ii*) specific – related to local development. Thus, global and national innovation indicators are compared, continuously monitored by CASTED – the institution responsible for producing and monitoring these indicators – and which acts as main think tank for the MOST, with eight different research institutes. The monitoring of countries with technological leadership in certain industries focuses, very reasonably, on the United States, Germany, Japan and South Korea and doubtlessly also takes into account geopolitical and therefore strategic issues.

As examples of specific science and technology industries and project funds, respondents cited the following cases:

- the manufacture of large aircraft, nuclear electric power generation reactors and integrated equipment, with investments of around ¥100 billion;

27 Angang (2003, p. 11) asks, 'There are also basic questions that concern the decision-making process. Where can we obtain information about decision making? Who makes the decisions? What methods or mechanisms should a decision maker use?' The two perspectives that inform the so-called 'collective presidency' are information gathering and the structure of knowledge in collective leadership. 'Therefore, is necessary for them to engage in frequent and full exchange of information to greatly reduce the asymmetry regarding information and knowledge and the accompanying uncertainty' (idem, ibidem).

- emerging new industries, using new materials;
- electronic vehicles and environmental protection industries;
- mobile telephony – companies like Huawei, Lenovo and Xiaomi are leaders in smartphone sales in China; and
- street lighting with LED lamps.

The plan is also concerned with improving the innovative capability of traditional industries, and has the objective of pursuing green manufacturing.[28] Another goal is the encouragement of science for the quality of life (clean water resources, health, and distance education, for example). The transformation of the national innovation system proposed in the Twelfth Five-Year Plan is based, therefore, on four points: (*i*) companies should play the leading role in the market; (*ii*) innovation coordination should comprise several different regions and agencies; (*iii*) the local level should be emphasized; and finally, (*iv*) institutional reform of government agencies should occur.

5. CONCLUSION

In summary, the following findings seem to point to the following comparative institutional advantages by China, and which are both cautionary and suggestive of paths, for Brazil and Argentina.

1. The Chinese innovation system inverts – or rather subverts – the Brazilian and Argentine systems' modus operandi. The technological innovation that emerges from the real economic system *is at the top of the innovation system, and not at its base*. Private and public research is not the point of arrival, but of departure.
2. The second layer of the system is an advising apparatus for strategic decision-making, exercised by research institutes, think tanks and universities, among others. The comprehensive consensus-building process involved in the concept of 'collective presidency' is the most innovative aspect of the advising structure.

[28] The share of high-tech industries in the gross domestic product (GDP) should not exceed 20%, thus a continuous concern with traditional industries which account for most of China's GDP.

3. Technology foresight exercises are performed on an ongoing basis, permanently and under periodic review, and are fundamentally considered in structuring the consensuses as to which industries to invest in, for the definition of long-term strategies.
4. Funding for innovation, it seems, is ample and not restricted to certain industries or types of companies according to capital structure. It is not subject to over-bureaucratic or excessive control, and is provided by the banking system. This last feature – it not being rooted in the innovation system's institutional arrangement – should not be considered an institutional comparative advantage, but a peculiarity, of the Chinese system. In principle, in this regard, institutional comparative advantage would be on the side of the Brazilian system. On the other hand, perhaps freedom and absence of excessive red tape stimulates creativity, and poses a significant Chinese advantage.

The strategic choices seem based on consensus building, a collective process of creating structural consensus. It was not possible to observe the need for coalitions of interests, characteristic of Western representative democracies, present in the Brazilian and Argentine decision-making. The Chinese innovation system does seem, indeed, to be the result of a consensus, with a collective process creating this structural consensus.

In the Brazilian case, findings seem to point to the following comparative institutional advantages, whereas the Chinese trajectory's cautionary warnings, challenges, and eventual hindrances or snags are recommended for consideration.

1. The Brazilian innovative system has a mature institutional architecture that has evolved over decades. It is complex and, apparently, suitable for decision-making, taking into account the interests of the different shareholders represented by the various institutional arrangements comprising the SNCTI.
2. Although relatively distant from the decision-making core, universities and research institutes, especially those closely connected to the ministries most relevant for innovation, have contributed to increase the production

of science, technology and innovation, which is perceivable through an evaluation of Brazilian scientific production.[29]

3. The Brazilian system's funding is rooted in its very institutional architecture – in principle, in a manner suitable for the adequate functioning of the system. The existence of excessive controls and bureaucracy, however, may be in effect hindering any institutional advantage in the Brazilian innovation funding system. There is a recurring complaint at institutions such as the BNDES and Finep about a shortage of innovative companies seeking funding for technological change.
4. In theory, the Brazilian legal framework is suitable for the needs of its innovation system. Nevertheless, its details and practical application are still subject to pitfalls and setbacks that hinder any institutional competitive advantage to perform effectively. In particular, far less requirements and red tape are required.
5. The governance system includes the representation and the representatively of several stakeholders in the innovation process. However, decisions seem to be taken in closed, limited spheres – which do not necessarily take into account stakeholder interests, even of the latter would apparently be properly represented.

In comparison with the Chinese system, the most significant Brazilian disadvantages seem to be the following:

1. In spite of the existence, complexity and, above all, recognized excellence from the point of view of scientific production, the second tier of the system – the advising structure for strategic decision-making such as research institutes, think tanks and universities – often do not participate in the strategic choices during the definition of Brazilian innovation policy.

29 Not only scientific paper indices (Citation Index, H-index) place Brazil in a prominent position, but successive National Innovation Conferences such as the fourth, held in 2010, point to Brazilian science's leading position in several fields of knowledge: 'Brazil, given the historical moment it underwent until 2015, the characteristics of its territory, energy matrix, regional and cultural diversity, size, population, and scientific level attained, has a unique opportunity to build a new model of sustainable development that respects nature and society. A model that shall, necessarily, rely on science, technology and quality education for all Brazilians' (CGEE, 2010, p. 5).

2. Technology foresight exercises, if any, are performed in a sporadic manner – and not systematically, as in the Chinese system – this being one of the main recommendations for a Brazil-China cooperation platform.
3. The process of structured consensus building, regarding priorities in innovation policy, such as which specific industries to support or even protect, could be the 'Achilles' heel' of Brazilian science, technology and innovation policy.[30] Shared beliefs and the ability to make the right strategic choices when formulating innovation policies have proved essential in other historical examples of countries that have proven capable of crossing the threshold of development.

30 The Argentine case did not involve enough research material to allow drawing similar conclusions, thus contributing a minor counterpoint to the conclusions.

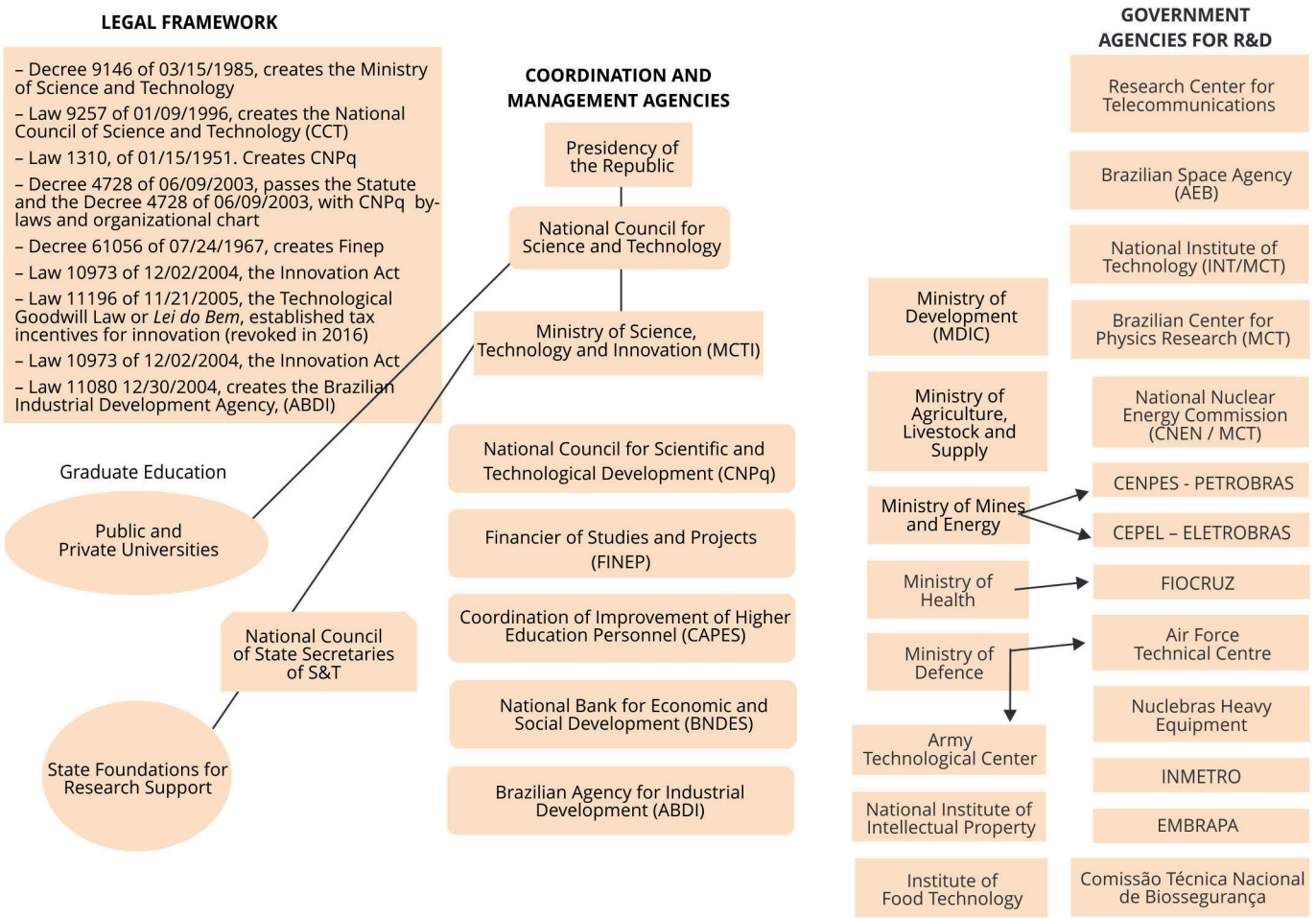


Figure A.1 Brazilian National System for Science, Technology and Innovation SNCTI (Sistema Nacional de Ciência, Tecnologia e Inovação)

Source: Red de Indicadores de Ciencia y Tecnología (RICYT).

Legend.: CNPq – National Council for Scientific and Technological Development – Conselho Nacional de Desenvolvimento Científico e Tecnológico

Finep – Financier of Studies and Projects – Financiadora de Estudos e Projetos

CAPES – Higher Education Personnel Improvement Coordination – Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

BNDES – National Bank for Economic and Social Development – Banco Nacional de Desenvolvimento Econômico e Social

ABDI – Brazilian Agency for Industrial Development – Agência Brasileira de Desenvolvimento Industrial

MDIC – Ministry of Development, Industry and Foreign Trade – Ministério do Desenvolvimento, Indústria e Comércio Exterior

INPI – National Institute of Industrial Property – Instituto Nacional de Propriedade Industrial

AEB – Brazilian Space Agency – Agência Espacial Brasileira

INT – National Institute of Technology – Instituto Nacional de Tecnologia

CBPF – Brazilian Center for Physics Research – Centro Brasileiro de Pesquisas Físicas

CNEN – National Nuclear Energy Commission – Comissão Nacional de Energia Nuclear

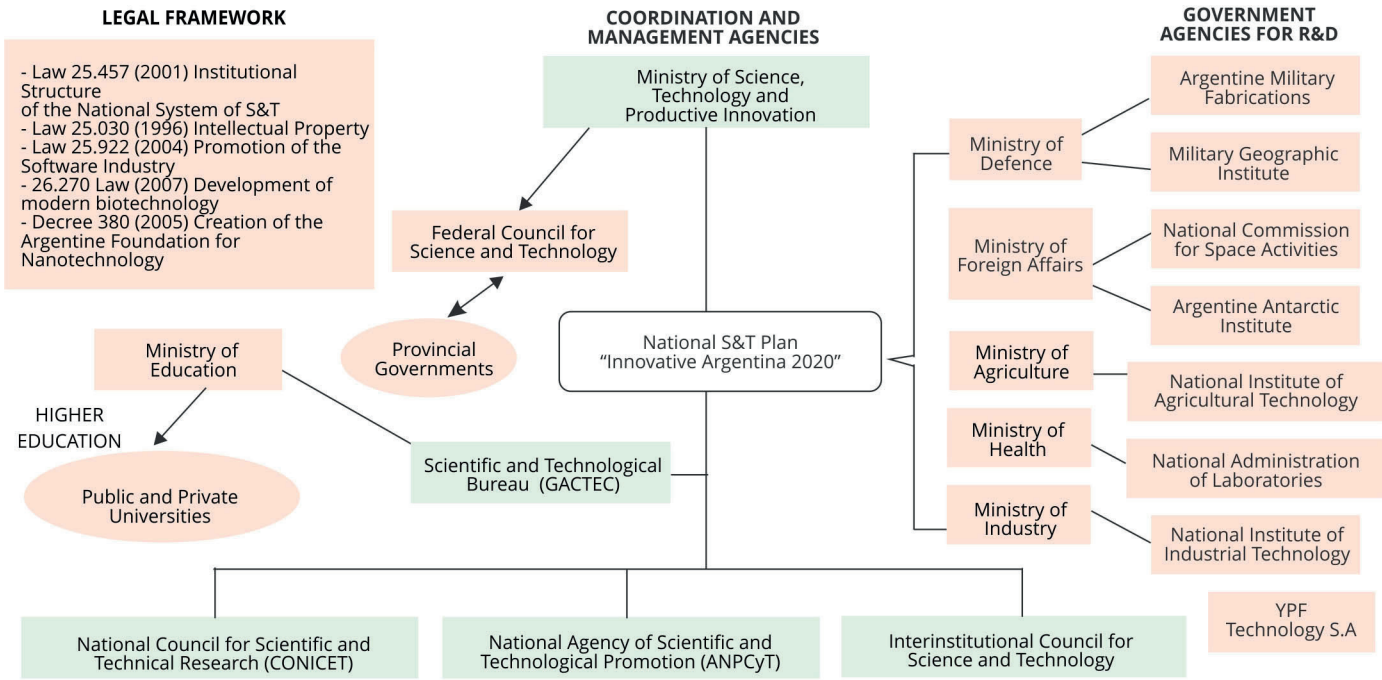
Cenpes – Research Center Leopoldo Américo Miguez de Mello – Centro de Pesquisas Leopoldo Américo Miguez de Mello

Cepel – Electric Energy Research Center – Centro de Pesquisas de Energia Elétrica

Fiocruz – Oswaldo Cruz Foundation – Fundação Oswaldo Cruz

Inmetro – National Institute of Metrology, Standardization and Industrial Quality – Instituto Nacional de Metrologia, Normalização e Qualidade Industrial

Embrapa – Brazilian Agricultural Research Corporation – Empresa Brasileira de Pesquisa Agropecuária



Source: Red de Indicadores de Ciencia y Tecnología (RICYT).

Legend: Gactec – Office for Science and Technology - Gabinete Científico e Tecnológico

Conicet – National Council for Scientific and Technical Research – Conselho Nacional de Pesquisas Científicas e Técnicas

ANPCYT – National Agency for Scientific and Technical Promotion – Agência Nacional de Promoção Científica e Tecnológica

Figure A.2
Argentine SNCTI

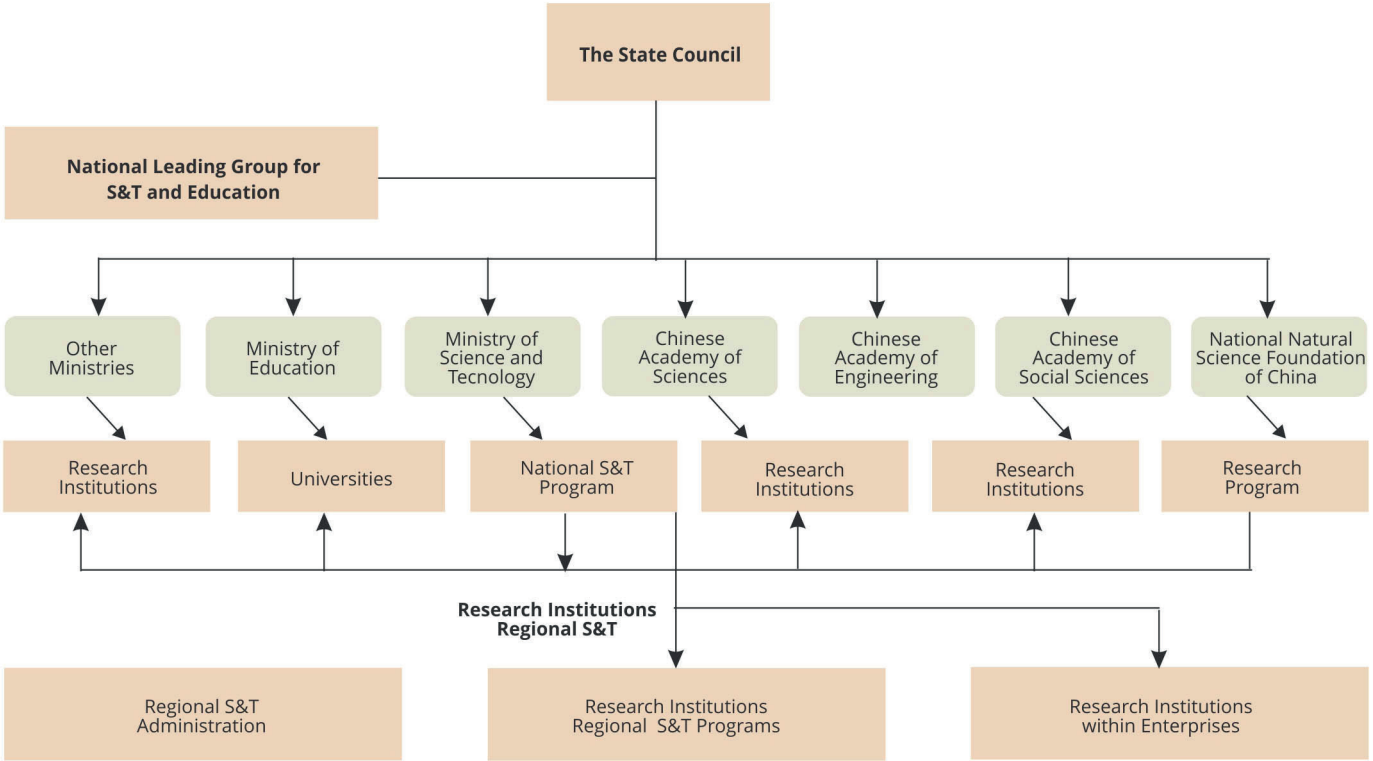
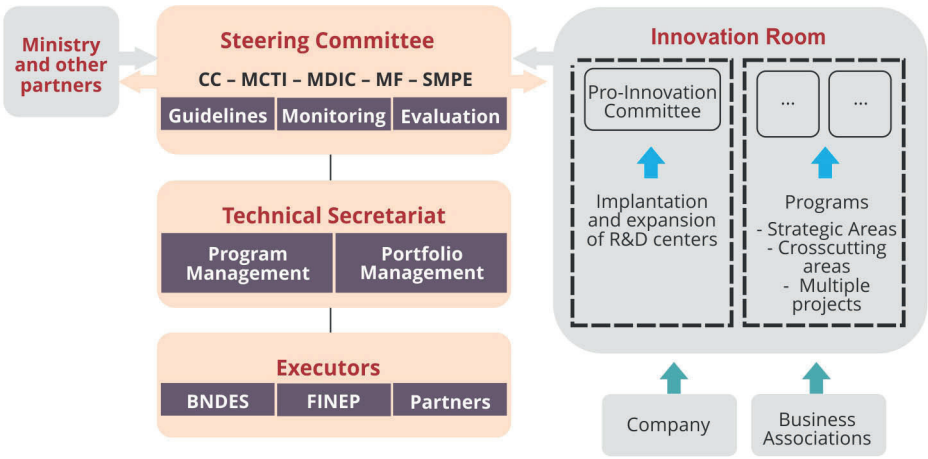


Figure A.3
Chinese SNCTI

Source: Rongping, Mu. *Development of science and techonology policy in China*. Tokyo: Nistep, 2004 <http://www.nistep.go.jp/IC/ic040913/pdf/30_04ftx.pdf>.

Legend: Governance structure of the Chinese science and technology system
MOE - Ministry of Education
MOST - Ministry of Science and Technology
CAS - Chinese Academy of Science
CAE – Chinese Academy of Engineering
CASS - Chinese Academy of Social Sciences
NSFC - National Natural Science Foundation of China.

Figure A.4
Brazil: Governance of the Company Innovation Plan (Plano Inova Empresa)



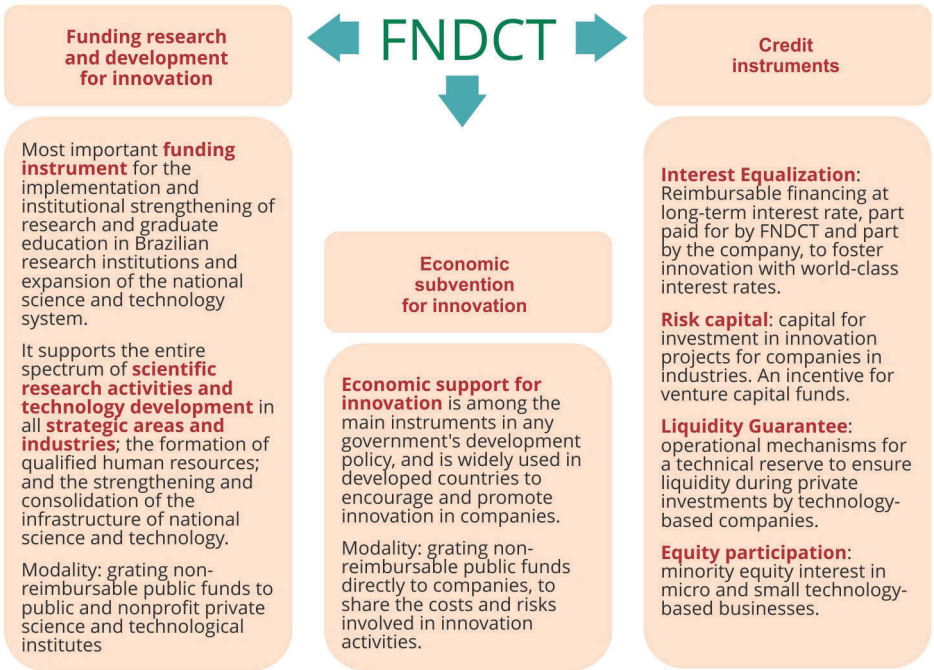
Source: MCTI. – Ministry of Science and Terchnology – Ministério da Ciência, Tecnologia e Inovação

Legend: CC – Chief of Staff – Casa Civil

MDIC – Ministry of Development, Industry and Foreign Trade – Ministério do Desenvolvimento, Indústria e Comércio Exterior

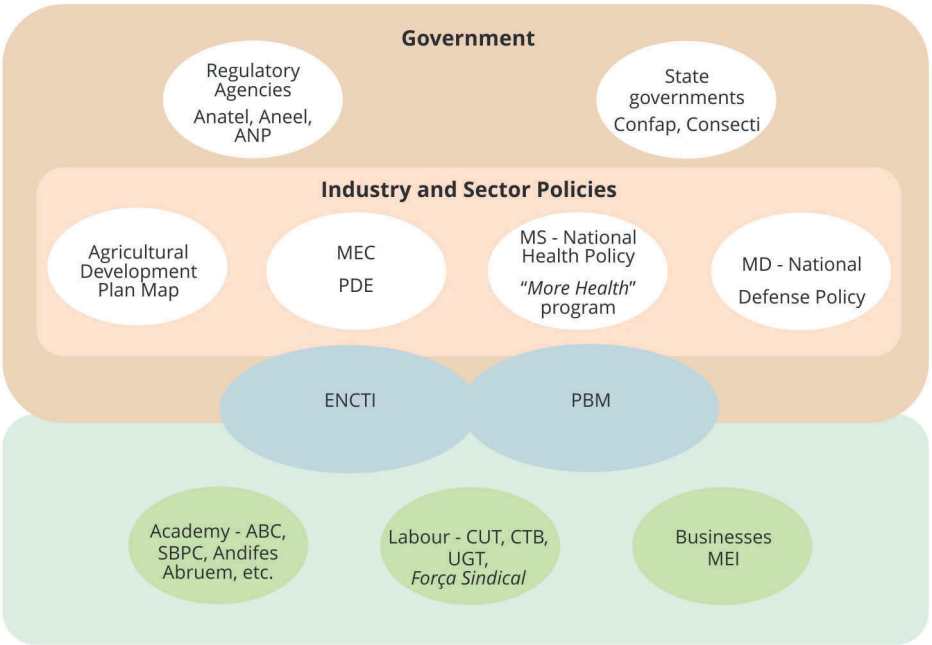
MF – Ministry of Finance – Ministério da Fazenda

Figure A.5
Brazil: Funding/credit lines in the FNDCT



Source: MCTI.

Figure A.6
Brazil: SNCTI consolidation



Source: MCTI.

Legend: Anatel – National Telecommunications Agency
ANEEL – Brazilian Electricity Regulatory Agency
ANP – National Agency of Petroleum, Natural Gas and Biofuels
Confap – National Council of State Foundations for Research
Consecti – National Council of Secretaries for Science Affairs, Technology and Innovation
MEC – Ministry of Education
PDE – Education Development Plan
ENCTI – National Strategy for Science, Technology and Innovation
ABC – Brazilian Academy of Sciences
SBPC – Brazilian Society for the Advancement of Science
Andifes National Association of Directors of Federal Institutions of Higher Education
Abruem – Brazilian Association of Rectors of State and Municipal Universities
CUT – Workers' Unitary Central
CTB – Workers Central and Workers of Brazil
UGT – General Union of Workers
MEI – Businesses Mobilization for Innovation

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CHAPTER 4

STATE CAPABILITIES AND LIMITS TO INNOVATION FUNDING POLICY IN BRAZIL*

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* The chapter was finalized in December 2017 and has not been updated to consider neither institutional nor changes in public policies which took place during the period 2018-2020.

1. INTRODUCTION

Over the last few decades, Brazil has made significant progress in science, technology and innovation (STI), mostly driven by State action. There has been a significant effort to consolidate the National Innovation System (NIS), which was accomplished along two fundamental fronts – scientific and productive-entrepreneurial, emphasizing the qualification of human resources, research, technological development and innovation.

In the scientific and technological field, there has been a remarkable commitment to the expansion and reorganization of the infrastructure for science and technology (S&T), which has been accomplished through expressive growth in higher education institutions and facilities; the creation of over one hundred National Science and Technology Institutes, (NSTI),[1] bringing together the country's main research centers around strategic projects for national development; the expansion and strengthening of research institutions connected to the federal and state government; and the creation of new facilities to address specific issues and challenges, such as nanotechnology and bioenergy.

[1] Institutos Nacionais de Ciência e Tecnologia (INCT).

In the technological and innovation fields, the expansion of the infrastructure for basic industrial technology (BIT),[2] and the creation of the Brazilian System of Technology, Sibratec, deserve attention. Sibratec is operated by the Brazilian Innovation Agency (Financiadora de Estudos e Projetos, Finep) affiliated to Ministry of Science, Technology and Innovation, with the purpose of increasing the capacity and reach of the instruments supporting innovation in companies. In addition, there was progress in the initiatives for a deeper interaction with and support for the private sector, such as science parks, technological poles, technological centers and other initiatives focused on promoting partnerships between universities and companies – including incubators, the Technology Transfer Office (TTO),[3] and the Brazilian Institute for Industrial Research and Innovation (EMBRAPII), among others.

Aside from the 'quantitative' expansion and increase in physical infrastructure, the S&T system also experienced qualitative changes of significant proportions. Traditionally characterized by the dominance of the academic scientific agenda, the system gradually incorporated new actors and took on new functions and roles. Between the late 1990s and early 2000s, innovation was added as a priority in the formal policy agenda of the then-called Ministry of Science and Technology (MCT), which would become the Ministry of Science, Technology and Innovation (MCTI) and latter, in 2019, Ministry of Science, Technology, Innovation and Communication (MCTIC). More than the mere inclusion of the letter "I" into the institutional title, this entailed the entry of a new player – private companies – and an effective redirection of objectives and resources. The system, until then dedicated to the promotion of science and technology, underwent a paradigm shift into a science, technology and innovation system – or even a national innovation system (NIS) – which requires deeper interaction among the actors to foster the exchange of knowledge among scientific and technological institutions (STIs) and innovative companies.

The inclusion of new public and private actors directly connected to the innovation agenda increased the demand for support and additional funding

2 Tecnologia Industrial Básica (TIB).

3 Núcleos de Inovação Tecnológica (NIT).

for commercial technological projects. Therefore, the competition for resources, public spaces and political influence escalated throughout the system and particularly at the federal level. As regards companies, pressure for funding was compounded with demands for improvement in the regulatory framework in general, particularly regarding fiscal incentives, with a view to increasing the economic benefit to innovators and reducing the legal uncertainties deriving from conceptual and interpretive inaccuracies.

The analysis of the evolution of the Brazilian S&T system and the formation of the national innovation system will leave no doubt regarding the successful expansion of State capabilities and of Brazilian companies and civil society in a field strategic for the development of the country. From almost any angle, progress has been evident, as there has been institutional improvement and the creation or strengthening of science, technology and innovation (ST&I) institutions; education of highly qualified human resources; gradual elaboration of a legal framework for regulating an environment in which innovation is fostered and developed; the creation and improvement of funding instruments to stimulate innovation; and the development of overall governance of and oversight mechanisms for the innovation system.

Nevertheless, and in spite of several success stories often showcased as examples of the potential for innovation and their positive effects for society – the most frequently cited are Brazilian Agricultural Research Corporation (Embrapa) and Petrobras – the fact is that overall, the most general and visible results truly seem to fail to reflect the public policy efforts and even more so the significant structural change that the NIS has undergone. Even in the area of S&T, where performance is best, the country is not even managing to keep up with the rapid evolution experienced by the world at large.

The disappointing performance raises the question of the effectiveness of state capabilities in this area – in other words, the public actors' capacity for planning, execution, implementation and governance of the programs, policies and strategies launched over the last eighteen years. Considering the actual results attained regarding state capabilities to define and implement public policies, an assessment of the development of S&T performance will likely not be evaluated as positively as the impressive enhancement of the system and the institutional apparatus that was built.

These failures have been generally associated to macroeconomic problems, the structure of the Brazilian economy and the conservative and not particularly innovative profile of the Brazilian entrepreneur. Although all these factors have in fact hindered innovation, they do not bear sole responsibility for the poor performance of the area. The lack of results reveals that there are weightier, more determinant misconceptions in the S&T policy itself, whether in its redesign concepts or in its implementation – and none of these pertain to unknown or unforeseen characteristics or situations. There is a wealth of literature available on the subject, and also an experienced group of politicians, policy-makers and competent public managers in place, who should certainly have been capable of taking such critical analyses into account when translating proposals into actions.

Some of the more-visible misconceptions have to do with a regression in the system's governance structure, low commitment to established priorities and a lack of confidence that technology and innovation are in fact essential for company competitiveness and the nation's development. From a broader viewpoint, the very resistance to accepting the new functions, the limitations in the role of the State under a democratic structure and the exercise of power that still followed the patrimonialist ways of the past are some of the issues that need to be resolved in order to enable the use of the new instruments to achieve the desired results in the concrete context of the Brazilian economy and society of today.

The present article does not intend to evaluate the full array of science, technology and innovation policies – a task still to be undertaken in a more systematic and objective manner. The purpose at hand is far simpler and more modest: the aim is to review the evolution of innovation funding and point out internal factors within the system that reduce its effectiveness.

In order to discuss the progress made and the challenges to be overcome in order to improve innovation funding conditions, this chapter is organized in five sections, in addition to this introduction and the final considerations. This work was prepared in the second half of 2017 and some information may be out of date at the time of its publication. The second section introduces the Brazilian policy for science and technology focusing on the structure of the new resource base after the creation of the sectoral funds. The third section discusses the rupture of the participatory management structure that had been built with the purpose of ren-

dering the decision-making process more organic regarding the allotment of the new resources provided through the National Fund for Scientific and Technological Development (FNDCT). The fourth section provides a description of the main instruments available for innovation funding and their particularities. The fifth section briefly examines the allocation of resources, and finally, the sixth addresses the limits of the funding system implemented in the period under review.

2. THE CONCEPTION OF THE INNOVATION FUNDING POLICY

The 1990s were fertile in terms of institutional reform, new proposals and political rearrangements. Regardless of whether the proposals were good or bad, most never saw the light of day, because of their lack of legitimacy, political support or technical and operational feasibility.

The S&T field, which had already been previously shaken by the hyperinflationary crisis of the late 1980s and the successive failures of the attempted stabilization policies, faced a dearth of resources, lacked operational ability and was unable even to honor prior commitments made by the agencies and by the MCT itself to the scientific and technological community[4]. These commitments included funding a number of initiatives considered relevant, such as the Scientific and Technological Development Support Program (Programa de Apoio ao Desenvolvimento Científico e Tecnológico, PADCT),[5] cofunded by the World Bank and one of the instruments used to implement the III PBDCT[6] and RHAE Program,[7] focused on the qualification of human resources in strategic areas, both during the 1980s.

4 The MCT, Ministério de Ciência e Tecnologia (Ministry of Science and Technology), changed its name in 2012 to the MCTI, Ministério de Ciência, Tecnologia e Inovação (Ministry of Science, Technology and Innovation), and, in 2016, also took on components from the eliminated Ministry of Communications. Thus, the new denomination became the Ministry of Science, Technology, Innovation and Communications (MCTIC). However, in this chapter the names MCT and MCTI will be retained, depending on the period, considering the budgets for the areas of ST&I and communications remained separate and herein only the management of ST&I will be treated.

5 The PADCT was one of the instruments created to implement the III Brazilian Plan for Scientific and Technological Development (PBDCT), which covered 1982–1998. More on this important program can be found by Stal and Cerantola (1989), Maffra (2012) and Barrella (1998).

6 The Basic Plan for Scientific and Technological Development, Plano Básico de Desenvolvimento Científico e Tecnológico.

7 The RHAE Program was created by the Ministry of Science and Technology (MCT) in 1987, and managed by the National Council of Scientific and Technological Development (Conselho Nacional

Since its creation in 1985[8] in the context of the country's redemocratization process, the MCT has had to cope with the tensions related to the political and operational environment and with internal pressures and disputes related to institutional funding, both from its own agencies and from connected research institutes.[9] From a political point of view, such pressures were (and still are) relevant and cant' be overlooked by the government as they come from a segment of well-organized employees and stakeholders that are considered figures of authority in Brazil. Finep, which liaised with groups in the scientific elite and a small number of national businessmen who were investing in technology and had great political prestige and visibility in society, found it difficult to honour the commitments made using FNDCT resources and through the Multilateral Investment Fund of the Inter-American Development Bank, both unstable and waning over the 1990s. CNPq, well grounded in the scientific and academic community, served as a channel for expression of the dissatisfaction and demands of academia in general.

During the 1990s most research institutes' operational capacity was seriously jeopardized, either due to a rush in early retirements of a large number of researchers or to budgetary difficulties that imperiled even the most basic research activities and infrastructure maintenance.[10] The fact is that in the late 1990s the system was possibly undergoing the greatest crisis it ever faced, and the immediate future did not seem to offer prospects for institutional recovery or even the continuity of initiatives that had been implemented since the 1980s. The country was plunged into economic instability, associated with the international financial crisis and the currency devaluation, and there was no indication that there would be a relaxation of the fiscal discipline in force since the launch of the so-called 'Real Plan'.

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de Desenvolvimento Científico e Tecnológico, CNPq, a supporting agency linked to the MCT), for technological training of human resources in priority areas, thus called the 'Strategic Area Human Resource Training Program'. Although the name changed three more times (in 1997, 2002 and 2007), the original acronym was maintained.

8 Through Decree #91146, of March 15, 1985.

9 In addition to CNPq, the Brazilian Innovation Agency (Finep) is another funding agency affiliated to the MCTI. There were, in 2017, 29 affiliated institutions; see http://www.mcti.gov.br/entidades-vinculadas.

10 See the Ministry of Science and Technology Research Units Evaluation Report (Relatório de Avaliação das Unidades de Pesquisa do Ministério da Ciência e Tecnologia), which evaluated the affiliated institutes (MCT, 2002).

2.1 – The 1999–2002 Reform

In the late 1990s, evaluations of the status of the S&T area made it quite clear that the problems were not limited to a lack of funding and that, therefore, they could not be solved merely by improving the system's funding sources.[11] Drawing on the experience from several OECD countries and literature published mostly by the Science Policy Research Unity (SPRU), University of Sussex, a broad consensus emerged that wider, further-reaching reform was necessary in order to modernize institutions, redefine priorities and update objectives. A new governance structure was required that would be responsive to the changes that had occurred in society and in the State apparatus, and in order to progress towards building an effective innovation system to leverage and sustain business competitiveness in Brazil based on the experience of the leading countries, as laid out in the literature and in international policy agendas. This required new forms of public action in terms of institutional organization, regulation and funding instruments.

According to the *Green Book of ST&I* (*Livro Verde da CT&I*), released in 2001, 'It is not merely a matter of the *volume* of resources, an aspect generally well highlighted in the debates about public-sector performance, but also regarding the *adequacy* of the instruments to the needs of the innovation system's components. In a context marked by resource constraints, and the need to respond effectively to society's demands, the design and operation of the funding instruments is as important as the sheer volume of resources available for S&T activities' (MCT / ABC, 2001, p. 233).

The scientific-technological and business environments had become more complex and competitive with the entry of new players, particularly from the private sector, and company leaders who had incorporated innovation into their business strategies and advocated for innovation on the part of the State and society at large. Thus, areas and lines of research previously under the control of public research institutions shifted quite rapidly to being under shared control or even dominated by private agents, generating an environment rife with competition and increased demand for public resources.[12] The objective of valuing knowledge-intensive segments and R & D when promoting national development was implied

[11] See Pacheco (2003).

[12] On the reorganization and redefinition of research facilities, see Salles-Filho et al. (2000).

both in the adaptation of the institutional framework to a more liberal context and in the definition of new forms of incentive to promote innovation.

With this in mind, by initiative of the Executive, changes were made between 1995 and 2001 in the regulatory framework for S&T activities, for example, in relation to intellectual property (Industrial Property Law of 1996, the Law on the Protection of Cultivars of 1997, the Copyright Law of 1998), sector incentives (the Software and Computer Law of 2001) and analysis of the regulatory gap (resulting in the Biosafety Regulation of 1995[13]). The reform of the Science, Technology and Innovation Policy (STI) policy in 1999 occurred within this context and sought to broaden the scope of national S&T policy to incorporate the I of innovation and accelerate the modernization of the sector's regulatory framework (Pacheco, 2003). Between 2000 and 2002, the first eleven sector and infrastructure funds were approved.

Over the same period, some changes were made in the organization of the S&T sector, including some additional reformulation of the legal framework (the Innovation Law bill, R & D tax incentives, FNDCT fund regulation) and of the institutional innovation-support structure,[14] which to a large degree guided State action over the following years. The Law on Tax Incentives for R & D, Law 10637/02, amending Laws 8661/93 and 9532/97, was not approved as originally

13 Repealed by Law 11105 of 2005.

14 The sizable repercussions of this process was due not only to the innovations proposed, but also due to the involvement of different actors in the structure- and management-design process, with the purpose of legitimizing and rendering greater consistency and sustainability to these mechanisms and actions. From 2001 to 2010 four national STI conferences were held, in addition to regional conferences preceding the national conference of 2001. This consensus building was inspired by, and to a point stipulated in, the 1985 Conference that funded the MCT. At the 2002 conference, the III Conference *Green Book on Science, Technology and Innovation* was released, which roughly defined the agenda to be followed in the following years. After this period, the amount of intense debate was reduced and no more broad initiatives managed to bring together authorities and the academic and business communities to review results and plan directions for the sector. In the business community, since the early years of the decade of 2000, the theme of innovation gained enormous prominence and was advanced through the Entrepreneurial Mobilization for Innovation (MEI), an initiative of the National Confederation of Industry (CNI), whose objectives included raising awareness among entrepreneurs of the importance of innovation for the competitiveness of the Brazilian economy, formulatng a pro-innovation agenda, and promoting the specific interests of the various sectors of industry, in particular those related to intellectual property, economic subvention and economic subsidies.

envisaged,[15] but underwent revisions and eventually was passed as Law 11196/05, which established new parameters for public action on incentives and subsidies.[16]

In turn, the planning and discussion of the Innovation Law,[17] wich was approved in 2004, had in that context a relevant role in highlighting the importance of innovation within scientific and technological policy and in attracting political support from a segment of the scientific community that had been traditionally refractory with regard to sharing the already limited resources with private companies. MCT's law bill, put up for public debate, intended to regulate the interaction among ICT[18] and companies, and introduce incentives for technological development and innovation based on research activities, which in Brazil are concentrated in universities and institutes and not in the private sector.

Among other aspects, the Innovation Law (10973/04) permitted more flexibility in the hiring of staff for public institutes, allowing public university professors to be hired full-time under the Integral Dedication to Teaching and Research Regime to participate in joint projects, while temporarily withdrawing from teaching activities. From 2005 to 2016 this legislation – which had been initially locally applied by those states and municipalities which were more proactive in taking advantage of the legislation – was extended to several Brazilian states and municipalities. The law also regulated the use of grants for company projects in research, development and innovation, which was expanded in the 2016 amendment (through Law 13243/16).

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15 Law 10637 of 2002 (Articles 42 to 46), became known as a 'mini tax-reform' for making improvements in tax incentives for R & D by offering deductions to companies filing patent applications in the country and abroad (Corder, 2004).

16 Law 11196 of 2005 replaced Provisional Measure 255, known as 'The Goodwill Law' ('MP do Bem'), repealed the prior tax incentives under Law 8661 of 1993.

17 The proposed Innovation Law was widely discussed and remained open for public consultation from 2000 and 2002, when it should have been approved. At the request of the President-elect, the bill was withdrawn after the October 2002 elections and was only passed in 2004 (as Law 10973 of 2004). Initially, two bills were presented by the MCT, one governing the executive sphere and the other the legislative, as defended by Senator Roberto Freire (Law Bill # 257 of 2000).

18 Here ICTs are considered to be the public or private universities, laboratories, research centers and institutes dedicated to research and development (R & D) activities. The concept of ICT is more formally presented in Law 13243 of 2016 (a more comprehensive definition than that in the Innovation Law, 10973 of 2004).

Legislation on intellectual property (industrial property, copyrights, cultivars), IT,[19] software, and biosecurity was revised between the late 1990s and the 2000s and along with the National Statute of the Micro and Small Business complemented the regulatory framework that was modified to improve the environment for research, development and innovation activities. Another aspect of the legal framework was the passage of laws making R & D activities mandatory for concessionaires in strategic sectors.[20] Noteworthy among these were laws requiring R & D in the electric energy sector (Law 9991/00, as amended) and the 1% Clause in oil and gas exploration and trade concessions (Law 9478/1997, as amended). This legal framework is presented briefly in Table 1.

Even though the collection of measures promoted by the MCT is marked by clarity regarding the objectives and strategy to be followed, the actual implementation did not indicate the government was executing a pre-designed plan. On the contrary, the step-by-step sequence of actions suggests they were conceived ad hoc according to the opportunities that happened to be perceived and/or created by the MCT leadership – including the leaders of affiliated agencies and institutes – and by the transitory political alliances that coalesced around it.

This modus operandi reveals a characteristic trait of the Brazilian State after the military regime – the lack of planning. It also reveals that for action to be effective, consistency must be maintained even while zigzagging along the path that must be taken, due to unfavorable conditions, towards the objectives. Nevertheless, this halting dynamic is not without cost and in general jeopardizes not only efficiency but the very results themselves by unequally distributing the action's benefits: in practice, the gains end up being limited to a few individual agents, ensuring only a minimal overflow to society. In terms of a nation's economic and techno-productive structure, losses may be irreversible and further undermine the already fragile state capabilities to plan and execute policies.

19 Both the Fiscal Incentive Law and the Information Technology Law provide incentives for R & D investment in their areas. The latter was, to a certain extent, a form of compensation offered to companies located in other regions of the country against the tax advantages enjoyed by companies located in the Manaus Free Trade Zone.

20 On the design of this legal framework, see Pacheco (2003).

Table 1. The new legal framework and recent changes

Legal Framework	Objective	Scope / Operation
Innovation Law (# 10973/04 as amended by Law 13243/16)	Grants and other funding; creates an RD&I-friendly environment	Federal institutions national
Fiscal incentives law (11196/05, amended by 11487/07, 11774/08, 12350/10 and 12546/11)	Incentives for RD&I; grants for researcher salaries working in joint projects	Companies under 'actual profit' regime
Biosafety Law (8974/95, repealed by 11105/05)	Defines safety standards and oversight mechanisms for activities involving genetically modified organisms (GMOs) and their derivatives. Created the National Biosafety Council (CNBS) and restructured the Technical Biosafety Commission (CTNBio)	National
IT Law (8248/91, 10176/01, 10664/03 and 11077/04)	Incentives for RD&I in the information technology sector, beyond the Manaus Free Trade Zone	National. Enabled the investment of 4% or 5% of a company's gross sales in the domestic market
R & D in Electricity (Laws 9991/00, 10438/02, 10848/04 and 11465/07)	Incentives for R & D in energy efficiency for the electrical energy industry	National. Application of 1%, 0.75% of ROL (net operating revenue) in R & D and 0.25% in efficiency
Petroleum Clause (Law 9478/97 as amended by 12490/11)	R & D incentives	National
Software Law (9609/98)	Intellectual property of computer programs and control over their trade in the country	National

* Complemented by equivalent state laws to regularize local S&T institutions.
Source: Author's elaboration.

2.2 – The creation of the sectoral funds

The domestic development of science and technology in Brazil was for a long time dependent upon external funding sources, implying some degree of subordination regarding the larger projects to the priorities and agendas of the international development agencies and to the capacity to bear additional external indebtedness. With the external debt crisis, these resources dwindled and were partially replaced by National Treasury contributions, albeit always insufficent,

even to offset the effects of the escalating inflation. The situation became even more critical in the early 1990s with the Collor Plan and the attempt to impose restrictive fiscal controls. The National Treasury's funding as a whole was also reduced, putting the sustainability of the entire system at risk. This was the context within which the MCT was reestablished in 1995.[21]

The possibility of change took root between the late 1990s and the early 2000s, and the most significant initiative, which came to be identified with the very reform of the STI policy, was the creation of the Sectoral Funds for Science and Technology, or simply, sectoral funds. As mentioned earlier, restoring State funding capacity in the area was one of the foremost purposes of the entire reform. Consistent policy can only be implemented if there are financial resources available and guarantees that they will remain available in the medium and long term.

The first source of funds was identifed amidst the opportunities created by the change in the regulatory framework during the opening of the state monopoly of oil and gas exploration. The opening up to private capital participation in this market supported the argument that, in the new context, it was necessary to expand the technological and innovative capacity of Brazilian companies, not only to compete with the large multinationals that would now expand their share in the industry beyond distribution, as well as actively participate in the value chain of this sector. To this end, it was necessary to create mechanisms to fund more broadly the STI responsible for training human resources and playing a relevant role in the development of technological solutions for the sector, as well as funding private-sector R & D. From the debates that accompanied the radical change in the legal framework, two mechanisms emerged that would inspire the redefinition of funding sources in this area over the following years: the 'Oil & Natural Gas Fund' (CT-Petro)[22] in 1997 and the '1% Clause' in 1998.

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21 The MCT had lost ministry status in 1990, being downgraded to the Secretariat of S&T, and was reinstated in 1995.

22 CT-Petro stood out for introducing the shared management model, which was conceived as an integrated program with the participation of universities, research centers and the private sector. In addition, it included complementary instruments such as support for training and qualification of human resources, promotion of research and induction of innovation. In its sectoral context, it emphasized innovation in and the competitiveness of the oil and gas industry (Pacheco, 2003, p. 15).

This experience was replicated for other sectors, resulting in the formation of twelve other funds, of which ten covered sectors, one stimulated university-company joint projects (the Green-Yellow S&T fund, CT Verde Amarelo), and one was for infrastructure, between 1999 and 2002 (Pacheco, 2003).[23] They covered the following sectors: electric power, water resources, mineral resources, transportation, space, information technology, agribusiness, aeronautics, biotechnology and health. At the beginning of 2017, no less than sixteen funds were in operation, including the Amazon and the Waterways funds, which were the last two created. There is also a telecommunications fund (Funttel), which came under the responsibility of the Ministry of Communications, now part of the MCTI. Table 2 below shows the funds whose resources were allocated to the FNDCT.

The sectoral funds were justified by the clear and present need to provide new, sustainable resources to address the bottlenecks of the NIS: the growing scarcity and instability of public resources;, the deep structural asymmetries in the qualification of key system actors, the low level of private effort in R & D and an essentially public-only S&T system. This diagnosis profoundly influenced the creation and objectives of the reform in general and the design of the funding sources, governance structure and administration of the sectoral funds and of the FNDCT. The funds were designated as having multiple and ambitious objectives: expand the NIS's capacity in strategic areas, enhance S&T institutions' infrastructure and qualified human resources and develop new funding instruments adequate to foster innovation. Such instruments and resources were intended to boost private investment in R & D and promote closer interaction and a greater number of partnerships between the productive sector and universities and research institutions in general.

A commitment was made to ensure significant transparency in the decision-making process and allocation of fund resources and in the accountability of the steering committees formed by representatives from the public and private sectors and of civil society and to improve the distribution of resources among the regions of the country.

23 For additional information on the origin of the sectoral funds, see http://finep.gov.br/a-finep-externo/fontes-de-recurso/fundos-setoriais/o-que-sao-fundos-setoriais.

Table 2. Sectoral funds under the FNDCT: Legislation and resources

Fund	Acronym	Legal instrument of creation and regulation		Source of resources
		Legislation	Regulation	
Aeronautical	CT-Aero	Law 10332/01	Decree 4179/02	7.5% CIDE (contribuição de intervenção no domínio econômico, contribution of intervention in the economic domain)
Agribusiness	CT-Agro	Law 10332/01	Decree 4157/02	17.5% CIDE
Amazonia	CT-Amazon	Law 8387/91, Law 10176/01 Law 11077/04	Decree 4401/02 Decree 6008/06	Minimum of 0,5% of the gross sales of IT services and goods manufactured in the Manaus Free Trade Zone; clearance of up to 2/3 of the 2.7% complement of the 5% of the income of these companies as an investment option (and others)
Audiovisual	CT-Audiovisual	Law 11437/06	Decree 6299/07	Corresponds to the specific programming category of the National Culture Fund (FNC). Its resources come from the economic activity itself, from contributions collected by market agents, mainly from the Contribution for the Development of the National Cinematographic Industry (CONDECINE) and from the Telecommunications Inspection Fund (FISTEL).
Biotechnology	CT-Bio	Law 10332/01	Decree 4154/02	7.5% CIDE
Energy	CT-Energy	Law 9991/00, Law 10848/04, Law 12111/09 Law 12212/10	Decree 3867/01	Between 0.3 and 0.4% of the net revenue of companies' sales (generation, transmission and distribution)
Space	CT-Space	Law 9994/00	Decree 3915/01	25% of revenues from the use of orbital positions; 25% of Union revenue from commercial satellite launches and sounding rockets from Brazilian territory; 25% of Union revenue from sales of data and images obtained by means of tracking, telemetering and control of rockets and satellites; and the total revenue earned by the Brazilian Space Agency (AEB) from licenses and authorizations

Table 2 (continuation). Sectoral funds under the FNDCT: Legislation and resources

Fund	Acronym	Legal instrument of creation and regulation		Source of resources
		Legislation	Regulation	
Infrastructure	CT-Infra	Law 10197/01	Decree 3807/01	20% of the resources of each sectoral fund
Oil and natural gas	CT-Petro	Law 9478/97 Law 11921/09	Decree 2455/98, Decree 2705/98, Decree 2851/98, Decree 3318/99 Decree 3520/00	25% of the Union's share of the royalties value exceeding 5% of oil and natural gas production
Water resources	CT-Hydro	Law 9993/00	Decree 3874/01	4% of the financial compensation currently collected by power generation companies (equivalent to 6% of the value of electricity generation)
Mineral resources	CT-Mineral	Law 9993/00	Decree 3866/01	2% of the financial compensation for the exploitation of mineral resources (CFEM) paid by mining companies holding mining rights
Health	CT-Health	Law 10332-01	Decree 4143/02	17.5% CIDE
Information technology	CT-Info	Law 10176/01, Law 10644/03, Law 11077/04 Complementary Law 11452/07	Decree 5906/06, Decree 6008/06, Decree 6405/08 Decree 7010/09	Minimum of 0.5% of gross sales of companies of computer and automation goods and services that receive tax incentives from the IT Law
Water transportation and naval construction	CT-Aqua	Law 10893/04	Decree 5252/04	3% of the proceeds from the collection of the Freight Additional for the Merchant Marine's Renewal (AFRMM), which accrues to the Merchant Marine Fund (FMM)
Land transport and waterways	CT-Hydro	Law 9992/00	Decree 4324/02	10% of the revenues obtained by the National Department of Transportation Infrastructure (DNIT) in contracts signed with phone operator companies and related services that use the Union's terrestrial transport infrastructure
Green-Yellow	FVA	Law 10168/00; Law 10332/01	Decree 4195/02	50% of CIDE and a minimum of 43% of the estimated revenue from the IPI (Tax on Manufactured Products) levied on goods and products benefitted by the Computer Law

Source: *MCTI.*

Due to the characteristics of RD&I projects and investments, which are particularly uncertain and risky in their deadlines and results, ensuring a stable, predictable flow of revenue was instrumental[24], which in turn brought forth a double political and institutional challenge. On one hand, the S&T area had never acquired a sufficient political status to preserve it from restrictive action by the National Treasury. In political speeches it was always presented as 'strategic' and 'a priority' for national development, but these statements and declarations never did in fact translate into concrete allocations of the right resources, and much less into an administration that understood that investments in S&T could not be treated with short-term logic, expanding and shrinking according to circumstance and the faltering priorities of transitory mandates.

On the other hand, except for scientists and researchers, the area lacked organized interests and representatives from society who had any say in budget decisions. In the last analysis, there was a clear discrepancy between governmental pronouncements, in which the importance of S&T was acknowledged, and governmental practice, determined by segments who saw S&T outlays as postponable, even superfluous, intended merely to fund 'academia', understood as a structure that was relatively detached from reality and unable to respond to the immediate challenges facing the country.

The context of severe fiscal restraint exacerbated these difficulties but, paradoxically, contributed to bringing about an innovative solution through the two most important funding sources among sectoral funds, the Green-Yellow and the CT-Petro. Since it was not possible to raise taxes or use sources that would significantly reduce collection, a financial source different from those specified in the Constitution and the National Tax Code was tapped, a specific-purpose contribution that had already been used in another experiment, based on oil royalties[25] and other financial compensation mechanisms, without burdening existing operations.

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24 As mentioned, resource stability was a key bottleneck in the national S&T system, along with the needs to broaden the installed base of S&T infrastructure and to reduce regional disparities; increase the connection between science and technological development, in order to boost national innovative capacity; and to focus on critical, potentially strategic, areas (Valle, Salles-Filho and Bonacelli, 2002).

25 The Provisional Contribution on Financial Transactions (CPMF, a financial movement tax), preceded by the provisional tax on financial transactions (1993) and passed as Law 9311 of 24/10/1996, was a

In other words, the financial engineering of the sectoral funds, though skillful and creative, was to some extent a product of fiscal rigidity and of the new institutional structure created after the Real Plan for the management of public resources and the difficulty involving further burdening the productive sector with additional taxes. Two considerations were paramount: on the one hand, a portion of the business sector was enfeebled and, still adjusting to the new context, was without margins to bear additional tax burdens; on the other, these same entrepreneurs whom the MCT sought to bring aboard as relevant actors also saw the S&T area as 'academic' in a negative sense. It was necessary, therefore, to attract them as partners and allies and neutralize their objections, which would not be feasible by imposing additional taxes to finance the funds.

In terms of structural design, the sectoral funds were in their genesis directly connected to the productive sectors, either through their source of revenue (a funding source dedicated to that sector's scientific and technological development), or through the allocation of resources according to the guidelines, needs and priorities in each area. Even though they were stable and had the potential to grow along with the economy, these sources had a relatively small impact over and beyond the admittedly onerous tax burden that companies already bore. In other words, the goal was reallocating and funneling resources into the S&T system rather than additional collection, for the aforementioned reasons.

There was a clear intention to broaden the conditions in order to encourage partnerships between STIs and companies,[26] which were considered fundamental

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relatively successful instance of a pre-allotted contribution – a tax levied to be spent on a specific outlay – for health funding and was repeated twice, first in the case of CIDE (Contribution on Intervention in the Economic Domain) on Technology Transfer (Law 10168 of 29/12/2000), which applied to technology transfer contracts, such as patent licensing or use of trademarks and contracts for the supply of technology and technical assistance. On the second occasion, CIDE-Fuels (Law 10336, of 19/12/2001) was levied on the importation and trade of gasoline, diesel, aviation kerosene and other similar combustibles, fuel oil, liquefied petroleum gas (LPG) including natural gas and naphtha and ethyl alcohol.

26 Government incentives for private R&D were, until then, offered through the Tax Incentives Law 8661/93 and the occasional program that provided non-reimbursable funds to university-company joint cooperation projects, such as CNPq's RHAE Program, fellowship grants for academic talent involved in projects on behalf of companies (on the RHAE, see Silva, 1996). The fact, though, is that most of the technological projects funded by the public sector never emerged from the academic sphere to become commercial innovations. The point was to transform this scenario and boost contributions from the scientific community to innovation.

to renewing the companies' technological potential and increasing their innovative capacity. To achieve this and the other aforementioned objectives, new funding instruments were created or reformulated in the reimbursable (loans), non-reimbursable (grants), and capital investment (seed money and venture capital) modalities. Moreover, the FNDCT regulation project (which brought together all sectoral funds into a single account) and the 'Innovation Law' bill were presented in Congress. Both, however, were not approved until later, the Innovation Law in 2004 and FNDCT's regulation in 2009, however without significant losses in the disbursement of the deposited resources.[27]

The sectoral funds did in fact represent a new source of funding for the expansion of scientific and technological infrastructure, encouraging investment in innovation and promoting initiatives to increase competitiveness at a nationwide level.[28] They brought about immediate and substantial improvement in the funding of the S&T system. Furthermore, they introduced the concept of sustainable, stable funding, since both the sourcing and the non-fiscal nature of the revenue protected the resources from the uncertainties involved in the management of fiscal policies under a context of austerity. Thus, sectoral funds became an important aid for the advancement of the State's capacity to fund the implementation of public policies.

Nevertheless, an analysis of the evolution of the sectoral funds reveals that the initial optimism about their role and shared management was exaggerated. The mechanism ended up becoming a victim of both the execution of fiscal policy, from which it was supposed to be protected, and of the erratic patterns of resource allocation that often characterize many public policies in Brazil, and to which the MCT was not immune. Neither did the origin of the resources prevent their contingency retention or being subject to budget execution, which is incompatible with the dynamics of ST&I, nor did their governance structure prevent the

27 The FNDCT was created July 31, 1969 with resources from the Union, with the objective of supporting priority programs and projects for scientific and technological development, as defined in the PBDCT. Its executive and financial management was originally under BNDES, the national development bank, but in 1971 they were assigned to Finep. In 2007, the 1969 law was amended (Law 11540/07), which enabled the regulation of the FNDCT, forty years after its creation (Decree 6938/09). Brazilian laws undergo 'regulation', a secondary AND more detailed complementary law, considered a form of 'fine tuning'.

28 On the reform of the ST&I Policy, see Pacheco (2003); on the performance of the sectoral funds, see Buainain and Corder (2012).

fragmentation of the assets into thousands of small projects to meet the demands of specific stakeholders, often without any strategic impact whatsoever for the country. Both the relationship between macroeconomic and sectoral policies and the execution of policies where implicit objectives clash with explicit ones plague Brazilian State capabilities in many strategic areas, ST&I being no exception. The following section seeks to provide a brief idea of the sectoral funds' governance structure, evolution and correlation with State capacity for action.

3. FNDCT GOVERNANCE

3.1 – Defining a shared management model

To manage sectoral-fund resources, at first an innovative management model was established that provided for a steering committee for each fund. Each of these committees would be chaired by a representative of the MCT and include representatives from the related ministries and regulatory agencies and academic and business sectors, as well as MCT agencies, Finep and CNPq.

Inspired by a comprehensive strategic point of view, the steering committees would define guidelines for the actions of their fund, priorities for the allocation of resources within priority areas, and provide oversight of the actions of agencies and of their public and private partners with fund resources. It was also necessary to define guidelines for long-term planning and define policies and initiatives for strengthening the ST&I system and reaching the developmental goals. The expectation was to turn the steering committees into loci of debate among the relevant actors. This form of management was designed to ensure greater transparency and provide richer strategic content to the initiatives.[29] Each steering committee was responsible for the decisions regarding their fund and was committed to organizing the best regional distribution of resources, provided no less than the 30% quota was allocated to the North, Northeast and Midwest Regions.

[29] FNDCT's governance was originally 100% public and its objectives were set forth in government plans, its highest body being a board of directors chaired by the Minister of Planning and including the presidents of CNPq and BNDES, representatives from the Ministries of Education, Mining and Energy, Industry and Trade and from other public and private sectors related to national scientific and technological development. In practice, this board of directors never really functioned until it was 're-created' in 2007 and regulated in 2009, and the FNDCT guidelines determined by the ministries to which it was subordinated (the Ministry of Planning and Ministry of Science and Technology).

In the original design there was a Technical Secretariat that was partially outside of the direct hierarchical control by the MCT and reported directly to the steering committees, all of which were directed by the Executive Secretary and other secretaries in the MCT.[30] The Technical Secretariat function of the sectoral funds management was assigned to the Strategic Studies and Management Center (Centro de Gestão e Estudos Estratégicos, CGEE), a Social Organization created in 2001 during the II ST&I Conference.[31] The CGEE was created with an innovative configuration and a differentiated management model. Among its duties were organizing prospective S&T studies and defining strategic areas, which involved liaising with research institutions, universities and the private sector. The strategies and definition of critical areas and national opportunities would be done jointly by the different actors, and not in a centralized and isolated manner as was the norm.[32]

This form of governance, however, encumbered the top-down model traditionally applied to the management of public resources. Theoretically, it implied a reduction in the immediate power of the MCT and its agencies to allocate the available resources discretionarily, once the decisions were subordinated to political negotiations within the group of actors represented in the steering committee. But in theory it could also be thought of as strengthening the State's capability to execute ST&I policies, because it broadened the political support base for science, and in turn a louder chorus could be mustered to make demands of the finance and planning ministries and debate issues of funding and priorities with the other ministries. Even though the public sector still had a majority representation, the presence of the private and academic segments should, in theory, impose certain limits on ad hoc decision-making outside of the guidelines approved by the committees for the activities. A review of the meeting minutes of the steering committees for the Green-Yellow and Agribusiness funds reveals that

30 This managerial innovation contrasted with the FNDCT's traditional operational style and the usual implementation of the Brazilian S&T policy, always conducted in isolation and without much interfacing (Bastos, 2003, p. 250).

31 The constitution of the CGEE as a Social Organization (a new institutional-law structure) was part of the reformulation movement that began in the second half of the 1990s in the context of the Brazilian State reform proposal, the main objective of which was the managerial reform of public administration focused on the State, Executive Agencies and Social Organizations (OSs), the model for which emerged at this time (Pacheco and Corder, 2010).

32 For more details on the role of the Executive Secretariat, see Pacheco and Corder (2010).

active participation by the private sector was, however, never fully accepted by the government, not even by the MCT.

3.2 – 'Unshared' management: A retreat from shared management

In 2003, the MCT eliminated the CGEE and took over the technical secretariat role in fund management, with its own staff, while formally maintaining the shared management model. In 2004, fund management and governance were modified to create the 'transversal actions', with the objective of funding strategic programs in the MCT that required the integrated use of part of the funds' resources. Thus, the sector-centric orientation for allocation was eliminated without, however, changing the source of the resources. The justification for the change, which was partially valid, was that the funded projects, based on the guidelines and priorities defined by the steering committees, had scant integration and little articulation with government policies and that sectors vital to the economy lacked funding to finance strategic demands.[33]

Later in 2004 a sectoral funds coordination committee was created, composed of the Minister of Science, Technology and Innovation, the chairs of the steering committees of each sectoral fund and the chairs of Finep and CNPq. The objective was to facilitate coordinated action among the various funds and enable the so-called transversal actions. Since the chairs of the steering committees were necessarily representatives from the related ministries, no representatives of the private sector sat on the coordination committee, which was composed only of members of the government. This 'innovation' overturned the concept that had grounded the creation of funds (Melo, 2009) which assigned to the committees an important role in the mobilization of public and private actors and in defining resource allocation. In short, under the new configuration full control of the decision-making process reverted to the MCTI and Finep became the Technical Secretariat, which in the original proposal had been the duty of the CGEE (MCT, no date).

In practice, these changes completely hollowed out the steering committees as loci for political articulation, liaising, debating, guideline and priority definition

33 Presentation by the Minister of Science and Technology at the IV STI Conference, November 18, 2005.

and allocation of the resources raised on behalf of sectoral funds. So much that, in spite of changes in the Brazilian economy during the first decade of the twenty-first century, the sectoral funds guidelines – which theoretically and legally should guide decisions and action – have never been updated. The significant transfer of assets from the larger funds, notably the Green-Yellow and CT-Petro, to transversal actions, reduced the amount available for the committees to allocate. Moreover, in the face of irrelevance, the committees stopped meeting with the frequency established by law, and the meetings when they did occur were merely protocolary rites, with agendas sent to councilors at the last minute, without any accountability or resource oversight activities, merely to sanction decisions already made – and, not infrequently, actions already underway.

Finally, in 2007, the 'new' FNDCT was established,[34] consolidating the model adopted by MCT as of 2004–2005, with the justification of promoting the integrated action of sectoral funds through transversal actions to correct the fragmented, dispersive action that had marked the performance of the 'old' FNDCT throughout most of its history, including after the creation of the funds. Another purpose was to modify the exclusively sector-centric allocation of the sectoral funds,[35] as planned in 1999, on the grounds that the different sources of funding resulted in very unequal budgets for each fund that did not match up with the demands from the sectoral and government priorities. As mentioned, sector fragmentation created difficulties for enabling strategic actions that crossed boundaries among the sectors from which the resources originated, which in MCT's perception was one of the main problems in sectoral funds management.

The 'new' FNDCT had a comprehensive and representative board of directors chaired by the Minister of Science and Technology and including representatives from a number of ministries (Education, Development, Industry and Foreign Trade, Planning, Budget and Management, Defense, Finance), agencies (Finep, CNPq and BNDES), the president of Embrapa, three representatives from the

34 Law 11549 of 12/11/2007, subsequently regulated by Decree 5938 of 12/11/2009.

35 Except for those which were already transversal, such as the Green-Yellow Fund and the Infrastructure Fund (the CT-FVA and CT-Infra, respectively) where the allocation of resources was defined according to priorities by the STI, and not by the private sector. As can be seen in Table 2, which shows the fund structure, the CT-FVA had its own funding via CIDE, and the infrastructure fund was maintained by 20% of the assets raised by each fund.

scientific and technological community, three representatives from the private sector (preferably related to the technological area), a representative from the micro- and small-businesses segment, and one representative of the personnel working at the MCTI and its agencies.

The revamping of the FNDCT Board of Directors introduced new relations and juxtapositions of functions and responsibilities with the sectoral-fund steering committees that were never properly balanced or worked out. In practice, governance became convoluted, with several committees and governing councils sharing responsibility for determining guidelines and priorities for the outlay of the same limited assets, notably FNDCT's board of directors and the sectoral funds steering committees – in theory still responsible for guiding the allocation of their funds. Alongside and above these formal instances of coordination and management, political officials (in the Funds Coordination Committee) had the power to make ad hoc decisions and impose them formally upon the committees or, in a large number of cases, implement many an initiative directly without even consulting any of the theoretically shared instances.

In summary, with the 'new model of integrated management of the Sectorial funds' the so-called 'transversal actions' were created, which should have facilitated the expression of government (via MCT) and industrial, technological and foreign trade policy (via Política Industrial, Tecnológica e de Comércio Exterior, PITCE) priorities in order to avoid the redundancy and dispersion of initiatives and ensure greater transparency and efficiency in asset disbursement. In practice what occurred was that the role of the government in the decision-making process was broadened and the participation of the steering committees in the planning and oversight of actions was curtailed. As a result, operations became less transparent and, unlike what was proposed, the dispersion in the investment of resources was aggravated,[36] as demonstrated by Buainain, Corder and Pacheco (2014) in their review of FNDCT asset allocation.

[36] For a more detailed analysis of the governance structure of the FNDCT, see Buainain and Corder (2012) and Neves (n.d.).

4. FEDERAL PUBLIC FUNDING FOR RESEARCH, DEVELOPMENT AND INNOVATION: THE MAIN INSTRUMENTS

Over the last few decades, the Brazilian State has provisioned itself with a comprehensive kit of funding instruments in order to leverage RD&I. However, as will be argued later, in a broader, more formal spectrum, these instruments alone are incapable of ensuring effective action, which requires the availability of financial and human resources, to be sure, but also adequate rules, procedures, and oversight and evaluation mechanisms amongst other conditions. In any case, strictly speaking, a change in the structure of the innovation system was in fact wrought through the initiatives which will be described in this section.

Credit (in the form of loans) is one of the most traditional forms of funding, and its implementation is guided by a series of constraints established by financial intermediaries, such as guarantees (collaterals and sureties, for instance). The greater the risks and uncertainties of the endeavor, the larger the borrower's cost tends to be, in terms of interest and in lender/borrower spread. Risks and uncertainties, especially market risks, are commonplace and present in any investment, but innovative projects with high technological intensity add monetary and technical uncertainties, imply capital will remain immobilized for a longer time and involve greater difficulties in achieving the expected results. It is more difficult, in this case, to find private financial agents willing to share risks with the lead investor, if the investor does not have enough resources to proceed alone. In the Brazilian case, it can be said that private banks were never interested in funding projects of this nature except at very high costs. It is very difficult for entrepreneurs to compete with the advantages offered by the financial market or with public securities, which offer almost nonexistent risk. Thus, funding was almost entirely supplied by public agents.

The reimbursable instrument, or RD&I credit, was established to enable these investments. Even though this instrument is not the most appropriate for funding research when the challenges are still very high due to the degree of novelty involved, the equalized interest rates can make it viable in certain cases. Finep makes use of FNDCT resources to equalize the interest rates. The resources to finance the principal derive from other sources, that is, from other public loans; BNDES has other mechanisms, as will be discussed further in this section. The

equalized part of the interest is fully assumed by Finep and BNDES and therefore does not require repayment.

Non-reimbursable instruments or grants assume various forms, such as funding for science and technology institutes (STIs), cooperative joint projects (an STI together with a company or companies) and subsidy and equalization of interest rates, which Finep offers. BNDES on the other hand makes use of self-owned resources for these operations. Non-reimbursable funding naturally exempts the borrower from the obligation to return assets to the source and from prior requirements in the form of collateral guarantees (the existent requirements tend to pertain to organizational experience, training, qualification of the technical staff and so forth), and is an invaluable instrument for the exploration of the frontiers of knowledge and the pushing of the boundaries of technological possibility. In Brazil, this type of funding has been restricted to supporting nonprofit organizations, due to legal provisions that prevent the provision of non-reimbursable public funds to private, for-profit organizations. Grants are the exception to this rule; they are the only form of direct access the private sector has to non-reimbursable public funds. Strictly speaking, however, the equalization of interest rates is also a form of subsidy.

The third mechanism is the underwriting of securities in the capital markets through seed money, venture capital and private equity. In this case, public agencies support the initiatives through participation in investment funds, locally called FIPs, or, Mutual Investment Funds in Emerging Companies, locally called FMIEEs. In the latter case, the agency partners with other investors to fund several small ventures, dividing the investment risks with them, as well as providing professional management consulting for the fledgling entrepreneurs. Trading in this market does not create debt for the new entrepreneur; instead a partnership is created, because the investors acquire property rights. The debentures may, or may not, be converted into shares. As a fixed-income security, they are guaranteed by the company's equity.[37]

37 A debenture is a security that guarantees the buyer a fixed income, unlike stocks, which provide a variable income (Sandroni, 1999).

The funding instruments that channel the resources from the FNDCT were instituted by Law 10332/01[38] and regulated by Decree 4195/02. This is, therefore, the current legislation that regulates its operation, with the exception of the subvention or grant, which underwent modifications and is governed by the Innovation and Goodwill Laws, 10973/04 and 11196/05, respectively. The former establishes the principle of the grant as an economic subvention, used to cover expenses with RD&I project costs, while the latter creates grants to remunerate researcher salaries while they work on the execution of RD&I projects at businesses' facilities.[39] All of these instruments are also validated by legislation were passed in 2016, Law 13243/16, which amended the Innovation Law 10973/04.

In another category are tax incentives, liquidity guarantees and government commissioning and procurement. They constitute distinct instruments for encouraging innovation, since they do not require the allocation of financial resources. Tax incentives involve a reduction of tax costs for companies with R & D expenses; liquidity guarantees are an incentive that Finep offers to investors who share financial resources with venture capital funds. In this case, the government does not assume the role of a full guarantor but may cover up to 20% of the total investment in the case of the operation's failure or default.[40] Government commissioning and procurement, on the other hand, ensure a steady, reliable demand for companies, forming in theory an attractive incentive to innovate. However, to date, this instrument has not been applied in a broad, expressive way to support innovation, in spite of its relevance and of the legal framework (Law 13243/16), which authorizes the government to commission R & D projects directly.[41] A brief breakdown of the main instruments follows.

38 Law 10332/01 created the 'Innovation for Competitiveness Program', which grants resources to RD&I projects through various instruments: interest equalization; participation in the capital of technology-based companies; a technical reserve for investment funds, subvention or subsidy; and nonrefundable grants for cooperative research projects involving universities or research centers and companies.

39 Conflict with labour legislation hindered the granting of this type of subsidy, leading the government to stop launching new calls.

40 The execution of liquidity guarantees, however, are somewhat complex, and will not be detailed further in the present text.

41 On government procurement and commissioning, see the IPEA study (de Negri and Salerno, 2005).

4.1 – Reimbursable funding – credit

Historically, public agencies, particularly BNDES and Finep, have sought to cover the wide gap left by the private financial system in funding research, development and innovation activities by companies. Subject to regulations that are not entirely adequate and applicable to innovation funding, the programs run by BNDES and Finep unfortunately lack the desired level of flexibility and agility. Nevertheless, by drawing on the Worker Support Fund (Fundo de Amparo ao Trabalhador, FAT), the National Treasury and the aforementioned FNDCT (in Finep's case), both offer reimbursable funding (loans) at a lower cost than market rates under conditions that vary according to the economic scenario and monetary and fiscal policy. Both Finep and BNDES have their own creditworthiness evaluation criteria according to the specific conditions of the lines and credit programs, which are defined based on their priorities. In turn, these priorities are based on policies and strategies defined by the federal government. The adherence of agency actions to government priorities, however, is variable; in some cases, it is merely formal, while in others convergence is tight and the agencies operate as an instrument of government-defined policies.

4.1.1 – BNDES's reimbursable funding

BNDES as a development bank is undoubtedly the agency that contributes the most resources to the industry. The stabilization of the economy from the mid-1990s, and the greater government effort over the following decade to set a course for public investment in industrial policy, helped guide the allocation of resources from the bank, the financial arm of the Ministry of Finance, Industry and Commerce (MDIC). It was during that period that the bank aligned its strategies to some degree with the prevailing view of the importance of innovation for competitiveness and of adopting an integrated stance uniting ST&I and economic development. From then on, funding for modernization and for the renewal of tangible assets (machines and equipment) began to be treated differently – as funding for innovation, that is, as focused on the production of new products, new processes or services, implementation of organizational innovations or the purchase of technologies or their development by companies. At this time BNDES also began to support technological development by launching programs to fund

innovative projects and projects with reduced costs.[42] However, it was only in the second half of the decade that the bank created comprehensive lines ofcredit for RD&I investments with interest rates below the long-term interest rate (TJLP),[43] which was already lower than the market rate and the national basic interest rate (SELIC).

BNDES's actions to support innovation expanded from the mid-2000s until 2014–2015. These comprised funding projects to develop innovative products and processes, R & D expenditures and investiments in the implementation, expansion and modernization of enterprises; and resources for the purchase of capital goods and buildings, among others. The financing carried out within the scope of the BNDES Innovation Line, and others that the bank established according to its priorities, and the programs, generally sectoral, were in fact the most expressive in terms of technological support and innovation. Most of BNDES's programs and lines of credit are supported via credit instruments (loans), via subscription of securities or both in the same operation. In some cases, the subscription is only possible if done together with the credit, that is, in a mixed operation.[44] BNDES also offers the BNDES Card, a credit card with pre-approved revolving credit for various services related to research, development, innovation and technologies. The focus is on micro, small and medium-sized enterprises (SMEs) and individual micro-entrepreneurs.[45]

Following the same logic of providing several instruments in an integrated manner, BNDES in partnership with Finep made available the BNDES-Finep Joint Support Program for Industrial Technological Innovation of the Sugarcane and Sucrochemical Sectors (Plano Conjunto BNDES-Finep de Apoio à Inovação Tecnológica Industrial dos Setores Sucroenergético e Sucroquímico, PAISS) in 2011 for the sugar and ethyl alcohol biofuel sector, and the Inova Petro program for the

42 Of note during this period were the programs Procomp, for working capital; Modermaq, for renewal of machines and equipment; and Prosoft, for software development and related services.

43 Of note in this period were the PDI Innovation Line, for investments in RD&I; and Production Innovation, for the construction of new industrial plants.

44 For more details on the lines and programs, see www.bndes.br.

45 Previously called BNDES Innovation Card. See business size classification at BNDES: https://www.bndes.gov.br/wps/portal/site/home/financiamento/guia/quem-pode-ser-cliente/.

oil and natural gas production chain. This partnership was extended in the Inova Empresa Plan, launched by the MCTI in 2013 with the purpose of investing over R$30 billion in projects and programs in several areas. Inova Empresa expanded the funding scope to other areas and sectors, providing for the simultaneous use of the different instruments (reimbursable, non-reimbursable, and seed and venture capital or 'variable income' in BNDES nomenclature).

4.1.2 – Finep's reimbursable funding

Finep, since its inception in the 1970s, has been the leading funding source for innovative projects in the country. However, its ability to raise long-term funding for credit has always been limited, since it does not operate with any legally established, fixed, allotment[46] and must annually renegotiate its budget with the federal government. The cost of credit directed to RD&I is set in reference to the TJLP and SELIC basic interest rates.[47] According to a project's framework, equalization can be applied to the TJLP rate, and for this FNDCT resources are used according to Law 10332/01, thus reducing financial costs for lenders. The criteria for granting this funding and its priorities (which are not always sectoral) are formally detailed in the agency's funding policy. As with BNDES, Finep's program priorities have changed according to the new policy guidelines.

Funding sources for credit operations are loans from BNDES and FNDCT (in the latter case, from the profits of financial investments made by FNDCT) and from Finep's self-owned resources authorized for this purpose.[48] In this way, Finep has only limited capacity and faces difficulty in expanding its credit operations; consequently, there is a strong demand for this situation to change. However, this would imply changing Finep's status and transforming it into a public bank, along the lines of BNDES, and this has indeed been the subject of significant debate among the scientific community, Finep's personnel and the federal government.

46 Unlike BNDES, which manages the Workers' Assistance Fund (FAT), an unemployment support fund, which is an important source of funding for the bank.

47 The value of the Selic base tax rate is set by the result of the daily trade average of federal public securities.

48 BNDES transfers FAT resources to Finep. From 2011 to 2015 it was also possible to pass on resources from the Investment Support Plan (ISP).

4.2 – Non-reimbursable funding: Grants, cooperation and subsidy

Federal government financial non-reimbursable support for innovation is provided by Finep, CNPq and, to a lesser extent, BNDES. In the case of Finep, the resources for this modality of support come from the FNDCT, which gathers assets from several sources, with an emphasis on the sectoral funds and regular sourcing from the National Treasury.[49] In the case of the BNDES, resources generally originate from the bank's assets.

In order to manage the disbursement of non-refundable assets, Finep uses legitimate legal devices, such as public notices and invitations-to-bid, commissioning and invitations. The first two forms are more competitive, while the last two allow greater direction by the fund manager regarding the choice of projects. The beneficiary, in general, is a non-profit scientific technological institution, which receives the resources through an agreement signed with Finep and CNPq. However, through grants, locally called 'economic subvention', agencies may also allocate non-reimbursable resources to finance private projects. The other programs that allocate non-reimbursable resources can only support the companies indirectly, through the partnerships with public Science and Technology institutions (STI) for the development of R & D projects. These are called joint, or cooperative, projects.

Two modalities of subsidy were created: company grants as per Law 10973/04 (the Innovation Law), and grants for researcher salaries while they are working at companies on R & D (Law 11196/05 or the Goodwill Law). The Program for the Support of Business Research (PAPPE) in its several versions was the program designed to allocate subsidies to smaller companies, counting with the support of the Research Support Foundations (FAP), responsible for the operationalization

49 Law 10332/01 provided for the use of the Green-Yellow Fund (CT-FVA) to provide non-reimbursable funding for RD&I projects that did not fit into one any of the eleven sectors initially defined in sectoral funds, and specified that the money would be provided to companies through the following instruments: grants, venture capital contributions and equalization (discount) of interest rates. In fact, the FVA would be the transversal fund of the FNDCT to fund business and public Science and Technology Institucions projects. However, the creation of 'transversal actions' allowed a large increase in the volume of resources to be used for non-sectoral purposes, and this forced an adaptation of the legal framework for economic subsidy instruments for the researcher, which were governed respectively by the Innovation and Goodwill Laws. Subsequently, Law 13243/16 mentioned all the aforementioned instruments, while Law 10332/01 remained in force.

of resources at the state level. In September 2012, Finep launched the Tecnova program, with similar objectives, while the FAPs remained responsible for the operationalization of resources.[50] Grants (public non-reimbursable resources) for researchers provide between 40% and 60% of their salaries, with the percentage depending on the region.[51]

Non-reimbursable resources also pay professionals working in R & D through fellowships in various modalities, depending on the individual's level of education. CNPq's RHAE program, for example, awards scholarships to researchers working on corporate RD&I projects, and Finep's projects for companies and STI include researcher salaries. These resources come from either from the CNPq budget or the FNDCT, respectively. Currently, the RHAE Program is disabled due to lack of resources.

The Technological Fund (Funtec) is the BNDES's non-reimbursable source of funding for technological development and innovation projects considered to be of strategic interest and within the guidelines of the federal government's programs and policies. Both technological and support institutions[52] can utilize these resources, especially on behalf of companies already participating in a project. The amount allocated to Funtec generally corresponds to one-third of the 'social' funding programs undertaken by the bank.

4.3 – Capital contributions: Seed money, venture capital and private equity

Another important mechanism to support innovative investment is found in the capital market under the modalities of venture capital and private equity. Although BNDES was a pioneer in this market when it created the Technology Based Company Capitalization Program (Contec) in the early 1990s,[53] Brazil did not have a significant venture market to fund technological companies prior to the

50 Tecnova was approved by RES/DIR/0367/11 on 12/26/2011, and the first public call was released 09/14/2012 (Finep, Management Report, 2012, Table XII, p. 54).

51 Since then, however, only a single grant announcement has been issued for the remuneration of researchers.

52 For technological and support institutions definitions, see BNDES: https://www.bndes.gov.br/wps/portal/site/home/financiamento/produto/bndes-funtec.

53 A detailed study of Contec is Gorgulho (1997).

creation of the INOVAR program by Finep in 2000. In 2007, BNDES launched Criatec with the objective of providing seed capital to micro and small companies through managers selected for this purpose. By 2016, the program was in its third iteration.

Since the creation of the INOVAR program, Finep has been operating in the venture market in three modalities: (*i*) investment in venture funds;[54] (*ii*) direct acquisition of equity through the purchase of debt securities, convertible debentures and shares;[55] and (*iii*) the possibility of triggering the liquidity reserve in the case of unsuccessful ventures, in order to compensate investors for losses.

The Innovation Act, with its chapter VI, authorized the creation of exclusive funds for investment in innovative companies within the framework of the FMIEE, which are closed societies with redemption of funds at the end of the application period, regulated by CVM # 209/94.

Private participation occurs mainly in private equity funds, which capitalize companies when a business is in the expansion phase. Private investments in the seed or startup phases are limited, though there are some so-called 'angel investors', individuals who invest in nascent companies. This segment has been expanding in Brazil since the 2000s, according to the Second Venture Capital and Private Equity Census, released in 2011 by ABDI/FGV (FGV, 2011). Despite the changes in this market's profile, the fact is that it has been up to the government to support the investments that involve major technological challenges in their initial phases, thus making up for acknowledged 'market failures'.[56]

This means that there is a great potential for growth in private participation in new, innovative technology-based ventures, which have the greatest difficulties in attracting resources. For this to occur, some obstacles – which have already been

54 Mutual Funds for Investment in Emerging Companies (FMIEE), regulated by the CVM, Instructions 209/94 and 391/2003.

55 The regulation of this type of action was carried out by the FIP destined for investments in RD&I (FIP-PD & I), approved by Law 11478/07 as amended by Law 12431/11 Art. 4, which established the categories of 'FIP Infrastructure' (FIP-IE) and 'FIP Research, Development and Innovation' (FIP-PD & I).

56 On the distinction between venture capital and private equity, and details on this industry, see ABDI (2009) and De Paula (2003a, 2003b).

identified, but still require deeper analysis – must be overcome. In the institutional sphere, the factors that directly affect this market are the cost of registering and maintaining an investment vehicle, the quality of the accounting and the security of minority shareholders. In the fiscal aspect, the high tax rates inhibit investors and reduce the competitiveness of national enterprises in relation to those in other countries, which offer more favorable financial conditions and often allow deducting from the payable income tax a percentage of the amount invested. In addition, measures taken by Brazil to attract foreign investors have created unequal conditions between them and local investors, generating discontent and further undermining market attractiveness (Law 11312 of 07/27/2006).

4.4 – Tax incentives

The tax incentives for RD&I, as defined by Law 11196/05, which became known as the 'Goodwill Law', benefit only companies operating under the 'Real Profit' regime.[57] Approved in 2005 to replace Law 8661/93,[58] the 'Goodwill Law' offered some improvements, such as the elimination of the requirement of prior approval of a project and the widening of the project scope, previously restricted to R & D, with the introduction of the concept of innovation.[59] In this way, companies started to enjoy a greater autonomy in using the incentive. In addition, the rebates offered on various taxes were increased.[60]

Regulated by Decree 5798/2006, the incentives provided by the 'Goodwill Law' for companies investing in technological innovation are defined in articles 17 to 26 of Chapter III. This regulation was extended by Law 11487/07, known as the 'Rouanet Goodwill Law',[61] which allows the R & D expenses incurred by hiring

57 This is because until its conversion into law, it proceeded as provisional measure MP 66/2002 and, later, MP 252/2005, when it was dubbed the 'Goodwill Decree'.

58 Law 8661/93 was amended by law 9532/97, becoming more restrictive than in its original version.

59 As mentioned, in order to take advantage of the incentive, companies had to submit the R & D project to the PDTI/PDTA and have it approved.

60 The 'Goodwill Law' also revoked Law 10637/02 on national patent incentives and gave new treatment to this issue.

61 The original Rouanet Law was a tax-incentive mechanism to stimulate private sector support for the cultural sector and the arts. It made investments in arts and media projects income-tax deductible (up to 4% of the corporate income tax or 6% of the individual), and also permitted corporate logo advertising on project materials.

a public research institution to become tax-deductible. Laws 11774/08, 12350/10 and 12546/11 complement the regulatory framework and modify and extend Law 11196/05.

Laws 8010/90 and 10964/04 also regulate tax incentives and establish exemptions from import duties and other taxes for R & D purposes. The first is intended for educational and research institutions, which are exempt from the import tax (tier II) and the Tax on Manufactured Products (IPI) and the 'merchant marine freight renewal surcharge' tax when importing machinery, equipment, appliances and instruments and their spare parts, accessories, raw materials and intermediate products for scientific and technological research on CNPq projects. Law 10964/04 extended similar benefits to imports by CNPq-accredited scientists, researchers and nonprofit entities for the promotion, coordination or execution of educational or scientific and technological research programs.

Table 3 systematizes the main RD&I funding mechanisms.

In 2006, the MCT launched the Action Plan for Science, Technology and Innovation, PACTI, defining strategic priorities for the area. The plan was aligned with the PITCE, and, in spite of the changes in priorities due to the launch of the new industrial policy, the Productive Development Policy (PDP), there was no formal change in the PACTI structure. Thus, it was extended until 2012, when the Greater Brazil Plan was announced for the 2012–2015 period, giving way to the National Strategy for ST&I (ENCTI).

With the onset of the national political and economic crisis of 2014, which reflected, among other factors, mistakes stemming from the countercyclical measures adopted by the government to avoid the negative effects of the 2008 subprime crisis, little was done to implement the proposals envisaged in the ENCTI. In this context, the Inova Empresa plan launched in 2013 and that prioritized entrepreneurial initiatives for innovation did not result in any significant investment in R & D materializing. The source of non-reimbursable resources was already in decline, and the plan relied exclusively on reimbursable sources (loans), hindering the supporting of knowledge-intensive projects subject to greater technological risks and uncertainties; in addition, the demand for credit, even subsidized and at special rates, was already in decline after 2014 due to the uncertainties that dominated the Brazilian political and economic scenario.

Table 3. Federal government mechanisms for RD&I funding: Main modalities

Modalities	Details and regulation	Institutions involved
Loan	Treasury resources with financial costs set by the TJLP, which may or may not be equalized (receive a discount). If the equalization is done with FNDCT resources, it is governed by Law 10332/01 and its regulations.	BNDES and Finep
Seed capital Venture capital Private equity	FIP and FMIEE funds (regulated by the CVM). The contributions from the FNDCT are authorized by Law 10332/01 and its regulations.	BNDES and Finep
Non-reimbursable funding	Resources from BNDES via Funtec. Resources from FNDCT through the following instruments: partnerships with ICT, joint projects (STI and companies); economic subvention; researcher grants. Authorized by Laws 10332/01, 10973/04 and 11196/05 and their regulations.	BNDES and Finep
Tax Incentives*	Law 11196/05 as amended Law 8010/90 Law 10964/04	Federal Revenue, MCTI
Liquidity guarantee for venture funds	Law 10332/01	Finep
Government procurement and commissioning	-	MCTI, other ministries, Finep, other public bodies

* The legal framework for fiscal incentives is detailed in Table 1.
Source: Prepared by the authors, based on table by Finep.

4.5 – Other instruments for R & D funding

The creation of the sectoral funds and the reform of the regulatory framework in support of R & D took place in the context of State reforms that had as an axis the privatization in sectors, where some of the state-owned companies had accumulated capacities for the development of technologies and research in their own laboratories and through the hiring of talent and major institutional partnerships with ICTs.

This scenario, according to Pacheco (2003), inspired a fruitful debate regarding the resources these firms had committed to research and the fate their R & D centers would face. According to this author,

> in several sectors, including electric power, steelworks, aeronautics, telecommunications, and oil, the educational qualification acquired by the country, even though very different from sector to sector, had been dependent upon efforts conducted

> by state-owned companies and institutes directly or indirectly connected to these companies. With privatization, there was a risk of losing this constructed competence and, at the same time, failing to ensure minimum productivity and efficiency gains at the new companies. The segments in which the successes were greatest – oil, with deepwater exploration; and telecommunications, with optical fibers, digital exchange centrals, and automation – were the ones that attracted the most attention. In this manner, both regarding the end of the state monopoly in oil & gas, and the privatization of the telecommunications sector, their respective legislations sought to create specific revenue sources for research activities for these sectors. In a somewhat different way, something similar was also done when privatizing part of the Brazilian electric power sector (Pacheco, 2003, p. 9).

The instruments for the aforementioned sectors – oil and gas, electric power and telecommunications, as well on behalf of information and communication technology (ICT), that provide for the mandatory allocation of financial resources for R & D, are briefly presented below.

4.5.1 – Oil and Gas: The 1% clause

In the case of oil, the creation of CIDE fuels was previously discussed, but another important source for funding and leveraging R & D in the oil and gas sector is the 'Research and Development Investment Clause' in the Oil and Natural Gas Production, Development and Prospection Concession Agreements. According to this clause, known as 'The 1% Clause', contract concessionaires are required to invest in Brazil 1% of the gross revenue from field production in activities that qualify as research and development, as per the criteria defined in the Frascati and the Oslo Manuals, supplemented by the Brazilian regulations adopted by the MCT, criteria defined in the Petroleum Law, in the Concession Agreements and in the Technical Regulation of the National Petroleum Agency.[62]

The rule establishes, among other things, that concessionaires may invest up to 50% of the expenses that qualify as research and development 'through activities carried out in facilities owned by the concessionaire or its affiliates, located in Brazil, or contracted with national companies. . . . The remainder shall be destined to contracting these activities with national universities or institutes for research and technological development, that have been previously accredited for this purpose by ANP'.

62 (ANP N.5 / 2005, Annex to ANP Resolution 33 of 11/24/2005, published in the federal gazette on 11/21/2005).

The resources referred to in this clause are not the same as those collected by the State, in any form. These are private resources, that is, from the concessionaires themselves, who, when contracting the concession, accept the provisions of the contract, including the investment of 1% of gross R & D revenue, of which 50% is to be in their own facilities and/or those of their partners, and 50% in research institutions accredited to receive these resources. It can be said that, although private, these resources are partially under public tutelage, which opens space for regulation by the State of the priorities and conditions to be observed by the concessionaires in the use of resources.

4.5.2 – Telecommunications Technological Development Fund (Funttel)

Funttel is a sectoral fund that has remained outside of the FNDCT and former MCT governance. Since its creation, it has been under the management of the Ministry of Communications (MC), which merged with the MCTI in mid-2016, giving rise to the Ministry of Science, Technology, Innovations and Communications (MCTIC).

Funttel's formal objective is to stimulate innovation in the sector, especially among small and medium-sized enterprises, and contribute to the training of qualified human resources to support development and innovation in Brazilian telecommunications. Its source is the contribution of 0.5% of the gross revenue of companies responsible for providing telecommunications services in public and private systems, excluding taxes and contributions (ICMS, PIS, Confins), canceled sales and granted discounts, and also a contribution of 1% of the gross sales from participatory events carried out through phone calls, such as donation rallies, and other revenues. An initial equity of R$100 million was contributed to the fund.

These resources are to be spent exclusively on behalf of the telecommunications sector, according to the strategic planning defined in the 'Resource Investment Plans' elaborated from the priorities defined for the sector and submitted by the financial agents and the CPqD Foundation for approval by the fund's steering council. There is a legal obligation to provide financial support to the CPqD Foundation (formerly the Telebrás research center) in order to maintain the research and technological development capacity the institution developed when it was under State control. This contribution must be at least 20% of the Funttel outlay.

4.5.3 – Electric Energy

Investments in R & D and energy efficiency are mandatory for concessionaires in the electricity sector as per Law 9991/2000, which was amended by Laws 10438/2002, 10848/2004 (Article 12), 11465/2007 and 12212/2010. The original legislation was passed during the sector's privatization process in order to maintain and expand existing technological competencies and encourage innovation.

R & D and energy efficiency programs and projects are supported by financial sources from electricity generation, transmission and distribution concessionaires, which must invest in R & D 0.4%, 0.4% and 0.2%, respectively, of their net operational revenue, comprising 1% of the sector's net revenue. Starting in 2016, distribution concessionaires were required to invest 0.3%.

R & D resources are distributed as follows: 40% goes to FNDCT; 40% to R & D projects, according to regulations established by the National Electric Energy Agency (ANEEL); and 20% to the Ministry of Mines and Energy (MME) to fund studies and research projects for the expansion of the energy system and for the inventory mapping and feasibility studies for the development of further hydroelectric potential. At least 30% of the total must be applied in the North, Northeast and Central West regions (Law 9991/2000, Art. 4 and 5).

4.5.4 – Information Technology and Communication

The Information Technology Law (8248/91, as amended by Laws 10166/01, 10664/03 and 11077/04) also defines an important fiscal incentive mechanism that is restricted to the information technology sector. Companies in this sector are supposed to invest no less than 5% of their gross sales in the domestic market, resulting from the sale of IT goods and services, discounting taxes paid and purchases of products promoted under this law. Once this commitment is fulfilled, they enjoy an IPI tax credit. Originally this was 80%; it was reduced to 75% in 2015 and 70% in 2019.[63]

63 These tax incentives were supposed to end in 2009, but with the revision of 2004, the tax incentives were extended for another ten years. In the long run, the average IPI rate is expected to drop from 15% to 4.4% for those companies that invest in research. Investments should be around 3.5% of gross sales, not any more the current 5%.

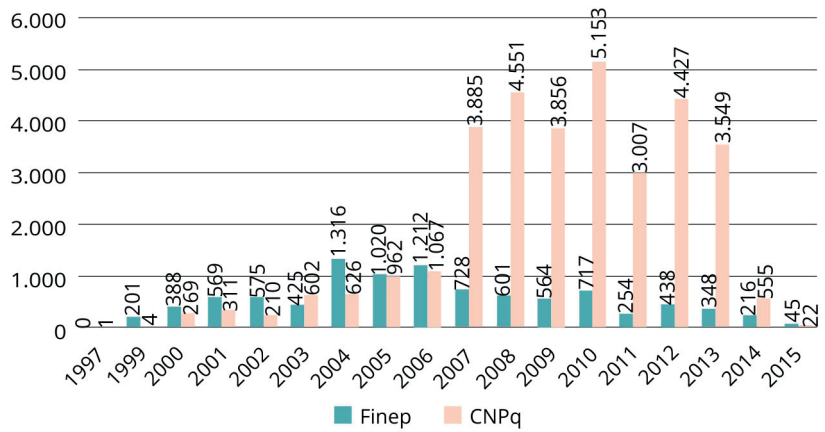
As can be seen from a review of the funding and support instruments described in this section, a relatively well-organized structure was created in Brazil to encourage RD&I. Nevertheless, the general results presented below will reveal that the effort was insufficient and, even worse, that the adopted pattern has been showing signs of exhaustion.

5. THE INNOVATION FUNDING 'STANDARD'

5.1 – From strategic projects to funding source fragmentation: On consolidating a political support base for the scientific community

Between 1997 and 2015, no less than 42,633 non-refundable projects were funded, 9,576 by Finep and 33,057 by CNPq (these numbers are a reasonable approximation).[64] At Finep, the greatest number of contracts was between 2004 and 2006, and at CNPq, between 2007 and 2013. However, not all of CNPq's funding contracts pertained to research projects; a large number involved grants to researchers involved in projects funded by Finep or to participate in science and technology events (Figure 1).

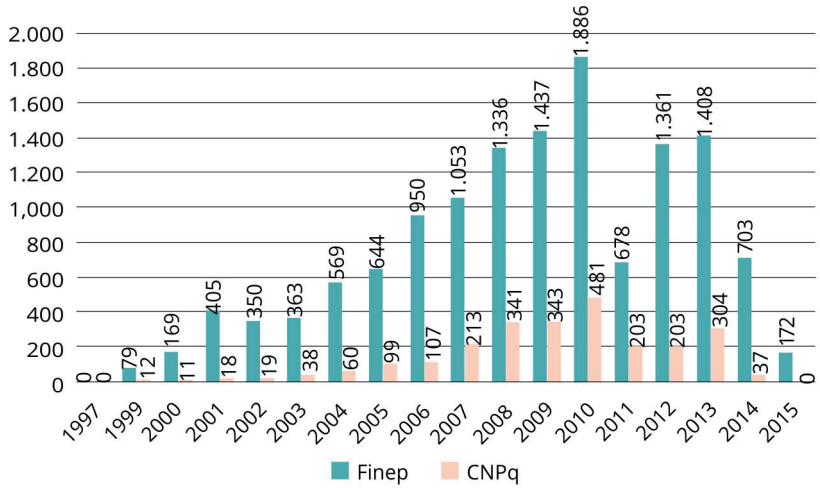
Figure 1. Number of projects funded by CNPq and Finep, 1997–2015, with non-refundable assets from FNDCT



Source: MCTI. Accessed March 30, 2017.

64 Operations involving interest rate equalization (rebates) are not considered in the numbers and values to follow. This information includes the projects contracted with STIs (via partnerships), with companies (via grants), joint projects (Science and Technology Institutions with companies), scholarships of several kinds and modalities and salary grants for researchers working at company facilities, known as 'researcher subsidies' (governed by Law 11196/05 but disbursed only once, for a single public notice).

Figure 2. Disbursement by CNPq and Finep, 1997–2015, of non-refundable resources (Brazilian reals, millions, in current values)



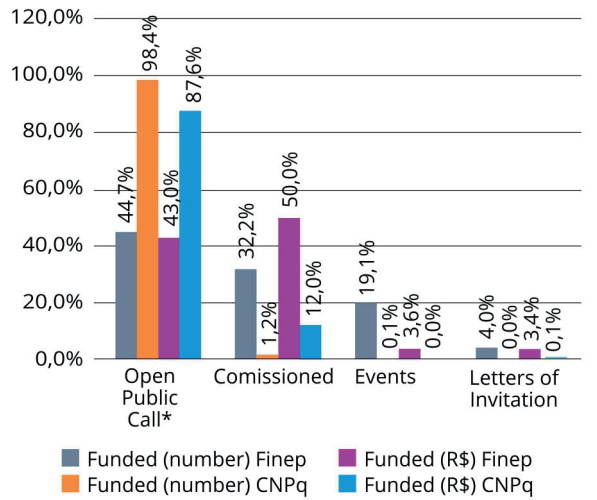
Source: MCTI. Accessed March 30, 2017.

The sum worth of the contracts, in current values, was approximately R$16.2 billion, of which R$13.7 billion went to RD&I projects supported by Finep, and R$2.5 billion to projects supported by CNPq (Figure 2). It should be noted that the country saw economic growth until 2010 and since then there has been economic instability, which intensified considerably after 2015.

In terms of the number of funding contracts, around 44.7% of the projects contracted by Finep and 98.4% by CNPq were done through open public calls. Those contracted by commissioning were 32% in the case of Finep and 1.2% in the case of CNPq. About 19% of the outlays disbursed by Finep covered participation in events, and 4% were made through direct letter of invitation.

In terms of value, 43% was distributed to projects approved in open public calls. The projects funded by commissioning consisted of 50% of the contracted value. In the case of CNPq, projects submitted through open public calls absorbed 87.6% of the contracted value (Figure 3).

Figure 3. Participation in number and cost of projects funded with FNDCT assets, per demand source (in %)



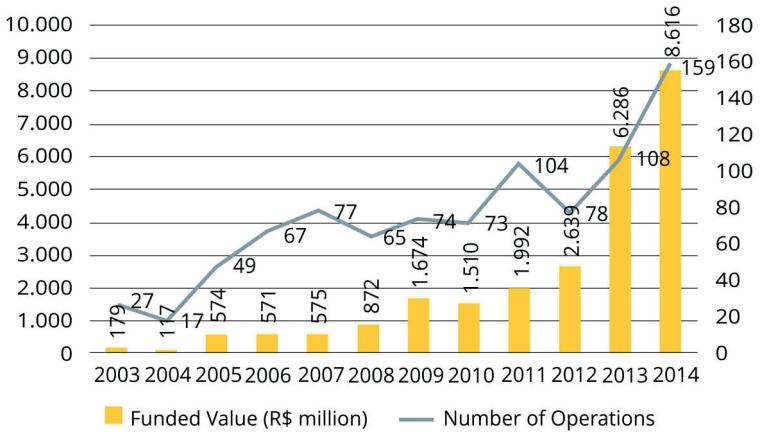
*Includes forty-two projects funded under Inova Empresa via grants.
Source: MCTI. Accessed March 30, 2017.

The average annual value of the projects funded by Finep was around R$1.4 million, while the average value of the projects funded by CNPq was around R$75,309 (note that a large part of this corresponds to the grants to researchers involved in the aforementioned projects funded by Finep).

Credit instruments showed a positive evolution and, as mentioned, registered a significant expansion as of 2009, when the contracted value practically doubled in relation to the previous year. In 2013 and 2014 the rise was even sharper, respectively reaching nearly four and five times the value contracted in 2008.

In the case of the BNDES, as of 2005–2006 the institution beefed up its actions in direct support of innovation, acting fundamentally but not exclusively through reimbursable instruments (credit) and variable capital (venture or seed). In 7 years, there were 977 credit operations (direct and indirect, that is, those managed by BNDES and through accredited banks) and variable capital to support RD&I in a total disbursed amount of R$10.3 billion.

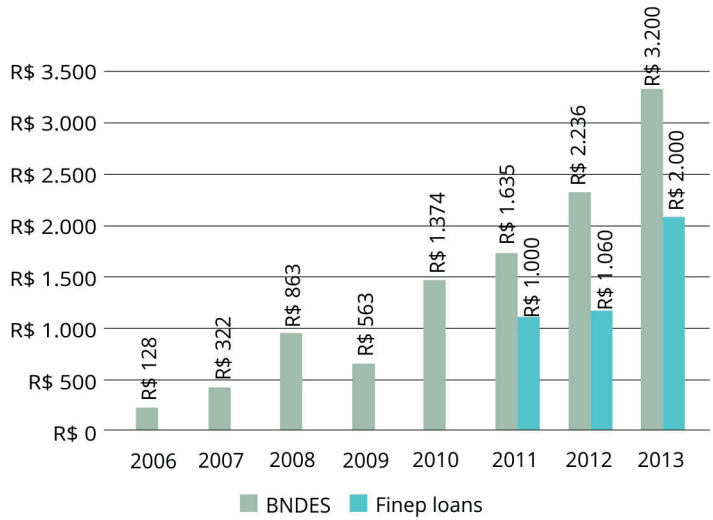
Figure 4. Finep credit contracts, 2003–2014 (in current values)



Source: Finep – annual reports and other official documents.

Between 2011 and 2013 about R$4 billion was transferred from the Investment Support Plan (PSI) to Finep to compose agency funding sources, as can be seen in Figure 5 below.

Figure 5. BNDES's disbursed sums though credit operations, 2006–2013
(Brazilian reals, millions, in current values)



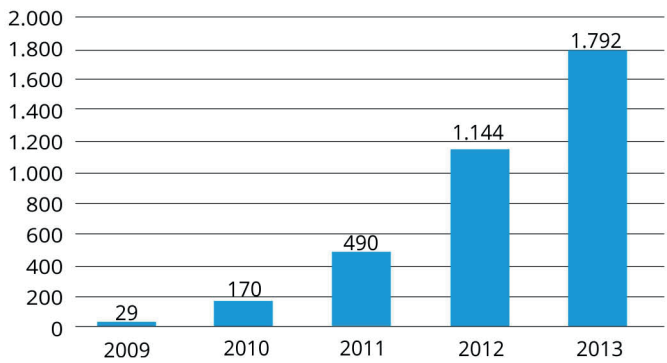
Note: Total number of operations: 977; excludes operations with the BNDES Credit Card.

Source: BNDES, obtained in a document prepared for CNI-MEI.

In addition to these sums, R$18.5 million were disbursed in order to finance 1576 operations from 2009 to 2013 via the BNDES Credit Card.

The impact of the Investment Support Plan on BNDES was also important, as it enabled an increase in operational capacity over the period by adding an additional R$3.6 billion, approximately, to the budget from 2009 to 2013, according to CNI/MEI, as per Figure 6 below. However, regardless of the expressive values of BNDES and Finep funding, it must be pointed out that the number of companies that benefitted was quite small, less than one thousand. Notwithstanding these being large companies, probably with significant leadership potential across several productive chains, the results of these investments have not impacted, at least until 2015, foreign trade or innovation indicators as measured by PINTEC.

Figure 6. Investment Support Plan resources allocated to BNDES innovation operations (Brazilian reals, millions, in current values)



Source: BNDES, for CNI-MEI

Actions for innovation pursued by BNDES were significant and consistent with its mission as a development bank. Its participation in the providing of credit for projects under the Inova Empresa of 2013 was fundamental to broaden the scope of the planned actions. However, credit is an appropriate instrument to fund only certain types of innovation projects, such as incremental innovation and / or R & D projects with low technological risk. Companies are less likely to finance through reimbursable credit projects involving breakthrough rather than incremental innovation, where the uncertainties are high and the expected results have longer payback periods, even if funding is available under favorable financial

conditions. Perhaps this explains why the data released by PINTEC – the main tool for information on innovative activities among companies – does not record *any* significant step forward that might have been fostered by BNDES as a funding agent for innovation.

In the OECD countries, market instruments play an important role in mobilizing resources for innovation. In Brazil, these markets are still underdeveloped; many are still being structured, supported by strong incentives and the participation of public policies and public-sector institutions including Finep, BNDES, Desenvolve SP, and regional and State banks.

Finep's data on this market are the most visible. According to the agency, since the beginning of the INOVAR program, thirty-four FMIEEs have been approved, of which twenty-eight are still in operation. Together, these mutual funds invested in at least 167 ventures across a range of sectors (Finep management report, 2015). According to the Anjos do Brasil, an association of angel investors, this market's growth over the first years of the current decade was over 35% per year. By 2011 there were already 5,300 angel investors and approximately R$450 million invested. The potential, according to the organization, is of 50,000 angels with the capacity to mobilize up to R$5 billion and invest in 11,000 start-ups per year. These numbers, however, are not restricted to investments in technology-based ventures.

Finep significantly increased their credit operations, if for no other reason than for several years the government deliberately injected ample funds into the economy for countercyclical purposes. These resources 'overflowed' to the S&T area through BNDES's loans to Finep. In addition, Finep borrowed from FNDCT, the resources of which also increased over the years. However, beginning in 2012 there was a slacking off of this process and, in 2014, the flow was practically cut off, affecting an institution that already had a high degree of indebtedness and representing the return of financial instability to the ST&I area. The following section discusses the funding pattern adopted and the setbacks suffered in recent years.

5.2 – The participation of other public institutions in funding R & D

MCTI has remained the main articulator of ST&I policies in Brazil, but other ministries maintain important programs and take actions that directly and indirectly support innovation, the most visible being the Ministry of Agriculture, Livestock and Supply (MAPA) through Embrapa, with a budget of R$2.9 billion in 2015, and the Ministry of Health, through the Oswaldo Cruz Foundation (Fiocruz), with a budget of approximately R$2.7 billion in 2013 and 2014. It is important to highlight that the projects and actions in the ST&I area of these and other ministries are conducted with little or no coordination with the MCTI. One exception is the relationship established between MCTI and the Ministry of Development, Industry and Commerce (MDIC), or more specifically between Finep and BNDES.

A brief summary of the funding provided by the other instruments discussed herein follows.

5.2.1 – The 1% Clause

Between 1998 and 2016, the Research and Development Investment Clause under the Concession Contracts for the Exploration, Development and Production of Oil and Natural Gas, generated obligations of approximately R$11.3 billion, a significant amount when considering R & D investments in Brazil. However, almost 95% of this was Petrobras's obligations and only R$593 million came from other concessionaires.

The obligations created for Petrobras by the 1% Clause have contributed positively to the transformation of the Leopoldo Américo Miguez de Mello Research and Development Center (Cenpes) into a world-class research institution. It has also helped boost scientific and technological competence in a number of teaching and research institutions, today responsible both for training the qualified human resources the sector requires, and for generating knowledge and conducting research of interest to the sector as a whole, not only for Petrobras. On the other hand, concentration in a single company makes it difficult to reduce the asymmetries in innovation capacity and in generation of knowledge in the local chain and may introduce an undesirable dependency among the research systems of universities and institutes as regards funding from Petrobras. Between 2010 and 2016, obligations from other concessionaires increased as exploration

and production investments started to generate revenues. In 2010, the other concessionaires generated obligations of R$11.5 million, which jumped to R$137 million in 2015, an increase of over twelve times, according to ANP.[65]

5.2.2 – Funttel

Over the 2001–2013 period, Funttel raised almost R$5 billion, but disbursed only 25% of this total due to contingencies that limited operational capacity and the reach of the fund's action. In 2013, with the launch of InovaTelecom, a partnership between MCTI and the Ministry of Communications, Funttel committed R$640 million, of which R$200 million was effectively transferred to Finep. The initiative funded non-reimbursable grants for joint projects and research credit loans, and is a good example of the possibilities of coordination between the MCTI and its agencies with other ministries to leverage additional resources for innovation.

5.2.3 – Electricity

Between 1999 and 2007, there were nine investment cycles and around R$1.6 billion was invested in 4,628 projects, according to information released by the R & D Committee for the electricity sector.[66] Keeping track of how the instrument evolved over time is a challenge, however, since there is no systematic form of public disclosure of information on the resources collected for, or invested in, R & D by the electricity sector. Thus, little is known about the allocation of these resources and the actual results of the efforts made so far.

6. THE BREAKDOWN OF THE INNOVATION FUNDING 'STANDARD'

The sectoral funds brought hope, in an economy as devoid of available resources as the Brazilian, that it would be possible to at least reduce the severe financial constraints that had always hindered the sustainable advancement of S&T. It was also a boon for those who imagined it would be possible to

65 Available at: http://www.anp.gov.br/wwwanp/pesquisa-desenvolvimento-e-inovacao/investimentos-em-p-d-i/recursos-financieros-das-clausulas-de-investimentos-em-p-d-i. Accessed December 2, 2016.

66 Based on a presentation delivered on September 27, 2011.

leverage a new industrial leap, from the perspective of attracting investments to technology-intensive sectors, which demand innovation and, moreover, that it would be possible to rely on production of industrial manufactures and services based on domestically developed technologies. In a context of ever-increasing internationalization, a re-launch of the manufacturing industry would represent a possibility for the country to pick up the old project of achieving a certain level of technological autonomy and, for the most optimistic and ambitious, of catching-up at least with the emerging economies, a group to which Brazil seemed to belong.

It was already known that sectoral funds money, while allowing more than doubling FNDCT's budget, would be insufficient if the private sector did not sustainably adopt projects that encouraged investment in new science-based technologies. The resources to offset financial risk and technological uncertainties should have been more significant, but it was necessary to mobilize additional sources from the credit market, whose spread and interest costs could be subsidized, and also the modern venture capital market, more suitable in the long run as it would not overburden participants with debt. Therefore, the financial sharing between the public and private sectors would be sufficient to stimulate this change, based on the expectation that private investors would have a great interest in projects with a high potential for profitability.

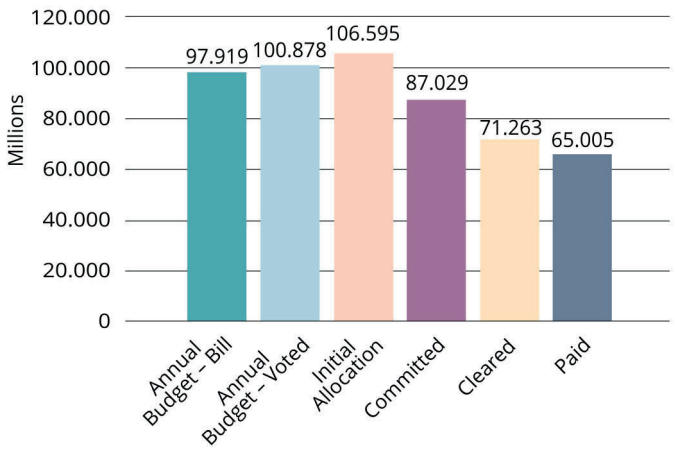
The consolidation of democracy with the change of government, and the new regime's project envisaging a greater insertion of the lower-income strata of the population into the domestic consumer base, seemed to foster even more optimism, already recovering after the initial shock of the Real Plan and with the gradual improvement of macroeconomic conditions amidst the turmoil of the 1997 and 1999 international crises. It was this encouraging scenario that enabled the construction of the support structure for ST&I, which should have engendered a new configuration for the Brazilian NIS.

But what has been seen is that the fruits harvested are far paltrier than what was expected. What was unthinkable in the early 2000s became painfully real in the 2014–2016 period. The shrinking of financial support was a reality, and jeopardized not only the future trajectory but also all that had been built, some of which with great difficulty, given that the process itself was not as smooth as

expected. The contingency retentions of funds and the reorientations in resource allocations were also factors leading to the unrealized expectations.

Between 2001 and 2016, MCTI's budget[67] was of around R$100 billion (in current values). Of this total, 86.3% was committed and only 70.6% cleared (set aside, or liquidated) and made immediately available for the outlay, as can be seen in Figure 7 below. This distribution reveals that almost 30% of the budget was not disbursed to support the planned activities, representing a significant loss to the S&T system, which depended on these resources, over the fifteen years under review.

Figure 7. MCTI's executed budget, 2001–2016 (Brazilian reals, millions, in current values)



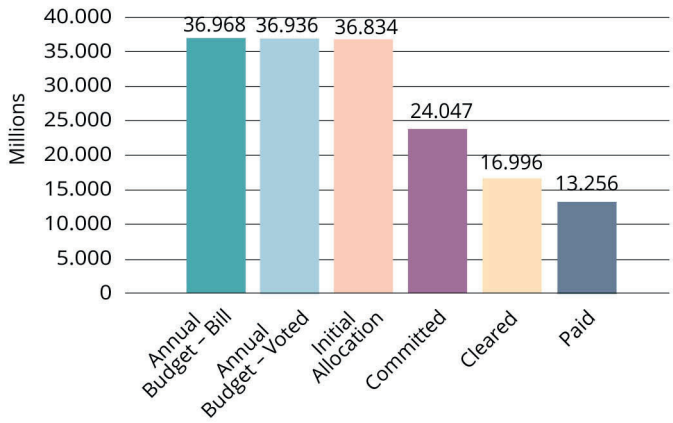
Source: Ministry of Planning

Over this same period, FNDCT's budget was about R$37 billion (in current values). Of this total, 65% was committed and only 46% cleared (set aside, or liquidated) – in other words, nearly 54% of the FNDCT budget was not disbursed to support the planned activities, a grave loss for innovation and even more for the NIS over the fifteen years under review (Figure 8). When it comes to the General Budget of the Union, it is always possible to argue that the budget is based on a

[67] Because the period of the data extends up to the recent past, the current name of MCTI has been kept.

forecast of the revenue, and that contingency saving is used to adjust the expenses in light of eventual shortfalls in revenue.[68]

Figure 8. FNDCT executed budget, 2001–2016 (Brazilian reals, millions, in current values)



Source: Ministry of Planning

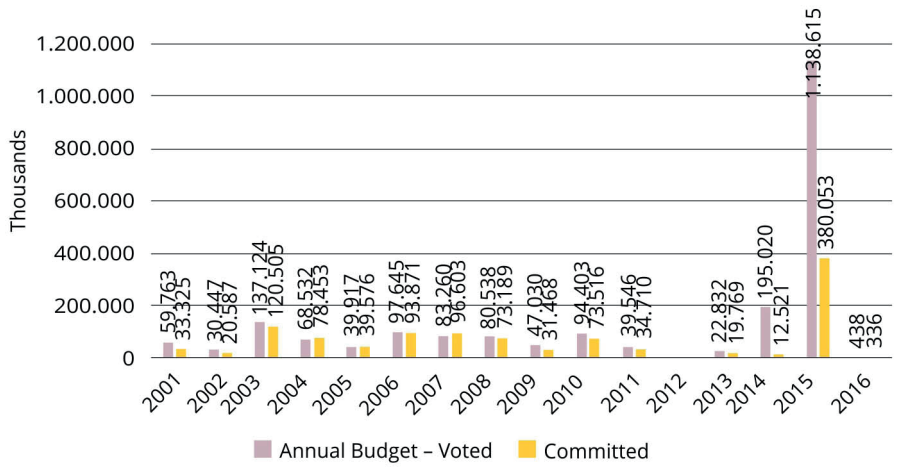
The FNDCT comprised about 37% of the total MCTI budget over the period. Of the total worth of the fund, about 94% came from sectoral funds and only 5.8% from the National Treasury's ordinary sources. Over the years, the National Treasury allotment was around R$33–34 million, representing a decreasing proportional share as the sectoral funds resources grew, as shown in Figure 9 below. One may note in the data released by the Ministry of Planning that in 2012 (long before the post-2014 crisis) and in 2016 there was practically no National Treasury allotment for the FNDCT. Created as an additional source of funding, in practice the sectoral funds gradually replaced the regular National Treasury outlay.

The difficulties in actually spending the approved budget can be better identified when analysing the special operations, which involve allocating FNDCT

68 The so-called 'contingency reserve', which consists of the 'estimated amount' to be saved, was around R$8.1 billion, corresponding to approximately 22% of the total voted budget for the FNDCT from 2002 to 2016, according to budget information obtained from the Ministry of Planning (code# 0998 - contingency reserve - and # 0Z00 - financial contingency reserve). In summary, of the difference of approximately R$20 billion between the current allocation and the amount paid out, approximately R$8 billion was already provided for in the contingency reserve.

resources to innovation support instruments, such as interest rate equalization, grants and venture capital investments, including liquidity guarantees. The data show that only 66.5% of the passed budget – the appropriation bill (*leis orçamentárias*, LOA) – for these operations actually reached their projects and activities.

Figure 9. Ordinary National Treasury resources (source code # 100) allotted to FNDCT (Brazilian reals, thousands, in current values)



Source: Ministry of Planning

Interest equalization was the instrument that was cut the least, so that 95% of the funds that were approved in the budget were cleared. The grants or economic subsidies, on the other hand, in their two moments – the period under law 10332/01 and that under the innovation law 10973/04 – suffered expressive contingency reductions. In the first case, the cleared value represented a mere 45% of the voted budget, in the second 54.6%. Venture capital participation was even more affected: only 34.8% of the voted budget was effectively cleared for expenditure. And for venture fund liquidity guarantee, only 51% of the voted budget was cleared over 2002–2016, as shown in Table 4 below.

It is worth noting that the total budget for all special operations between 2002 and 2016 – about R$6 billion – was less than the amount saved as 'contingency reserve' as previously seen, the latter having been set at R$8.1 billion.

An analysis of the trajectory of the budget's level and disbursement reveals that, in practice, the sectoral funds did not provide significant new, stable resources for the system that was expected. They essentially replaced the regular Treasury budget allotment and were submitted to the same restrictive and unpredictable logic in budget planning and execution as were regular Union funds, which is incompatible with the funding needs of an S&T system.

The evolution of FNDCT as part of the MCTI budget – which could inspire a positive interpretation – in fact points to the 'misuse of function and purpose' of the sectoral funds. This distortion is directly reflected in the allocation of the assets, which were originally supposed to fund specific projects and programs, particularly those meant to encourage innovation, and which gradually started to fund broader ministry activities, including those maintaining the system.

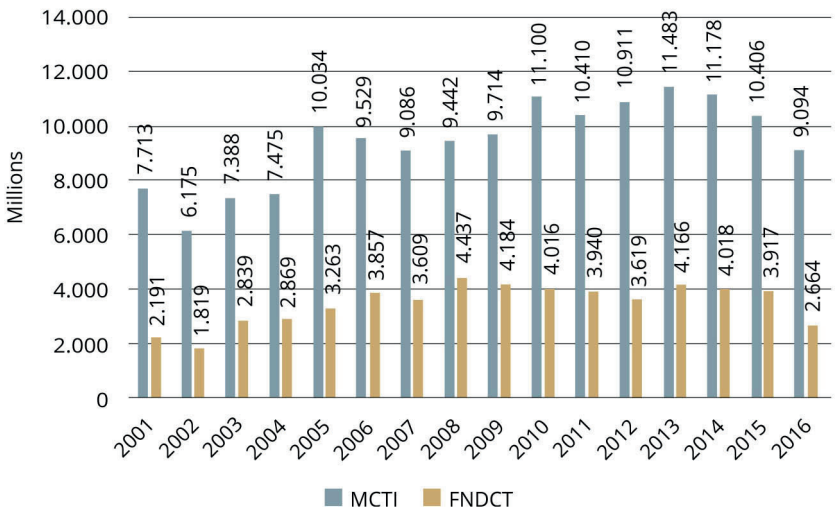
Table 4. FNDCT budget for special operations: Voted budget and cleared sums (2002–2016) (Brazilian reals, in current values)

Code a nd type of special operation	Voted budget	Cleared	Cleared/Voted
0741 – Interest rate equalization (rebate) on funding for technological innovation (Law 10322/01)	2,087,340,455	1,987,951,336	95.2%
0743 – Economic subsidies (grants) to companies with an industrial technological (PDTI) or agricultural technological development program (PDTA – Green-Yellow Fund – CT-Verde Amarelo – Law 10332/01)	54,621,169	24,572,426	45.0%
0A29 – Economic subsidies (grants) for technological development projects (Law 10973/04)	3,233,739,089	1,765,296,776	54.6%
0745 – Incentives for technology-based companies through capital participation (seed money) CT-Verde Amarelo – Law 10332/01 and/or investment in innovative companies	630,978,722	219,727,436	34.8%
0748 – Incentive for investments in science and technology through liquidity guarantees instruments (CT-Verde Amarelo – Law 10332/01)	37,065,847	18,956,769	51.1%
Total	6,043,745,282	4,016,504,744	66.5%

Source: Ministry of Planning

From a more realistic perspective, reviewing MCTI and FNDCT budgets over the fifteen-year period but considering the cumulative inflation of the period, which was of 127.67% according to the IGP-DI index, one may note that MCTI's budget benefitted from real growth until 2005. However, from then on there were fluctuations around a relatively stable value (circa R$9–10 billion). In FNDCT's case, the 2008 budget was almost double that of 2001, the year Law 10332/01 was passed and when a number of important sectoral funds were launched, including the Green-Yellow Fund (CT-Verde-Amarelo*)*. Nevertheless, from that year on stagnation prevailed until 2015, when conditions deteriorated and resources all but disappeared: the voted budget for 2016 returned to a pre-sector-fund level, even below that of 2003 (Figure 10).

Figure 10. MCTI an d FNDCT annual budgets, 2001–2016 (Brazilian reals, millions) (updated September 2016)



Deflator: IGP-DI index, from January to December; measured each December except 2016, measured January–September.

Source: Ministry of Planning

As indicated at the beginning of this chapter, over the last seventeen years the NIS has grown exponentially and created a demand that is much higher than the available resources, the real growth of which did not exceed 50% in its best year, 2013. For most of the period, however, real resource growth was 25% to 30% compared to 2001, before the launch of the sectoral funds. This mismatch

between the system's resources and the of demand for funding on one hand, and the growth and availability of these resources on the other, seriously jeopardizes the State's ability to act, puts the entire structure at risk, and exposes the actors to a situation similar to that faced by the scientific community in the late 1990s when the sectoral funds were created as a lifeline.

This mismatch worsened after 2014, when resources from CT-Petro ('Financial Compensation for the Exploitation of Oil or Natural Gas', Source #142) were transferred to the Social Fund[69] and stopped being earmarked solely for FNDCT. The instability in funding for the S&T system – an instability that in the fifteen years of the system's existence has proved to be subtle, short lived and has become mired in more difficulties. It is worth recalling that from 1999 to 2012, the CT-Petro fund comprised no less than 37% of the funds collected by FNDCT, according to ASCAP / SEXEX / MCT data.

7. FINAL CONSIDERATIONS

The analysis of the recent Brazilian experience in the S&T area, particularly the creation and management of the sectoral funds, brings to light elements that may inspire both optimism and pessimism. It reveals that there is room for formulating innovative policies, even under adverse contexts; however, on the other hand, it also reveals the difficulties involved in occupying these spaces and maintaining the integrity of conceptually consistent policies. The undeniable fact, which justifies optimism, is that regardless of any deviations, criticisms, lack of resources, political misappropriations or any other problems that may be pointed out, Brazil's progress in this area is undeniable. The country occupies a prominent position with regard to support for innovation among its Latin American neighbors and other middle-income countries.

69 The Social Fund was constituted in 2010 by Law 12351. The allocation of oil resources is provided for in Law 12858 of 09/09/2013. The Social Fund's objective is to be 'a source of financial resources for social and regional development, in the form of programs and projects in the areas of poverty reduction and development: I – education; II – culture; III – sports; IV – public health; V – science and technology; VI – the environment; VII – mitigation and adaptation to climate change'. *Such broad, general-purpose funds are the most common type, and most often manipulated by the government to purposes at odds with their claimed destination.*

The pessimistic view, on the other hand, could rest upon the considerable difficulties that had to be overcome in order to build a National Innovation System, and which were, and remain, neither few nor small. Political, financial and institutional difficulties could justify finding easier ways – such as importing technology – to leverage not only company modernization and competitiveness, but also to address a few of the strategic challenges that countries must face The required length of time of the NIS construction process in Brazil, and the fact that all successful cases are long-term constructs, could also evoke a certain pessimism among those who have vision and operate in the short term, due to either the duration of their political mandate or to limits in institutional resources.

The country today has a robust, complex National Innovation System, one that is a reflection of the country itself: modern yet antiquated. It comprises institutions and agents that operate with a level of excellence that meets international benchmarks, alongside old institutions that can no longer respond to current demands. In spite of the investments, and notwithstanding the notable growth over the last decades, even during a time of world financial crisis, the system remains incomplete and insufficient to respond to Brazil's continental challenges, which go well beyond the central theme of company competitiveness. These concern sustainable development and a model that can combine economic growth with social inclusion and the overcoming of poverty. It is a system that has contributed to attaining positions of leadership in areas with high technological density, such as the aeronautical industry; deepwater oil exploration; agriculture and livestock production, with high total factor productivity in an environment that thirty years ago was considered hostile; and agriculture that generated innovations such as expansion of sugarcane-based biofuel, a promising beginning in green chemistry; and the success in the implementation of IT for the Brazilian financial system.

Yet in spite of these examples, the system lacks density and scope to support broader innovation processes among small and medium-sized companies, and to bring to the fore the importance of innovation for adding value to the value chains in which the country has competitive leading companies. The system is also unbalanced, being regionally concentrated, and suffers the discontinuities that characterize the public policies in the country as pertain to fluctuations in

the economic situation and government support. ST&I policy has not yet become a solid commitment and a medium- and long-term intervention, and thus has been subject to short-term considerations of convenience. On the other hand, this political mismanagement reveals how until very recently ST&I policy has not yet reached a minimum consensus for inclusion in the State agenda, which would ensure a level of continuity and relative protection against the voluntarism and political populism that is typical of the country's history.

This state of affairs is changing. The present analysis demonstrates how, over the last seventeen years, innovation has occupied a consistent space in Brazilian society, both in public policy and in the agenda of entities representing the private sector, but also in the planning processes and the everyday practice of a growing number of Brazilian companies. This short period saw a notable effort to promote innovation in order to leverage national development. There was considerable evolution of the institutional framework for innovation, relevant to the modernization of public and private institutions that make up the National Innovation System, with the creation and strengthening of an set of instruments, programs and policies to support ST&I and RD&I. This interesting movement involved the creation of new state capabilities in ST&I across several fronts that have inspired hope for qualitative changes in policies for, and governance of, the country's NIS.

In this context, one may highlight the revision of the legal framework concerning intellectual property from 1997 to 2000; the creation of sectoral funds and revitalization of the FNDCT (1998–2004) and Funttel in 2000; the approval of the R & D Investment Clause in Oil & Gas of 1999; the regulation of subsidy grants for innovation in 2001; the passing of the Innovation Law in 2004 and the 'Goodwill Law' of 2005; the holding of the national conferences for ST&I starting in 2001 as a focal point for the discussion of a policy agenda, which was instrumental for the mobilization of NIS stakeholders; the reforms of the national research institutes under the MCTIC; the creation of CGEE and ABDI; and the launch of several strategic initiatives in the area of ST&I.

Finally, the involvement of the business community through the main corporate representatives, such as the Industry Federation of São Paulo (Fiesp), and the National Industry Confederation (CNI), in the debate on innovation and the

political game surrounding the formulation of public policies was an important step. The most emblematic example of the emergence of entrepreneurs as actors in the NIS was the Entrepreneurial Mobilization for Innovation (Mobilização Empresarial pela Inovação, MEI), a movement launched in 2009 that has brought together the most innovative companies, entrepreneurs and executives among Brazilian national and multinational companies. Over a short period of time, the MEI has become an important tool for negotiation – and, to a lesser extent, for exerting political pressure – between the private and public sectors for the improvement of public policies in support of innovation; as an instrument for disseminating information and mobilizing the business community for innovation; and as a locus of debate within the business community regarding innovation-related issues relevant to the country and its companies.

It was not a small effort, but it was insufficient, from the quantitative, qualitative and institutional viewpoints. From a quantitative point of view, R & D spending as a percentage of the GDP grew from 1.0% in 2000 to around 1.2% in recent years, without any significant change now for several years, none of the administrations having managed to achieve the 1.5% GDP that was that target set during the first Lula administration (2003–2006). From a qualitative point of view, Brazil continues to have a deficit in key areas, most notably basic infrastructure and advanced facilities for R & D and human resources. Finally, in spite of the progress, the institutional environment perpetuates the inadequacies, both in terms of macroeconomic conditions and in the presence of legal rules and the influence of cultural traits, that impede the innovation process.

It is necessary to offer a few reflections that result from this analysis of the process of institutional construction of Brazil's ST&I system, which concern the temporal dimension and historical process, the determinants and motivations, the political constraints and the importance of the actors and of the operational aspects.

The matter of the temporal dimension has already been mentioned above. The relevant initiatives, which have yielded results and continue to do so for the country, are the result of strategic projects with medium-term maturity periods, whose successful implementation require conditions that not only are not always present in the political climate, but which could even be considered exceptional.

The first condition refers to the vision and decision of leaders to invest in projects with a maturity period exceeding the administrative term, the immediate benefits of which may be small, and compete for resources with alternative investments with a greater immediate political return. The second condition refers to the need to maintain the consistency and the continuity of a project for a minimum period so it may at least commence operations, thereby demonstrating its importance and gaining the political support it needs to survive.

Ensuring the consistency and continuity, given the political and economic conditions that have characterized and still characterize many Latin American countries, is by no means a trivial task. Changes in governments and the economic cycles often lead to the reclassification of the statuses of initiatives, which can change from 'strategic' to 'irrelevant' overnight, and which even, when maintaining the status quo, will suffer from funding discontinuities due to fiscal problems and budget management priorities, which rarely include RD&I expenses as in fact strategic.

This observation speaks to a need to raise awareness among stakeholders regarding the role of innovation, and mobilize them to accord importance to innovation and ensure the sector's political status next to the decision-making spheres. In the transition from the Cardoso to the Lula administrations in 2003, this rupture took place, with the instating of a minister and a staff who were opposed to the innovation agenda that had been discussed, sanctioned and launched by the ST&I National Conference in 2001. This rupture was partially reversed in 2004 with the replacement of the minister and his team, precisely because that agenda catalysed relevant political support across all areas of the NIS. This was followed by a few adjustments, but with less discontinuity from then on. To a large extent, Brazil's ST&I policy has been implementing points from the original agenda; improving, deepening and expanding it; and this continuity is already yielding results that go well beyond that policy domain. It has also suffered setbacks, such as the hollowing out of the shared governance of sectoral funds, which facilitated the draining o fthe funds themselves and the fragmentation of resources into initiatives with little or no relevant impact for the country. CNI and Senai, for instance, in the context of the mobilization for the MEI, in partnership with BNDES, MCTI and ABDI have launched an ambitious project to implement

local Innovation Centers in the states and set up in-house Senai technological laboratories in support of innovation.

The matter of the determinants and motivations also raises a few reflections. In the Brazilian experience, practically none of the relevant initiatives were preceded by comprehensive national or sectoral plans that comprised the building of laboratory or facility 'x' or 'y', or the design of certain public policies with a definition of the required resources. On the contrary, many were the result of ad hoc interventions, in response to specific problems and challenges already faced by, or looming for, Brazilian society. Of course, most of these were well grounded in studies and debates among the stakeholders and interested parties, but if it were possible to tell the history of the institutions these would always, in each and every case, highlight strong, enlightened leaders who in certain circumstances were able to 'sell' their ideas and projects and mobilize resources, political support and the skills to implement them. Although several initiatives are associated with the pioneering work of prominent figures, an analysis of the process would reveal that those that achieved consolidation did so by successfully mobilizing the relevant political support, and were well connected to relatively well-defined interests and actors with the requisite strength and incentives to support and defend them and influence those responsible for allocating public resources.

The experience of the creation of the sectoral funds reveals this same process. Clearly, the authorities already had at hand a good diagnosis of the problems and a comprehensive concept of the strategy to be followed, and were inspired both by the scientific literature, which at the time focused on systemic approaches (advocating national and local innovation systems), and by the experience of OECD countries investing heavily in ST&I. However, the creation of the sectoral funds was not the result of detailed planning, nor did it follow the logic of setting priorities, but rather pursued opportunities and possibilities and required liaising with segments with which the MCT had had little prior contact. The possibility of creating the pioneering CT-Petro emerged out of a sharp and tense debate about the breaking up of the oil monopoly – until then taboo for many important stakeholders – and lay outside of the context of ST&I policy. This debate involved the governance model for the sector, the modalities of concessions for exploration of reserves, the role Petrobras should play, the regulatory agency that would be

created (the National Petroleum Agency, ANP) and the payment of royalties. The issue of access to and mastery of technologies was not yet on the agenda during this debate, but was introduced by actors and policy-makers who considered it important and anticipated the opportunity to mobilize resources to fund ST&I and the R & D efforts of the companies in the oil and natural gas industry. The creation of CT-Petro and the enactment of the 1% Clause would not, and did not, burden the companies nor jeopardize the federal government's stream revenue. Moreover, these actions formed an astute political response to criticism from nationalist sectors, because it promised to fund S&T and R & D in the strategic area of oil and gas. Finally, they mobilized actors and institutions that had made important contributions in this S&T area, traditionally funded by Petrobras, who expressed concerns about the consequences of the end of the monopoly for further development of S&T in this sector.

Each of the sectoral funds was the result of a negotiation process that involved several actors from the public and private sectors; the identification and creation of opportunities; the spotting of loopholes in the legislation; the convincing of stakehoders of its importance and necessity; and consensus building and the countering of opposing arguments. A firm knowledge of reality; the capacity for political articulation, negotiation and the formation of alliances; and the ability to identify the demands of the relevant actors who had political power to approve and/or oppose the initiatives were the skills needed to bring the funds into existence.

The creation of the Infrastructure and Green-Yellow Funds is a case in point. The impetus of the Infrastructure Fund was not solely the observation that universities were scrapped when it came to expanding their S&T infrastructure and required more investments. It also responded to the need to mobilize support from the academic community to carry out MCT's initiatives, and inject momentum in this segment to stimulate demands for additional resources, which the MCT was unable to negotiate on its own with the National Treasury.

In the case of the Green-Yellow Fund, CNI was fiercely opposed to any additional taxes or contributions. In order to persuade the CNI not to veto the initiative, it was necessary to act on two fronts: on the one hand, to insist that the focus would be on innovation, and that joint cooperative university-company projects would directly benefit companies.

On the other hand, a formula to finance the fund had to be found without burdening companies, which in turn required partnership with the Federal Revenue Service – which was generally against any initiatives that would reduce levy collection – to help pinpoint loopholes in order to raise funds the National Treasury could do without. The know-how and participation of Federal Revenue Service staff was necessary in order to identify these possibilities, and this was only made possible through a positive partnership and by convincing the Federal Revenue Service of the seriousness and importance of the initiative.

In this case, the solution was proposed by the Federal Revenue Service itself, which suggested using resources already covered by tax relief. These were not yet included in the taxes companies would have to pay, because companies were entitled to an exemption, and therefore the resources could be directed to the fund, which would be supplemented by small portion of the CIDE for specific purposes. The argument, from the companies' point of view, was reasonable: for each R$1 obtained through the CIDE tax, the fund would receive at least another R$2, and the sum would benefit the companies themselves. The CNI eventually acceded, because it was politically difficult to oppose a project that was connected to a goal as relevant as the one proposed by the Green-Yellow Fund: promoting innovation through partnerships between universities and companies.

The lesson here is that managers in the ST&I area have to leave the comfort (or discomfort) zone of their own sector. Intelligence must be developed almost continuously to track opportunities and technical, political and institutional capacities must be developed in order to create opportunities and convert existing ones into viable projects. Planning is important, as is clarity regarding the objectives, conceptions, instruments and so forth, but this planning is merely indicative, as actions are determined by the opportunities that present themselves, sometimes from unexpected and unusual events, aside from those that arise through the work of managers and the actions, movements and pressures of stakeholders.

Reaffirming the importance of political constraints is nothing new. However, this is one of the most important lessons from the Brazilian experience, both in terms of the process that enabled the launch of the sectoral funds and during the process of their implementation. The initiative of the sectoral funds took shape within a context of a strongly restrictive fiscal policy, and was only possible due

to the capacity to galvanize support and overcome opposition to the project. The present analysis also reveals how implementation was affected by the need to gauge the political support of the various stakeholders, and how this ended up guiding the priorities and actions towards certain areas that were not always consistent with the proposals and discourse. The discourse emphasized innovation, but resource allocation prioritized S&T in response both to structural bottlenecks in the research infrastructure and to political pressures and STI clout. The policies' evolution also reflects the emergence of new demands on the part of the various players, from fostering innovation to mobilizing additional resources for economic subvention and loans for companies to programs focused on R & D infrastructure, social technologies and support for small businesses.

Finally, as a consequence of the political constraints, the role that the actors play stands out. Along with them, it is crucial to articulate political support and identify effective demands, whether to work on them so they are reflected in the policies or to insert actions that are important for the country into the actors' agenda. The Brazilian experience shows that innovation was *not* on the agenda, and had no 'political sponsors' – it was not being championed by any relevant actor. First, tt was necessary to put innovation on the agenda by identifying and mobilizing the actors so they would speak out, and take up the defense and political promotion of the agenda. It was also important to create new, important State capabilities in ST&I, which hopefully will not be lost in the current scenario of crisis and demobilization of the competencies in place.

What can be said is that, in general, the resources available for ST&I have proven insufficient to meet the demands generated by the NIS's very growth. Furthermore, budget swings are incompatible with the appropriate funding of ST&I projects, the vast majority of which are multiannual (short-term projects tend to be of scant relevance), and with adequate planning of ST&I activities and investments in Brazil. Unfortunately, after almost twenty years the two problems that motivated the 1998–2002 reforms are back: scarcity of resources and the oscillation of funding supply. As a result, the compendium of initiatives that have given the NIS greater clout is threatened and the prospects of mobilizing the private sector for innovation seem to be less promising today than in the recent past.

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CHAPTER 5

DILEMMAS OF COORDINATION AND STATE CAPABILITIES IN INDUSTRIAL POLICY: PATHS AND HORIZONS IN CHINA, INDIA AND BRAZIL[1]

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1. INTRODUCTION: CHALLENGES FOR CONTEMPORARY INDUSTRIAL POLICY

Under the guise of the market reforms of the 1990s, in spite of the measures for attracting foreign capital and promoting exports, praised as vital to a new development cycle, *industrial policy* has reappeared at the core of government agendas after the crises in Asia, Russia and Brazil and the collapse in Argentina (Rodrik, 2004; Delgado et al., 2011). This paper will discuss the challenges developing countries face during a return to proactive industrial policy.

The first challenge is to support businesses in dealing with the *discovery costs* involved in the adaptation, to national and local conditions, of know-how and technologies developed abroad in more dynamic centers (Haussman and Rodrik, 2003; Rodrik, 2004). The second is to conjoin the *external* and *internal* integration of the national economies, especially in countries with a large territory and population, which involves competitive insertion in the international economy and the promotion of a diversified economic space, with wages assuming a growing share in domestic demand, and the prevalence – albeit incomplete – of higher value-added elements in international chains (Wade, 2003). The third challenge is to induce *entrepreneurs to innovate*, so that competitiveness is not based on factors such as the lowering of wages or the predatory exploitation of natural resources. Finally, the fourth is to unveil *future prospects*, seizing the windows of opportunity

that tend to open during technological paradigm shifts, to secure a more prominent position in the global economy in the future (Freeman and Perez, 1988; Perez and Soete, 1988).

The fostering in companies of the willingness and capacity to innovate is a key element of contemporary industrial policy. It requires, to be sure, adequate infrastructure in science and technology and skilled human resources; however, the fundamental bottleneck for the growth of innovation in developing countries lies mainly on the side of demand, not of supply (Rodrik, 2004). The decision to innovate is favored by the institutional environment, but also involves reducing uncertainty about future profits (Lundvall, 1988; Levin et al., 1987; Jalonen and Lehtonen, 2011; Tironi and Cruz, 2008). If we take the trajectories of the United States, Germany and South Korea – two paradigms of the two main polar options in contemporary *varieties of capitalism*, and one success story of catching up – we see that several different arrangements may contribute to reducing revenue uncertainty in processes involving both breakthrough and incremental innovation with strong participation by the State, via public procurement in the United States, social partnerships in Germany and the State fostering conglomerate forming in South Korea (Hall and Soskice, 2001; Weiss, 2008; Kim, 2005; Delgado et al., 2010).

The ability to innovate is also crucial for sustaining growth in the countries that have completed the rural-urban transition that accompanies an industrialization process.[2] Transitions completed without generating an endogenous capability to innovate always entail the eventual loss of competitiveness: this has been called the *middle-income trap* (Felipe, Abdon and Kumar, 2012; Robertson and Ye, 2013; Agenor, Canuto and Jelenic, 2012; Kupfer, 2013).

[2] Strictly speaking, it should be noted that there is not a single success story involving countries increasing their companies' innovative capacity where these transition processes involved the prominent participation of multinational companies. The Latin American experiences – where foreign investments were not associated with technology transfers – and that of China, where in the 1990s the establishment of joint ventures was the cornerstone of development policy, reveals that the presence of multinationals does not favor the intensification of innovation, either because they explicitly avoid the transfer of their key innovation centers to the other countries in which they operate, or because they induce local companies to operate along the lines of least resistance, with the use of worn-and-proven technologies and brands, notwithstanding the possibility of providing some technological training (Amsden, 2001; Schneider, 2004; Nolan, 2001; Nolan and Zhang, 2002).

Policies capable of dealing with such challenges are circumscribed by the past trajectories of catching-up and reforms. This will be our focus as we cast a glance at China, India and Brazil in the next section of this chapter. In the third section, the most comprehensive industrial policies developed since 1998 in these three countries will be highlighted. The fourth section addresses the coordination dilemmas experienced by China and India in implementing such policies. The concluding section evaluates the Brazilian dilemmas in contrast with the Chinese and Indian trajectories and in light of our own experience.

2. NATIONAL LEGACIES AND ECONOMIC REFORMS

After the 1949 Revolution, the socialist project backboned Chinese catching-up policies through an economic configuration marked by centralized planning, industrial production units with strict production and investment targets and a produce requisition system in rural communes (Naughton, 2007a; Saich, 2011; Goldman, 2007). In the 1970s, even though China could boast positive social indicators and a significant science and technology system, this configuration was running into limits regarding its capacity to produce diversified consumer goods and ensure the supply of agricultural products.

The economic reforms that started in 1978 sought to address these shortcomings by eliminating the rural communes, enabling the trade of agricultural products and creating farmer *village companies*. In large industrial plants, a *two-way system* allowed the sale of a portion of the production and boosted the autonomy to invest, hire and fire workers (Naughton, 2007a; Saich, 2011). At the same time, China's conversion into the *world's factory* was forged through the export of light consumer goods (favored by a favorable exchange rate) produced by both village companies and multinationals, attracted to the *exclusive economic zones* (EEZs) by the low labour costs arising from an inexhaustible reservoir of labour, the workforce who came from a rural world in transformation.

After the interregnum from 1989 to 1991 associated with the events in Tiananmen Square, in 1992 the second stage of reforms began with an intensification of efforts to lure multinationals to form joint ventures with Chinese companies, requiring counterparts in technology transfers, and a performance geared towards exports (Naughton, 2007a; Saich, 2011). In turn, other reforms

(tax, corporate and financial system) sought greater tax centralization and an enhancement of the market as a locus for the performance of public banks and state-owned enterprises (Naughton, 2007a; Saich, 2011; Qu and Li, 2012). In spite of China's superlative economic growth indicators at the end of the decade, State-owned banks and enterprises still faced declining profits due to *overinvestment* and difficulties in dealing with the costs of social protection entrenched in enterprises and localities, a heritage of the order prior to 1978. Subsequently, a new round of reforms between 1998 and 2002 further reduced the State's productive sector, preserving only pillar and strategic companies; tightened regulations on public banks, accompanied by their recapitalization using part of the foreign currency reserves held by the country; and redesigned public administration, extinguishing sector ministries and replacing them with leaner agencies (Saich, 2011; Brødsgaard, 2012; Naughton, 2007a; Qu and Li, 2012; Burlamaqui, 2013). At the beginning of the current century, private economic activities were fully legalized, the entry of capitalists into the Chinese Communist Party (CCP) was allowed and, in 2002, China joined the World Trade Organization (WTO).

The reforms, however, targeting 'market socialism' with 'Chinese characteristics' did not lead to a full deregulation of controls over capital and foreign exchange flows. Moreover, the attraction of foreign capital remained strictly regulated on the basis of the 'Catalogue for the guidance of foreign investment industries', which classified investment in companies under the headings *encouraged, permitted, restricted* and *prohibited*, according to the priorities set by the Chinese government (China, 1995, 2002, 2004, 2007, 2011a; Investment, n.d.).

In India, the *national project* for post-Independence catching-up aimed at the constitution of an autonomous economy, with powerful national companies in modern industries but preserving traditional forms of production (Kotwal, Ramaswami and Wadhwa, 2010; Pathak, 2007; Singh, 2008; Kochhar et al., 2006; Velasco Cruz, 2005a, 2005b, 2008). Its instruments were the licensing system, with which the State authorized the participation of companies in different industries; priority stimulus to heavy industry; the reservation of some activities for small businesses, to which labour legislation did not fully apply; the control of foreign investments; progressive dominance of the State over the banking system; and a State monopoly over foreign trade and strategic industries. Aside from a certain

freezing of traditional production relations in the countryside (India, 2012b, p. 7; Mazumdar, 2009), this arrangement created a dual economic configuration, with an *organized* and an *unorganized* sector. The former was composed of large family-owned groups and State enterprises; the second, dominant in traditional activities, of small-scale units, which employed the large majority of the workforce (India, 2012a). Simultaneously, an expressive science and technology system arose, dominated by universities and research institutions focused on sophisticated activities.

In the 1980s pressures for change were piling up from multilateral agencies, electronics and information technology manufactures, segments of the bureaucracy, and business groups interested in opening up foreign trade (Mooij, 2005; Mazumdar, 2009; Kotwal, Ramaswami and Wadhwa, 2010; Rodrik and Subramanian, 2005; Singh, 2008). Difficulties in the country's balance of payments in the late 1980s finally triggered reforms. Led by Manmohan Singh, minister of finance in the Narasimha Rao administration, of the Congress Party, the Industrial Policy of 1991 eliminated the license system almost entirely; opened access to most industries for foreign capital, excluding scraps and segments reserved for the State; eliminated the State monopoly on imports; started to reduce the number of industries reserved for small and medium-sized businesses; expanded the access of private and foreign capital to the banking system; reduced import tariffs (still among the highest in the world); extinguished quantitative restrictions (quotas) on the import of various goods; and mitigated, although not fully, restrictions on the internal movement of various products. In addition, *disinvestment* policies reduced the State's participation in public companies, reaching a peak between 2002 and 2006, with increasing privatization. It should be noted that Indian reforms, much like the Chinese, did not promote the full liberalization of capital flows and of the exchange rate. Moreover, support policies were maintained on behalf of underdeveloped regions and certain industries, as well as planning efforts, albeit with reduced effectiveness.

The perspective of building an autonomous economy, associated with the presence of *basic industry*, essentially state owned, and ensuring a leading role for national companies within the domestic economic space, came as no stranger to the Brazilian development *national project* (Leopoldi, 2000; Leme, 1978; Diniz,

1978). However, the main objective of industrialization in the country has always been to cater to the demand of the central economies in the middle- and upper-income segments (Furtado, 1979). Thus, the entry of multinationals into the Brazilian economy occurred *precociously* and with little or no requirements in the way of counterparts, whether in using local content with regard to suppliers or in technology transfers. Moreover, the prevalence of the *import substitution* strategy, the control of cutting-edge activities by multinationals and the ease in securing capital goods and licenses for the manufacture of goods with technological content from the international market all curtailed the incentive for Brazilian companies to innovate (Silveira, 1999). Thus, the development of a science and technology system in Brazil did not interface with the companies' competitive strategies. The rare centers that focused on innovation operated in state-owned companies, but were insufficient to engender a determination to innovate throughout the manufacturing industries at large (Albuquerque, 1995; Dalhman and Frischtak, 1993).

As in other catching-up efforts, Brazilian developmentalism was *State led*, ensuring tariff protection, subsidies and funding, yet without the presence of the coordinating agencies typical of other developmental experiences. Its *functional equivalent* was the conventions of *guaranteed growth* and *presumed stability*, present in several different forms at different times during the developmental cycle (Castro, 2012). The first convention was grounded in the performance of State companies, the investments of which sustained the pace of growth and demand, inducing corporate investment for the expansion or consolidation of conquered positions. The second was associated to devices to circumvent inflationary impacts on company income, deriving from pressures from the substitution of imports on the balance of payments.

In the 1980s, the *debt crisis* and runaway inflation, combined with mishaps in State company performance in the context of the democratic transition – as this was the period right after the return to democracy after the military regime – generated pessimistic expectations regarding the effectiveness of the aforementioned conventions, leading to the diagnosis of a *crisis of developmentalism* (Diniz, 1997; Fiori, 1985; Bresser-Pereira, 1992). Thus, amidst the global spread of neoliberal ideas and a national encroaching fear in the business environment of an ascension

of the Left, (which actually did come to pass in 2002), a significant social and political climate was forged for the implementation of pro-market reforms (Tavares and Fiori, 1993; Delgado, 2001). Such reforms, unlike those in China and India, occurred in an economic space that was already strongly internationalized. Thus, its core elements would be trade liberalization and measures to shift the State's economic role, in the hope of inaugurating a cycle based on the attraction of foreign capital and increased productivity of domestic companies through exposure to international competition (Mendonça de Barros and Goldstein, 1997). It was also envisioned that several reforms could reduce the 'Brazil cost',[3] supposedly offsetting the decrease in the level of protection afforded the domestic market (Dedecca, 1997; Delgado, 2001). This way, the economic presence of the State was reduced through the extinction of state-company monopolies and through privatization. In addition, public spending was restricted through the Fiscal Responsibility Law and attempts were made, without complete success, to realize administrative, social security and labour law reforms.

Thus unlike in China and India, market reforms in Brazil did not preserve controls over capital flows or of the exchange rate for protection of the domestic industry. In turn, important instruments inherited from industrial policy in *old developmentalism* were mainlined, with public banks and strategic State enterprises, for example, playing a leading role – notably the National Bank for Economic and Social Development (BNDES) and Petrobras.

3. THE RETURN OF INDUSTRIAL POLICY

3.1 – Main guidelines and programs in Chinese industrial policy

In the 1990s, the view prevailed in China that an accentuation of market relations would boost development. Admittedly, however, this has never been the complete truth – as is attested by the exchange rate policy, the regulation of foreign

[3] The 'Brazil cost' refers, at first glance, to the increased operational costs associated with doing business in Brazil, making Brazilian goods and services more expensive compared to those of other countries. However, the notion of the 'Brazil cost' is also loaded with innuendo regarding the burden of poor infrastructure, the tax structure, labour and social security regulation, and the convoluted requirements for opening and closing companies, which in some cases is exaggerated (i.e. labour and social security legislation is far less onerous than in, for instance, central economies). There is an extensive debate about the notion, and it is often used to justify neoliberal reforms. The quotes denote that the term is loaded with heavy-handed ideological bias.

investments, a few tentative sector programs and, between 1998 and 2002, the attempt to create an agency analogous to the Japanese Ministry of International Trade and Industry, Miti (Heilmann and Shih, 2013). However, it was only during the Wen Jiabao and Hu Jintao administration (2003–2013) that a clear inflection in the course of China's development policy was observed.

The Chinese economy, after the reforms, flaunted an annual gross domestic product (GDP) growth of 10% with investments reaching an annual average of 31.7% in the 1990s, and grew even further in the following years (see annex tables A.1, A.2 and A.3). However, the growth's impact on quality of life was controversial, and social inequality rose between 1992 and 2002 (see annex tables A.4 and A.5).[4] Moreover, in addition to escalating environmental issues, the Chinese economy did not succeed in boosting innovation indicators, with the percentage of the GDP invested in innovation remaining around 0.66%, the same annual average as in the 1990s, and with Chinese companies located at the lower positions of international value chains (see annex tables A.7, A.8 and A.9; Nolan, 2001; Nolan and Zhang, 2002). In fact, the *world factory* was little more than a vast exports platform for multinationals. The technological development strategy focused on joint ventures was clearly demonstrating limits. The Tenth Five-Year Plan (2001–2005) had already addressed these shortcomings by setting environmental targets, defining key companies for development and alluding to an expansion of social protection (China, 2001; Saich, 2011). In the Eleventh Five-Year Plan (2006–2011), these goals were articulated in an integrated approach, expressing the formulations by Wen Jiabao and Hu Jintao on building a *harmonious society* and on *scientific development* (China, 2006a, 2006b; Fan, 2006). Ultimately, what was projected was a new stage of development, less focused on exports and investment and more on the domestic market and consumption, affording renewed importance to the policies ensuring income security, health and welfare (which would be implemented over the period) and the containment of *overinvestment*, especially in the provinces, through closer supervision of the banking system and an accentuation of the *center* in national political organization. *Scientific development,* in turn, would be materialized

4 The tables in the appendix establish a contrast of country indicators among India, China and Brazil, and with the United States, Germany and South Korea, from a common database. Throughout the text, specific country indicators derived from other databases are used when necessary.

through the *endogenous innovation* policy to strengthen the Chinese position in international value chains, enhancing the country's innovative capability and building manufacturing industries that would secure more prominent positions in the future (McGreggor, 2010; Liu and Cheng, 2011).

The institutional arrangements for achieving these goals involved central government bodies with branches and/or entities at the regional level, enjoying great autonomy in spite of the efforts to limit them (Naughton, 2007a, 2007b, 2007c). The most important body is the National Development and Reform Commission (NDRC), established in 2003, which is responsible for the formulation and overall coordination of development policy. Also noteworthy are the Ministry of Finance (MOF), responsible for fiscal incentives; the Ministry of Science and Technology (MOST), in charge of innovation programs; and the Ministry of Commerce (MOFCOM), overseeing foreign trade, foreign investment, the development of different activities in the domestic market and, of course, the State banks, especially the China Development Bank (CDB) and the Industrial and Commercial Bank of China (ICBC). In 2008, the Ministry of Industry and Information Technology (MIIT) was created to operate as an auxiliary body to the NDRC, assisting in the carrying out of industrial policy (Naughton, 2008; Pearson, 2011). Finally, the State-Owned Assets Supervision and Administration Commission (State Asset Commission, SAC) was charged with a decisive role, namely participation in the appointment of officers, the definition of investment plans and with control over a portion of the profits, establishing it as a 'powerful body of government' that would discipline and coordinate State-owned companies in an 'effort to accelerate structural change in ways that favor emerging sectors and nurture future Chinese global corporations' (Naughton, 2003, p. 5).

In specific situations, other ministries acquired relevance, such as the programs for the pharmaceutical industry run by the National Long-Term Plan for Science and Technology (2006–2020), directed by the Ministry of Health (MOH) (Ling and Naughton, 2013).[5] Among the agencies with regulatory functions worthy of note, aside from SAC, are the State Administration of Industry and Commerce (SAIC), responsible for tasks such as consumer protection, protection

5 MOH was integrated into the National Commission for Health and Family Planning (NHFPC).

of trademarks and company registration, and the State intellectual Property Office (SIPO).

The first result of the *endogenous innovation* policy, launched by Wen Jiabao in 2003, would be the 2006 plan, defined after an extensive consultation process (Liu and Cheng, 2011; Proenca et al., 2011; McGregor, 2010; Ling and Naughton, 2013). Its overall objectives were to increase public investment in research and development (R & D) to 2.5% of GDP by 2020; expand activities with greater technological intensity so that they reached 60% of GDP by the end of the period; reduce dependence on foreign technology from 54% to 30%; and place China among the top five countries in the world in the registration of patents and citations in scientific journals (Liu and Cheng 2011, p. 13–14). Sixteen megaprojects were planned: (*i*) essential electronic components, general purpose high-quality chips and basic software products; (*ii*) equipment for the large-scale manufacture of integrated circuits; (*iii*) next-generation mobile/wireless broadband communication network equipment; (*iv*) advanced numerical control machines and technology for basic industrial manufacture; (*v*) large-scale oil and gas production and prospecting; (*vi*) large advanced nuclear reactors; (*vii*) equipment for the treatment and control of water pollution; (*viii*) creation of new varieties of genetically modified organisms; (*ix*) pharmaceutical innovation and development; (*x*) control and treatment of AIDS, hepatitis and other serious diseases; (*xi*) large aircraft; (*xii*) high- definition satellite Earth observation systems; (*xiii*) manned spaceflight and lunar probe programs; and three other projects that were not disclosed, almost certainly military in nature[6] (McGreggor, 2010, p. 40–42). These megaprojects are conducted by *research consortia*, led by the ministries most attuned to each of the projects or by inter-ministerial groups and involving universities, institutes, government agencies and companies, notably State-owned and private Chinese companies – but without exclusion of multinationals, provided they are willing to develop innovations to be registered in China and build up Chinese brands. At a subnational level, governments are free to establish similar structures to implement their own policies (Liu and Cheng, 2011).

[6] The three classified megaprojects are likely the military components of the Shenguang ("Divine Light") Laser Project (used in thermonuclear weapons, but also for inertial confinement fusion, used in nuclear fusion energy); the Beidou 2 Satellite Navigation System (equivalent to GPS); and the Hypersonic Vehicle Technology Project (an ultra-fast airplane).

In 2009, one of the measures for coping with the international crisis, the *strategic emerging industries* program, was launched, which encompassed (*i*) new information technologies; (*ii*) energy efficiency and environmentally sustainable energy; (*iii*) bioindustries; (*iv*) high-tech equipment for industrial manufacture; (*v*) new energy technologies; (*vi*) products using or made of new materials; and (*vii*) cars running on new energies (Ling and Naughton, 2013). The segments associated with each of the seven emerging *strategic industries* were: (*i*) new mobile phones, internet technologies, integration of communication systems, and integrated circuits (smartphones); (*ii*) efficient processes to reduce consumption of energy, for environmental protection and for resource recycling equipment; (*iii*) biological medicines, bioagriculture and biomanufacturing; (*iv*) equipment for aviation, satellites and intelligent manufacturing; (*v*) solar, wind, biomass, thermoelectric and photovoltaic generation of electricity; (*vi*) functional materials and high-performance fibers; and (*vii*) hybrid vehicles, batteries for electric vehicles, and fuel cells for electric vehicles (Ling and Naughton, 2013).

Several instruments were resorted to by the *endogenous innovation* policy: budget contributions and investments by state-owned banks, standards to establish quality standards and preserve space for technologies developed in China, tax and fiscal measures, public procurement and the use of various catalogs, which defined the companies that would benefit from the policy, the production of endogenous innovation being the core criterion. The national catalogs were complemented by local catalogs, which were eventually more restrictive in their provisions (McGreggor, 2010).

The 2006 Plan and the *emerging industries* policy of 2009 were the main initiatives in Chinese industrial policy in the context of endogenous innovation. Other initiatives sought to favor more traditional industries and foster technological modernization and the development of the innovative capability of companies, such as the Industrial Modernization and Restructuring program (2011–2015), released by the State Council. The general purposes included improvements in product quality, increase in added value, the creation of local brands and expansion abroad. The program was geared toward the equipment industry, the production of raw materials, industrial services and consumer goods, especially electronics (China, 2012).

The Twelfth Five-Year Plan (2011–2015), elaborated during the Wen Jiabao and Hu Jintao administration, deepened and synthesized the provisions defined as of 2004 (China, 2011a).[7] It reiterated *scientific development* and the pursuit of a *harmonious society*, highlighting the 'improvement of the people's lives' as the 'ultimate goal' of economic transformation, along with the 'provision of public services for all citizens' and 'reform in the income distribution system'. It also reaffirmed the commitment to economic reform, the expansion of domestic demand and a clear definition of the scope of public investment to contain 'blind expansion' and 'redundant construction'. Finally, in addition to goals for the environment, for regional development, for building a 'new socialist countryside' and the restructuring of key industries, amongst other purposes, the Twelfth Five-Year Plan highlighted the objective of seeking Chinese leadership in emerging strategic industries, setting a target of 8% participation in the GDP during the plan period to be achieved through support measures and policies including the definition of special funds and the expanded presence of the government in the initial investment for emerging industries, with priority funding for risk offsetting, fast-track adoption of standards and improvements in infrastructure.

In 2011, spending on innovation reached 1.84% of China's GDP, against 1.07% in 2002, suggesting that the target of 2.5% GDP in 2020 is quite plausible (annex table A.7). In turn, the visibility of brands and Chinese companies on the global stage was boosted. In 2008 a comprehensive funding package was released to offset the effects of the subprime crisis, favoring the acceleration of the *endogenous innovation* policy. Nevertheless, it strengthened distortions that the Wen Jiabao and Hu Jintao administration had pledged to correct, with the explosion of bank credit availability and much of the investment being of dubious quality, especially by local governments, jeopardizing the goal of consumption overcoming investment as an economic driver and highlighting the risk of financial bubbles (Naughton, 2009). This result laid bare the dilemmas in coordination that Chinese industrial policy faced, as we will see further along.

[7] As per the translation provided by the Confederation of British Industry, Beijing office.

3.2 – The main guidelines and programs in Indian industrial policy

Despite the several different coalitions that have come to power in India, the shifts in industrial policy since the end of the twentieth century have had a less significant impact on redefining the development strategy defined in the 1991 reforms than the *endogenous innovation* policy in Chinese development policy, as defined in the second stage of the reforms between 1992 and 1998 (Delgado, 2015). In 1996, the Congress Party was defeated in the general elections and was followed by three minority governments of short duration under the aegis of Hindu nationalism until the rise in 1998 of the Bharatiya Janata party, led by Atal Bihari Vajpayee, who was prime minister until 2004. Hindu nationalism (which did not challenge economic liberalism) guided, therefore, the Planning Commission during the preparation of its Ninth and Tenth Five-Year Plans. In 2004 the Congress Party reassumed control of the government at the head of a center-left coalition, the United Progressive Alliance. Manmohan Singh, the leader of the 1991 reforms, became prime minister. Reelected in 2009, he formed a government with less participation from the left and led the Planning Commission in the preparation of the Eleventh and Twelfth Five Year Plans.

The Ninth Five-Year Plan (1998–2002), with the slogan 'Growth with Social Justice and Equity', did not emphasize supporting industrial growth, but rather set as priorities agriculture, poverty eradication, water supply and the provision of other basic services (India, 1998a, pp. 1–3). In its Development Strategy the reduced creation of jobs throughout the 1990s was deplored, but it still reaffirmed a commitment to market reforms, *disinvestment*, the removal of quantitative restrictions (quotas) on imports, the attraction of foreign capital and the modernization of the financial system and expansion of the private sector. It recommended, however, caution regarding the liberalization of capital flows and reaffirmed the role of exchange rate policies to support exports, identifying them as crucial (especially for labour-intensive products, in which the country had a competitive advantage) for the generation of revenue and the containment of the excess productive capability, associated to the lethargic pace of change in domestic consumption patterns (India 1998a). The National Task Force on Information Technology and Software Development (NTFITSD) was established with the objective of converting India into a technological superpower in software development and cutting-edge information technology (IT) (India 1998b).

Strictly speaking, this was its main initiative addressing industrial development. Brief mention was made of infrastructure, supporting backwards regions through 'growth centers schemes', opening 'mining to the private sector', strengthening 'technological capability' through 'adequate credit' and of creating *clusters* to support the *unorganized sector*.

In the Development Strategy (of the 2002–2007 plan), the prospect of creating an 'investment-friendly climate' stood out, by reducing internal barriers in order to (in contrast with the Ninth Five-Year Plan) promote the domestic market and reduce dependence on exports (India, 2002a). The abolition of restrictions on the movement of agricultural products and other goods was emphasized, as was a review of the market reserve policy in certain industries for small and medium-sized enterprises, the improvement of budget planning and management and the reduction of waste and increase in efficiency in the public and private sectors through privatization and an improvement in legislation on the transfer of assets and bankruptcy, respectively. In addition, the intention to relax labour legislation and to deregulate trade and expand the presence of tradeables in exports was announced. In the section addressing industrial policy, the Tenth Five-Year Plan set the objectives of raising the share of manufactures in GDP and exports, promoting the inter-regional balance of manufacturing industries and creating more jobs for skilled workers (India, 2002b, p. 650–740). However, in practice emphasis was afforded only to the objectives of reducing internal barriers and reforming trade legislation, improving legislation on property rights and antidumping regulations to confront the protectionism from developed countries. To support the modernization of the manufacturing industries, the promotion of quality and other standards was emphasized. Public-private partnerships (PPP) were highlighted as a solution for the establishment of an international-class infrastructure. Privatization, attraction of foreign capital, modernization of the financial system and a review of subsidies – including of fertilizers – were associated to the purpose of raising funds for investment. Finally, amidst a valuing of the market's role in enhancing the overall efficiency of the economy, it should be noted that the State continued to regulate some industries, such as drugs and medicines.

The APU administration, which rose to power in 2004, interrupted the policy of privatizing State-owned companies, pursued since 2002, emphasizing

the need for their modernization, managerial autonomy and market regulation. The formulation of a comprehensive policy for the manufacturing sector also returned to the government agenda with the creation in 2004 of the National Manufacturing Competitiveness Council (NMCC), which launched the National Strategy for Manufacturing Industries in 2006 (India, 2006). Marked by a focus on creating a favorable investment environment, it proposed creating a fund for the acquisition of global technologies; the realization of the National Manufacturing Competitiveness Programme (NMCP), launched in 2005; the definition of sector policies; and the establishment of a group within the government empowered to coordinate the actions of several agencies, both central and subnational, for implementing measures for the creation of a business-friendly environment.

The Eleventh Five-Year Plan (2007–2011) was released one year after the national strategy and was called *Inclusive Growth* (India, 2007a). Reviewing recent Indian growth, it celebrated the performance of the manufacturing sector, which had increased its participation in the GDP to 15.5% in 2007, up from 15.1% in 2004. Growth was attributed to both external and domestic demand, the positive response of companies to the reforms, and to an improvement in the investment climate resulting from the simplification of procedures for opening and closing businesses, the exclusion of the pharmaceutical and biotechnology industry from licensing requirements, and the reduction of non-agricultural product tariffs in 30% (India, 2007b, p. 140).[8] In this scenario of confidence in the effects of economic reforms, the Eleventh Five-Year Plan emphasized that preserving and improving the performance attained over the recent years would require a greater focus in State action, with an emphasis on infrastructure; a standardization of taxes and a reduction of the corporate tax levied on companies; a review of the tariff structure, to reduce taxes levied on the import of capital and intermediate goods; the adoption of safeguards for domestic production in preferential treaties and trade agreements; measures for worker training and qualification; and a relaxation of labour laws.

8 While it did refer to the current level, the Eleventh Five Year Plan projected the most significant expansion of domestic demand as being in the future. Starting from 14.4 million middle and high-income families in 2005, it was estimated that in 2025, 137.5 million people (in a population of over 1 billion) would be in these segments, boosting domestic consumption (India, 2007b, p. 146, item 7.1.29).

The Eleventh Five-Year Plan did not place importance on endogenous innovation, maintaining that access to existing technologies is more decisive than the pursuit of activities on the technological frontier, since there is 'a vast amount of global knowledge that is little used in India' (India 2007b, p. 152). Accordingly, the creation of *clusters* was emphasized to disseminate new technologies among small and medium-sized enterprises; improve metrology measurements, testing and quality control; the consolidation of legislation and infrastructure for intellectual property rights protection; and the creation of a national design policy.

The Twelfth Five-Year Plan (2012–2017) distanced itself considerably from the optimistic tone of the previous plan, in spite of underlining the strength of the Indian economy, which was attributed to a gradual strategy in liberalizing financial regulations (India, 2012b, p. 30). The reduction in the growth rate since 2008 was attributed to the international crisis, the difficulties in conducting the Eleventh Five-Year Plan infrastructure projects, tax changes (which would have contaminated the pro-investment mood) and, especially, the 'almost universal perception that implementation capability is low at all levels of government' (India, 2012a, p. 14). It also pointed to the need to revive the entrepreneurs' 'animal spirits' through tax measures, review infrastructure project contracts, rationalize public spending and simplify procedures for the operation of business.

A change in the approach to the conduct of industrial policy was emphasized in the Manufacturing Plan, repeated in the Twelfth Five-Year Plan (India, 2012c, 2012d). The poor industrial performance since 2008, with a loss of jobs and GDP participation (the economic turbulence and an appreciation of the rupee over the period notwithstanding), was attributed to the unsatisfactory implementation of policies and inadequate consensus building for effectiveness (India, 2012d, p. 7). The required *paradigm shift* did not imply a return to central planning or the construction of 'national champions', but rather a strengthening of the collaboration among the actors and stakeholders to refine implementation and continual learning and create a national ecosystem that would stimulate the companies' competitive skills and abilities. Pointing to China, Japan, South Korea and Germany as examples, this ecosystem would involve, in contrast to the Eleventh Five-Year Plan, a deepening of technological prowess and the combination of four key capabilities – training and qualification, incorporation of technology,

intellectual property rights, and a *vast and demanding consumer market* – with an increasing integration of companies in the national economic space, highlighting the small and medium-sized enterprises (partnering with large firms) to support ongoing experimentation.

Transversal actions were suggested for technological development, education and the training of human resources and the regulation of the business environment and sustainability, with *key strategies* for each type of action. For technological development, such actions were improvement in the documentation on innovation, the establishment of excellence centers and platforms for collaboration among stakeholders, fiscal and *preferably* credit measures and the establishment of joint ventures and PPPs. For the qualification of human resources, while considering the need for reforms in legislation, a new social contract was proposed, which promoted harmonious labour relations, social protection, and the empowerment of trade unions. In relation to business environment regulation, a national competitive policy was suggested that would facilitate procedures and define codes of conduct. Regarding the environment, a national body was proposed to regulate the use of land and water and ensure widespread compliance with quality standards.

The importance of forming clusters was reiterated, nevertheless with action conducted by a national coordinating body. Exports support was associated with the promotion of Indian brands and the stimulation of technology-intensive goods. For the state-owned companies, a unified governance structure was proposed that would allow the State to act as a *capitalist partner*. The role of public procurement was emphasized in the strengthening of domestic production. The creation of mechanisms for identifying critical technologies for added value in the exploitation of natural resources was envisioned. The creation of National Investment and Manufacture Zones (NIMZs) was proposed, inorder to concentrate investments, technical assistance, management, logistics, environmental protection and staff housing and residences. Finally, the importance of sector policies formulated and implemented in cooperation with business associations was emphasized, with the following configuration: (*i*) strategic industries (defense, aerospace, capital goods, shipbuilding and drydocking), (*ii*) basic materials industries (steel, cement, fertilizer, mining), (*iii*) areas for further development and generation of added value (automobiles, medical drugs and health equipment, petrochemicals, electronics,

chemicals, and paper), and (*iv*) industries for job creation (textiles, food, leather and leather goods, and jewelry).

The policy's touchstone, however, was implementation capability, with the principles of local action, lateral connections and lifelong learning. Its steps are coordination between key agencies (Department of Industrial Policy and Promotion [DIPP], NMCC and the Planning Commission), reforms for the conversion of the ministries from retail operators into scheme facilitators and formulators, measures for the acceleration of administrative procedures, effective and ongoing consultation with stakeholders (government agencies, business associations, banks); alignment of sector schemes with the overall strategy and *communication of the plan and its objectives to the widest possible audience*, because 'communication is critical to the successful implementation of any major change program' (India, 2012d, p. 29).

Ambitious objectives were defined:

1. Increase manufacturing sector growth to 12–14% over the medium term to make it the engine of growth for the economy. The 2 to 4% differential over the medium-term growth rate of the overall economy will enable manufacturing to contribute at least 25% of the national GDP by 2025;
2. Increase the rate of job creation in manufacturing to create 100 million additional jobs by 2025. Emphasis should be given to creation of appropriate skill sets among the rural migrant and urban poor to make growth inclusive;
3. Increase 'depth' in manufacturing, with focus on the level of domestic value addition, to address the national strategic requirements;
4. Enhance global competitiveness of Indian manufacturing through appropriate policy support; and
5. Ensure sustainability of growth, particularly with regard to the environment. (India, 2012c, p. 54).

The Twelfth Five-Year Plan identified major coordination problems in Indian industrial policy. It is not possible, at present, to assess their performance, but the defeat in the 2014 elections of the government that proposed the policy may

indicate the continuation of coordination and implementation problems, as we discuss below.

Between 1988 and 2003, a period that includes the balance-of-payments crisis that precipitated the economic reforms of 1991, the average annual growth in India was 5.9%. Between 2003 and 2013, the growth rate reached an average 7.9% (Panagariya, 2013, p. 7). However, innovation spending remained modest, reaching only 0.76% of the GDP in 2007 (annex table A.7).

3.3 – Guidelines and major programs in Brazilian industrial policy

Throughout the 1990s, the expectation prevailed in Brazil that modernization of the industrial structure would come through exposure to foreign competition, supported by quality and technological worker skill-qualification programs, combined with a reduction in the 'Brazil cost' through *structural reforms* (tax, social security, administrative, labour), supplemented by specific programs for the automobile, textile and software industries (Delgado, 2001; De Toni, 2013). On the whole, however, trade liberalization led to regressive specialization and denationalization (Castro, 1997; Coutinho, 1997). Thus, during the second Fernando Henrique Cardoso administration (1998–2002), there was an inflection in government actions with the resumption, albeit a timid one, of industrial policy through the creation of *sector funds* and *industry competitiveness forums*. The former would be used to fund innovative activity while the latter would resume the liaising between businesses and the State, which had been tentatively established though the *sector chambers* that operated from the end of the Sarney (1985–1990) and beginning of the Collor (1990–1992) administrations (Delgado, 2005; De Toni, 2013).

During Lula's first term (2003–2006), the 'long-term strategy', established in the 2004–2007 Pluriannual Plan (PPA), pointed to growth centered on an 'expansion of the [domestic] mass consumer market', based on 'progressive incorporation of working families into the *consumer market of modern companies*' (Brazil, 2003, p. 17, emphasis added). The latter would be the result of an increase in wages, credit, and income transfer policies, simultaneously with a growth in exports, and business investment and productivity. Finally, it stressed the importance of a 'favorable environment for private investments' one marked

by stability, a reduction in investment costs, the building of PPPs and funding guarantees by public banks.

There was a resumption of the centrality of the industrial policy with the announcement of the Industrial, Technological and Foreign Trade Policy (Política Industrial, Tecnológica e de Comércio Exterior, PITCE) in 2004 (Brazil, 2004). It provided *horizontal* actions for innovation and technological development, the boosting of external insertion of national manufacture in world value chains, industrial modernization, and an expansion of the capacity and scale of production of Brazilian companies and manufactures. Also, *strategic* options were planned associated with the manufacture of capital goods, medical drugs, software and semiconductors, in addition to fostering activity in what were considered future fields such as biotechnology, nanotechnology, and biomass and other renewable energy sources (Brazil, 2005; Delgado, 2005; 2010; De Toni, 2013). Among the various instruments for policy implementation, a few may be cited: fiscal incentives; funding lines by BNDES and Funding Authority of Studies and Projects (Financiadora de Estudos e Projetos, Finep); regulatory devices such as the Innovation Act, the Biosafety Law, the Law of Information Technology and the Technological Goodwill Law (which was a compilation of different support measures; repealed under austerity measures in 2015 and 2016[9]); and biotechnology and nanotechnology policies. Cooperation with the business community would occur specifically by industry sector, through the *competitiveness forums,* and comprehensively through the National Council for Industrial Development (CNDI).

Although welcomed by the business community, the PITCE was jeopardized by the macroeconomic policy, which used the exchange and interest rates to control inflation (Delgado, 20005; De Toni, 2013). In turn, the explosion of commodity exports favored currency appreciation, in part undermining the support measures. The 2005 political crisis created a climate of uncertainty, reducing the momentum in business for investment and affecting industrial growth, which had reached 7.89% in 2004 (above GDP) but slipped to 2.08% in 2005 and 2.21 % in 2006, recovering

9 Subsequently, the non-elected government in power since 2016 has revoked most of the developmental policies. It is important to observe the outcome of the 2018 elections to determine if developmental policy will be reinstated.

only in 2007 (5.27%) and 2008 (4.07%) during the second Lula administration (Delgado, 2005; Santos and Gouvea, 2014). In the end, the Brazilian Agency for Industrial Development (ABDI) and the CNDI failed to consolidate themselves as coordination and liaison instruments with the business community, the former due to its institutional ambiguity and reduced weight vis-à-vis other bodies already involved in industrial policy. For its part, the operation of the CNDI depended heavily on the initiative of its leader (De Toni, 2013).

During Lula's second term (2006-2010), the Productive Development Policy (PDP) was launched (in 2008), which abandoned the appointment of priority industries and covered the entire manufacturing industry through three structuring programs for production systems: *mobilization programs in strategic areas*, *competitiveness-strengthening programs*, and *programs for leadership consolidatation and expansion* (Brazil, 2008). The main challenges identified by the PDP were 'maintaining the growth rate of gross fixed capital formation (GFCF) above the GDP', the 'preservation of robustness in the balance of payments', boosting the 'innovative capability of companies' and the 'strengthening of micro and small businesses', which were broken down into targets for 2010 (Brazil, 2008, p. 9). Coordination and monitoring mechanisms were created, and there was mention of defining 'counterparts from the private sector, through contracts carrying company responsibilities' (Brazil, 2008, p. 33). Liaising between the State and the business community occurred through the CNDI, the competitiveness forums, the sector and thematic chambers of the Ministry of Agriculture, and eventual working groups. The defined *instruments* involved *incentives* (funding, tax incentives), the *power of government procurement*, *regulatory instruments,* and *technical support*. The appointed *systemic actions* comprised boosting BNDES funds for investment, especially for innovation; tax exemptions; simplification of administrative procedures; and coordination with other actions, such as the Growth Acceleration Program (Programa de Aceleração do Crescimento, PAC); the Action Plan for Science, Technology and Innovation (Plano de Ação de Ciência, Tecnologia e Inovação, PACTI) of the Ministry of Science, Technology and Innovation (Ministério da Ciência e Tecnologia e Inovação, MCTI); the National Education Plan (Plano Nacional de Educação, PNE) of the Ministry of Education (Ministério da Educação, MEC); the National Industry Mobilization Program for Oil and Natural Gas (Programa de Mobilização da Indústria Nacional de Petróleo e Gás

Natural, Prominp); the National Training and Qualification Plan (Plano Nacional de Qualificação, PNQ) of the Ministry of Labour and Employment (Ministério do Trabalho e Emprego, MTE); the Education Program for a New Industry, developed by the Social Service for Industry (Serviço Social da Indústria, SESI), the National Service of Industrial Education (Serviço Nacional de Aprendizagem Industrial, SENAI) and the National Industry Confederation (CNI, Confederação Nacional da Indústria) (Brazil, 2008, p. 23–26).

ABDI, the main coordinating body for industrial policy within the PITCE, had its mandate curtailed, but did under the PDP remain tasked with coordinating the 'Strategic Highlights' program. The responsibility for implementing the PDP was distributed among several bodies, with the *systemic actions* (tax relief measures, management of monetary and exchange rate policy) being led by the Treasury Department (MF, Ministério da Fazenda); the *mobilizing programs in strategic areas* by the MCTI; *competitiveness programs*, by the Ministry of Development, Industry and Foreign Trade (MDIC); and the *programs to consolidate and expand leadership,* by the BNDES. Overall coordination was assigned to the MDIC, with an executive secretariat composed of ABDI, BNDES and MF, and a steering council, which also included the Chief of Staff, the Ministry of Planning, Budget and Management (MP, Ministério do Planejamento, Orçamento e Gestão) and MCTI (Brazil, 2008). It is also worth mentioning that the CNDI, a body convened frequently for the conduct of the PITCE, saw little effective operation under the PDP (De Toni, 2013).

The 2008 subprime crisis clouded any attempt at making an assessment of the PDP's effectiveness, as it jeopardized the likelihood of attaining the proposed goals. In the government's evaluation, along with the Investment Support Program (PSI, Programa de Sustentação do Investimento), launched July 2009 in response to the crisis, the PDP was essential to the mitigation of the impact of the crisis upon the country and promoting of the 'V-shaped recovery' observed in 2010 (Brazil, 2011a).[10] The policy's critics point to a gap between its objectives and effective actions, particularly regarding funding released by BNDES favoring industries

[10] According to data from the United Nations Conference on Trade and Development (Unctad), in 2008 GDP growth was 5.17%, followed by a recession of 0.33% in 2009 and growth of 7.53% in 2010 (appendix table A.2).

with low technological intensity, and its purpose of strengthening industrial innovation and modernization (Almeida Junior, 2009).

The Greater Brazil Plan (PBM, Plano Brasil Maior), a hallmark of the Dilma Rousseff administration, was announced in August 2011 with the goal of 'sustain[ing] inclusive economic growth under an adverse economic context', which resulted from the impact of the 2008 crisis in the United States and the European crisis in the following years. Its focus was on 'innovation and productive consolidation of Brazilian industry' (Brazil, 2011b). As with the PDP, the PBM set targets over a short-term horizon, 2014, for increasing investment, boosting R & D spending by companies, qualification of human resources, increasing added value, strengthening micro, small and medium-sized enterprises (MSMEs), clean manufacture, export diversification, energy and broadband access.

The PBM unfolded in an *industry-sector* dimension and a *systemic* one. The former highlighted five *structural guidelines*: the strengthening of productive chains, the expansion and creation of new technological skills and business, the development of energy supply chains, the diversification of exports and expansion of corporate internationalization and the consolidation of skills in the 'natural knowledge economy'. These guidelines would focus differentially on the several industries, being divided into blocks: systems with capability for transformation of the productive structure and diffusion of innovation (block 1); scale-intensive production systems with a high maturity level leading, in most cases, industrial exports (block 2); labour-intensive production systems (block 3); and agribusiness productive systems (block 4). The *systemic* actions foresaw both horizontal and transversal measures to reduce costs, increase productivity, promote isonomy among Brazilian and foreign companies and consolidate the national innovation system, comprising initiatives for *foreign trade, stimulating investment, encouraging innovation, educating and training professionals, sustainable production, small-business competitiveness, special actions in regional development, consumer welfare* and *work conditions and labour relations*.

The PBM was split into programs run by several different public agencies and connected to other initiatives such as the Growth Acceleration Program (PAC, Programa de Aceleração do Crescimento), which provided funding, tax cuts and the use of government purchasing power to stimulate innovation. Its

governance structure involved three operational levels: (*i*) liaising and formulation, composed of the industry-sector competitiveness councils, systemic coordination and executive committees; (*ii*) management and decision-making, composed of the steering committee and the executive group; and (*iii*) advising, composed of the CNDI. The business community participated through industry-sector competitiveness councils, which reproduced the competitiveness forums, and the CNDI. The steering committee was coordinated by the ministry, with the participation of Chief of Staff, the MF, the MP and MCTI. The Executive Group of the Greater Brazil Plan (GEPBM) included representatives from the Ministry of Industry, Chief of Staff, MP, MF, the MCTI, the ABDI, the BNDES and Finep.

It is worth noting the role of public procurement in stimulating innovation, as regulated by Law 12.349/2010, which established a *margin of preference* for domestic products, in addition to attempting to attract foreign companies to install R & D centers in the country, actions virtually absent in Brazilian industrial policy until then (Brazil, 2010). Additionally, the MF took steps to devalue the Brazilian real and reduce the basic interest rate combined with actions to reduce the banking spread rate in the private sector through competitive pressure from public banks—which was reversed, however, in 2013. Finally, attempts were been made to reduce the cost of electricity through a revision of concessions to the private sector, which met with little success.

The performance of the Brazilian economy after 2011 slipped below the levels enjoyed from 2004 to 2010, when GDP growth had reached an annual average of 4.2% (the best performance after the 7.5% recorded between 1947 and 1980). This rate of GDP growth was central in the development trajectory, and almost double that of the period extending from the start of the Real Plan (1994) through 2003, which was 2.2% (Santos and Gouvea, 2014).[11] In 2011, Brazilian GDP growth was 2.73%; in 2012, 0.9%; and in 2013, 2.3% (Brazil, 2011a, 2013b). The processing industry, after spectacular growth in 2010 (10.1%), saw essentially no expansion in 2011 (0.1%) and a significant drop the following year (-2.5%) (Brazil, 2013a,

[11] Moreover, although incipient, there was an emphasis on boosting spending on innovation relative to GDP from 0.96% in 2003 to 1.16% in 2010 (appendix table A.7).

p. 37).[12] In 2012, the repercussions of a number of actions and trends were felt, beginning with the fiscal tightening that was adopted in the first months of the Dilma administration in 2011. Other factors blamed for the poor performance of the Brazilian economy in 2013-15 were the presence of large stocks due to the sharp growth in 2010; an environment of uncertainty, sometimes associated to a multiplicity of incentives, sometimes to a view that the government had an 'interventionist' profile (as expressed in criticism of public bank action to lower interest rates and the review of electric utility concessions, which critics claim involved a breach of contract); and the presence of a still uncompetitive exchange rate (in spite of the depreciation of the Brazilian real since 2012). In this scenario, documents issued by business entities highlighted the risks of deindustrialization, and emphasized the need for a "new economic policy" (Iedi, 2013; Fiesp, 2013). In a balance of the PBM issued by the CNDI in 2013, the international scenario was blamed, emphasizing that still underway was 'a maturation of measures . . . implemented from 2011, [which] sustains an industry recovery movement. These include powerful stimuli instruments for competitiveness, which reinforce the positive expectations about the performance of the Brazilian industry and support the recovery planned for 2014' (Brazil, 2013a, p. 37). As is known, this recovery did not come to pass. In addition to the contradictions between macroeconomic and industrial policy, coordination problems affected the relation between different government agencies and their relationship with the business community, which contributed to this outcome.

In the next section, we will consider the coordination dilemmas that were present in the implementation of the Chinese and Indian industrial policies. These experiences will help us evaluate the Brazilian case, treated in the last section of this chapter.

[12] The investment rate of the Brazilian economy peaked at 18.0%, (a level not reached or exceeded since 1995, other than in 2008, when it was 19.1%). However, this was below the PDP target for 2010 (20.9%). The expectation of the PBM for 2014 was a rate of 22.4% (IBGE, n.d.; Brazil, 2008, 2011b).

4. STATE CAPABILITIES AND COORDINATION DILEMMAS IN THE INDUSTRIAL POLICIES OF CHINA AND INDIA

4.1 – China: Structured consensus and overinvestment

The 'structured consensus' system, the backbone of the State's relationship with economic agents and society in China, supports industrial policy. Guidelines that sprout from the CCP radiate throughout the State structure, under the leadership of the State Council (Miller, 2008; Saich, 2011; Lawrence and Martin, 2013). Several agencies rework, refine and clarify the policy in a broad process involving consultation and persuasion until the final formatting of the policy. Faced with the pressure of an emergency, the process can be accelerated while preserving the procedures for assessment and consultation up to the decision by the central government, by decision of the State Council and, ultimately, the National People's Congress. From there, local governments whose performance is limited by guidelines issued by the central power have significant leeway in implementation. The Five-Year Plans are, so to speak, guiding documents for the actions of the governments and the Chinese *national project* over the periods they delimit, but general and sector policies are defined through the same consensus-structuring style. There is room for lobbies and bargaining, which are quite common in the relations between the central and local governments, as well as between government agencies and companies – public and private, domestic and foreign (Saich, 2011).

The regulation of the business environment and the State's relationship with the business community or individual businesses involves three liaising levels (Pearson, 2011). At the *top* level there are segments 'reserved' for public property in the area of infrastructure that are central to the development strategy – especially electricity and telecommunications and in activities considered strategic such as aviation and emerging industries. The main coordinating agencies are SASAC and the NDRC of the People's Republic of China, supported by the MIIT. The *intermediate* level is also dominated by state-owned companies; however, these are open to association with foreign capital and independent action by the latter and by national private capital, such as in the pharmaceutical and automotive industries. Here, NDRC and SASAC also prevail, supported by their local counterparts, but the market does most of the regulation. In turn, the *lower* level is dominated by

private companies in various industries. Agencies such as the central SAIC and its local counterparts fulfill regulatory functions, which are however essentially carried out by the market. Business associations play an important role in the articulation of interests between the State and the business community, but they have little organizational autonomy, operating as a hybrid body that also serves for the regimentation of, that is, the organization of and influencing of companies for the implementation of State policies. They are most relevant to aforementioned companies operating in the middle and lower levels (Kennedy, 2011).

The Chinese political system and liaising protocols among the State and companies mean that the central power has robust capabilities both for the development of long-term policies and for making ample changes, occasionally even sudden ones, in the overall guidelines. However, long-term programs, the role of banks, and the relative control of the State over the pillar industries all help to reduce uncertainty in investment decisions. It is worth noting that China has sought to exhibit a favorable business environment, increasingly likened to Western standards. Frequent qualms raised by representatives of foreign companies, however, suggest the ongoing presence of several shady areas. The question is whether or not these represent deliberate arrangements to postpone decisions and encumber foreign companies, with the aim of preserving the space of domestic economic agents.

The capability for long-term policy-making is also combined with great flexibility in the execution of defined actions. Since the implementation of the EEZs, reform measures have been tested with experiments confined to certain regions, which are then amplified in case of success, or aborted in the event of failure. The reforms made at the *margins* of the institutional order and the ability to operate multiple institutional regimes simultaneously allow the central power ample malleability in the implementation of policies, dealing with the different characteristics and possibilities offered by the widespread and diverse Chinese territory (Heilmann, 2008; Heilmann and Shih, 2013; Headey, Kanbur and Zhang, 2008). Coordination dilemmas, however, occur in the relations among the central and local governments, between the regulatory provisions of the State and state-owned companies and among the different bureaucratic spheres (Saich, 2011; Naughton, 2007a). Ultimately, the fundamental impact of such coordination dilemmas is not

decisional paralysis or investment mitigation, but *overinvestment*. Symptoms of this phenomenon include recurring episodes of overinvestment or the overshooting of policy targets, leading to investments of poor quality and/or low competitiveness and reduced profitability, either by local governments or by the State-owned and other companies benefitted by the incentives established in the policies.

4.2 – Dualities and impasses in Indian industrial policy

One of the *enigmas* in Indian policy is the *precocious e*stablishment of capital-intensive and knowledge-intensive industries, in a country with great but unrealized potential for growth in labour-intensive activities. Another dimension of this puzzle is the reduced weight of manufacturing in the Indian economy, which has undergone a particularly slow rural-urban transition (Kochhar et al., 2006; Kotwal, Ramaswami and Wadhwa, 2010; India, 2007a, 2007b, 2012a, 2012b). Legacies from post-Independence history have been evoked to explain this scenario, especially the relative freezing of change in agrarian production relations, reducing the emancipation of labour for the urban industries aside from the options made for the manufacturing industries and the education, science and technology system (Mazumdar, 2009; Kochhar et al., 2006; Kotwal, Ramaswami and Wadhwa, 2010). The priority afforded to the heavy manufacturing industries, the market reserve system for small and medium-sized enterprises (with fixed ceilings for employment and machinery investment) and inhibition of scale investments in the industry due to the rigidity of the labour laws (which makes a distinction between the *organized* and *unorganized* sectors), combined with an emphasis on college education, do not favor the formation of a center capable of attracting the reduced labour contingent emerging from the rural area, thus reinforcing the basic duality of the productive structure (India 1998a, 1998b, 2002a, 2002b, 2007a, 2007b; Kochhar et al., 2006; Kotwal, Ramaswami and Wadhwa, 2010). Reforms and practical actions by businesses, however, have been addressing these issues, with a reduction of activities reserved for small and medium-sized enterprises and the use of voluntary severance mechanisms (India 2007b). A recent study, enthusiast of market reforms, sees a virtual absence of barriers to investment among the various industries in the Indian economy (Agarwal and Whalley, 2013).

It is important, however, to highlight the encapsulation of industries galvanized by trade liberalization and economic deregulation that overlaps the original

duality of the Indian economy. The proficiency in the English language by a significant amount of Indians, even though small within the population at large, with quality college educations yet willing to work for reduced wages by international standards, enabled by modern online communication, favored their integration into academic and business networks from the central countries driving areas in the services sector such as information and communications technology (Kotwal, Ramaswami and Wadhwa, 2010). Additionally, under the direction of traditional powerful families, who owe their longevity and survival to the old licensing system, the automotive and pharmaceutical industries have thrived, rather separately from other segments of the Indian economy, serving the export market and the wealthier contingent of the domestic market, whose participation has been declining in the GDP since the reforms.[13] Thus, there are "two Indias: one of educated managers and engineers who have been able to take advantage of the opportunities made available through globalization and the other – a huge mass of undereducated mass of people who are making a living in low productivity jobs in the informal sector – the largest of which is still 'agriculture"' (Kotwal, Ramaswami and Wadhwa, 2010, p. 45).

In this scenario, the participation of manufacturing in the GDP remains modest, the general innovation rate in the country does not rise and the formation of a mass consumer market is not stimulated, *in spite of the size of the Indian population*.[14] There is, therefore, a strong structural component that adversely affects the Indian State's capability to coordinate. Moreover, the perspective of a deepening of the reforms for creation of a favorable business environment have preponderated in industrial policy proposals, combined with the preservation of 'schemes' to support lagging regions and specific manufacturing industries. In 2004, a small shift in perspective was mentioned, but it did not materialize, however, in the Eleventh Five-Year Plan of 2007. Only in the Twelfth Five-Year

[13] Using data from the World Bank, Agarwal and Whalley (2013, p. 16) note that household consumption slipped from 76.9% to 57.2% of GDP between 1980 and 1984 and between 2007 and 2010, while government consumption rose from 10.2% to 11.2%, fixed capital formation went from 19.8% to 31.3% and exports of goods and services skyrocketed from 6.2% to 21.4% over the same period.

[14] A curious aspect of this duality is that it masks, in some indicators, the rampant Indian social inequality, as for instance in the Gini index, which does not take into account the huge informal labour market. The income indicators per capita and quality of life reveal a country located at a great distance from Brazil and China (see appendix tables A.1, A.4 and A.5).

Plan did a new approach emerge that, without prejudice to the economic reforms and emphasis on creating a favorable business environment, stressed the need to confront the Indian State's 'implementation deficit', associated with reduced intra-governmental coordination and inadequate consensus building.

The paradigm for industrial policy in 2012 was modeled on China while focusing on a different institutional architecture. In India there are still a significant number of sectoral ministries, which play a significant role. The Planning Commission remains, as do the Five-Year Plans, but these are not grounded in diversified processes and forums to define guidelines through consensus building. Public enterprises remain responsible for a significant share of the GDP, but do not play a defined strategic role, and State regulation is ineffective for ensuring the validity of modern governance standards, and virtually non-existent regarding the supervision of investment decisions. India's Twelfth Five-Year Plan highlights China's ability to identify critical technologies and proposes the creation of a mechanism for this purpose. In China, however, there is not only the intention to *identify*, but, as noted in the Twelfth Five-Year Plan, but also to 'expand the size of government investment to promote budding industries' (China, 2011b, p. 11).

In addition to the Planning Commission, the Department of Industrial Policy and Promotion, established in 1995 under the Ministry of Industry and Trade, and the NMCC stand out in the institutional architecture of Indian industrial policy. The former is responsible for actions related to industrial policy, intellectual property, the attraction of foreign capital, supervision of several autonomous bodies and monitoring the performance of various industries. However, its position in the government hierarchy and the survival of sectoral ministries (especially the Ministry of Heavy Industry and Public Enterprises, central in arrangements previous to 1991) suggests that it has limited range. The NMCC, on the other hand, brings together representatives of government agencies, large business associations and business and academy leaders to suggest measures and provide a space for dialogue between the government and the business community. The diagnosis in the Twelfth Five-Year Plan points out, however, that it is necessary to emphasize the integration of these bodies.

State investment banks should also be mentioned. Directly connected to industrial manufacture are the Industrial Development Bank of India (IDBI) and

the Small Industries Development Bank of India (SIDBI) (Colombini Neto, Zoccal and Viana, 2013). The former (the more important of the two) was restructured in 2004 to become a commercial bank as well. The second, despite having operations for various activities in commerce, industry and agriculture, has among its main instruments Sibdi Venture Capital Ltd., in support of biotechnology, IT and engineering companies, which suggests a certain bias in their credit lines.

In India as well as China, coordination dilemmas appear in the relation between the central government and subnational units. However, in the latter country the presence of the PCC and of branches and agencies of the central government within the subnational units provides the State with robust capability to pursue industrial policy guidelines, albeit not without risks of overinvestment. In the Indian case, the dilemma is the inverse, being associated with the weak implementation of the defined measures.

5. FINAL CONSIDERATIONS: THE LEGACY OF AND CHALLENGES IN BRAZILIAN INDUSTRIAL POLICY

China and India have stood out for the intensity of their economic growth after the start of economic reforms during their periods of rural-urban transition, which occurred at an accelerated rate in China and a morose one in India. According to World Bank data, between the years 1980 and 2012 the urban population grew from 21.3% to 51.8% in China, but in India from 23.0% to just 31.6 % (World Bank, n.d.). Equally diverse was the nature of Chinese economic growth, led mainly by industrial manufacture, while in India it was essentially driven by services. According to the United Nations Industrial Development Organization (Unido), in 1980 the services sector contributed 38.2% of the total value of the Indian economy, rising to 57.1% in 2008, while in the same period the manufacturing sector only slightly increased its participation, from 14.9% to 16.4%, and agriculture declined from 37.4% to 16.3%. In China, the share of the manufacturing sector in the economy rose from 22.2% in 1987 to 44.7% in 2008, while services grow residually, from 34.3% to 35.1%, while agriculture saw its share reduced from 29.9% to 9.2% (UNIDO, 2012, p. 20).[15]

15 The percentages taken together do not equal 100% because mining, industrial utilities and construction are considered separately. Note the equivalent data, by Unctad, for the 1990s as a whole and per year in the twenty-first century in the appendix table A.6.

If we consider the same period in Brazil, the relative weight of the three sectors changed very little. In 1980, the share of services sector in the economy was 64.5%, in 2008, 65.9%; the share of industrial manufacturing declined slightly from 21% to 19.4%; and agriculture grew from 4.9% to 6.4% (UNIDO, 2012, p. 20). In 1980, Brazil had already advanced substantially along its rural-urban transition, with 65.5% of the population living in cities, rising to 84.8% in 2012 (World Bank, n.d.). For this reason, Brazilian growth today lacks the impetus for growth typical of transition phases (which did occur in Brazil between 1950 and 1980, when the average annual growth reached 7.5%), tending to approach the levels of *normal* growth of countries that have already concluded this transition phase. It is worthy of note that between the 1950s and 1980s, when the country underwent the same transition that is today being experienced by China, and at a slower pace by India, the participation of manufacturing in the GDP reached 33% (UNIDO 2012, p. 33). A 'second wind' typical of the growth rate of transition processes, however, may perhaps subsist due to the precariousness of urban and economic infrastructure built during Brazilian industrialization and the possibility of increasing the presence of the lower-income strata in the mass consumer market. In a modest degree, this was what occurred during the growth spurt during the Lula and first Dilma Labour administrations, shielding the country from the subprime crisis, when the economy was boosted by the entry into the consumer market of millions emerging from the lower classes. However, attaining Chinese growth rates is an unrealistic prospect for Brazil.

In Brazil, more than in China and India, the definition of macroeconomic policies conducive to productive investment, bypassing the pitfalls of high interest rates and an appreciated exchange rate, remains an important challenge that must be addressed. In addition, as in the other two countries, the fundamental dilemma for Brazil is to develop policies that will foster the innovative capability of economic agents. What are the challenges, facing these attempts, inherited by our history? What dilemmas must be overcome to enable the Brazilian State to implement policies that sufficiently address the challenges facing contemporary industrial policy?

In the *old developmentalism*, the closing, or protection, and internationalization[16] of the domestic market, as well as the easy access to technologies available in the world market, led domestic companies to deal with the dilemmas of the *cost of discovery* without market timing or deadline pressures or requirements for developing reverse engineering and/or secondary innovation, common in the experiences of South Korea and China, respectively, Still, Brazilian developmentalism built a diversified economy, a primary condition for the *internal integration* of the national economy, although still distant from international value chains, and furthermore marked by a dominance of multinational companies and a significant concentration of income, aggravating restrictions on the building of innovative capability in the Brazilian economy by companies and the strengthening of the domestic mass market. In the trajectories of the central countries, the domestic market stimulated technological development and spurred innovation to increase productivity, whether to occupy more prominent positions in the competitive world arena or to circumvent cost pressures from rising wages (Furtado, 1979).

Trade liberalization, given pressure from imports, narrowed the timing available to companies to deal with the dilemmas of *discovery costs*, requiring speed in the adaptation and harmonizing of new equipment – mostly acquired in the international market – both with the raw materials available in the country and among themselves (Castro, 1997; 2002). Credit policies and tax exemptions in tandem have helped; however, a recurrently overvalued exchange rate and a high interest rate have tended to dilute the impact of industrial policy even when it includes regression processes (Bresser-Pereira, 2012). Thus, the hazards to the internal integration of the Brazilian economy through a weakening of important links in several supply chains are evident.

The approximation between companies and the science and technology system and the improvement of the regulatory environment, combined with the expansion of funding lines for innovation, are all important for the fostering of an innovative business culture, to be sure, but have no immediate impact on the competitiveness of enterprises and their investment decisions. Instruments such

16 'Internationalization' refers to the most important segments of industrial production for the domestic market being controlled by multinational companies. Florestan Fernandes uses this term to designate an advanced stage of dependent capitalism.

as public procurement have been more effective, because they reduce company uncertainty, as has been shown by Petrobras's action for the recovery of the local shipping industry (prior to the political and economic crisis that deepened in 2015; however, this recovery has, since, been annulled). Another example is the drug procurement policy by the Unified Health System (Sistema Único de Saúde, SUS), which has increased the participation of domestic pharmaceutical companies in the internal market and driven national investment in innovation. The expansion of this instrument to other activities must therefore be considered. Notably, government procurement is a major innovation incentive mechanism in the United States. Given the urban mobility bottlenecks in Brazil, public procurement could, for instance, incentive manufactures with high local content in automotive and vehicle production, within a global perspective of increasing the weight of public transport.

The challenges of Brazilian industrial policy in a scenario of escalating competitive pressure are not limited, however, to defining the best policy instruments. In addition to facing the dilemmas of the exchange rate and of an abnormally high basic interest rate, one must address certain legacies from the developmental trajectory that tend today to affect, more intensely than in the past, the effectiveness of industrial policy.

The Brazilian tax structure is one of these legacies. Constituted in a scenario where a closed, protective market allowed indirect taxes to be most prevalent, easily transferable to consumers, the current tax structure penalizes production, makes products more expensive, reduces company competitiveness, and given its regressive character, reduces any impulse to promote a mass consumption market. The existence of this market is a very recent achievement, still incipient, and is jeopardized by the current non-elected government's income-concentration measures. The preservation and expansion of this market are key to ensuring the virtuous circle of income growth, enhanced consumer well-being and innovative ability. It is not therefore a matter of *reducing* the tax burden homogeneously, as this would hinder income transfer policies, the universalization of social rights and State investment capability as well as bringing about predatory efforts to increase competitiveness. What is suggested is to increase taxation on income, property, conspicuous consumption, imports and speculative gains in order to boost

enterprise competitiveness – both when competing in the domestic market with imports and in performance as exports.

The weight of multinational companies in the Brazilian industrial structure is another legacy that affects the impact of innovation policies. It is not possible, of course, to simply redo the Brazilian trajectory. However, efforts towards the *nationalization* of multinational R & D programs and projects should be emphasized, as well as prioritizing in investment-attraction policies the internalization of components capable of adding value to products manufactured in Brazil.

The deficiencies in Brazilian infrastructure are another legacy from the *old developmentalism*, given the possibility, absent in a less protective economy, of transferring to the population at large their impact on the cost of products. Therefore, an increase in public and private investment in economic and urban infrastructure, with the promotion of PPPs, is a key initiative for raising Brazilian competitiveness.

In spite of the issues mentioned above, the *old developmentalism* bequeathed to Brazil, aside from a diversified industrial structure and a significant domestic market, entities that survived the economic reforms such as BNDES and Petrobras. Their presence in the scenario opened by the opportunities arising from the exploration of large reserves of deepwater pre-salt offshore oil provides a glimpse of trajectories capable of overcoming the present difficulties, mitigating the consequences on the balance of payments that have always accompanied periods of growth in the country, funding solutions for old issues in education and health, creating a *window of opportunity* for making choices regarding what can and should be preserved in the current industrial structure, as well as regarding what should be promoted to secure more *central* positions in potentially core activities in the new technological paradigms, such as new energies and biotechnology. In this case, the construction of a new agreement to overcome certain ideological prejudices may be necessary, acknowledging the need to expand government investment in promoting infant industries.

Making choices within a national project requires the creation of permanent mechanisms of interaction between the key actors and stakeholders and building

consensus to support the initiatives to be developed. These are, perhaps, the greatest challenges facing Brazilian industrial policy. Neither during nor since the times of the *old developmentalism* have joint forums been consolidated that could bridge the gap between the State and the business community by building mutual trust and establishing effective commitment. Either the forums had a merely ratifying character or merely served a cacophonous expression of sector interests, notwithstanding noteworthy exceptions such as the Federal Board of Foreign Trade (Conselho Federal de Comércio Exterior, CFCE) in the 1930s and 1940s and CNDI during the first Lula administration, which sprang from the performance of strong leaders, both political and from the business world, such as Vargas and Simonsen and later Lula and Furlan (Diniz, 1978; Leopoldi, 2000; Delgado, 2001; de Toni, 2013). The low level of effectiveness of business-State forums is due, at least in part, to the discontinuity of the institutional architectures that have been built and the low capability of business entities for regimentation. There are no ready-made recipes, but the experience of some success stories such as that of Germany reveals that the empowerment of entities for the *direct* engagement with companies, covering both training and wage bargaining, would enhance regimentation capability (Hall and Soskice, 2001; Delgado et al., 2010). Given the size of the Brazilian corporate entities, this is a goal to be considered.

The definition of more-permanent coordinating bodies – relatively immune to fluctuations in the political cycle, yet with full accountability – would favor continuity in the development and implementation of industrial policy. Regardless of its importance as a source of diagnoses, proposal formulating and program conducting, ABDI's experience suggests that to be effective, such a body should be anchored in the more-robust agencies that implement industrial policy, which in the Brazilian tradition are BNDES and Petrobras, or else be placed near the top of the State structure.

Obstacles to the operation of dialogue mechanisms with the business community and during the implementation of industrial policy also show up, however, quite aside from institutional design. In Brazil, the weight of multinationals, as well as the unregulated operation and high gains of financial capital (which tend to absorb industrial funds whenever difficulties are perceived in their conventional activities), render great influence to neoliberally biased

critiques of official proposals and formulations. Therefore, as pointed out in the Indian Manufacturing Plan in 2012, it is important to communicate the goals and projects in industrial policy to a wider audience and the public at large. The media and press, strongly conservative, hold disproportional power and are frequently a destabilizing force. In conducting Brazilian industrial policy, this is a challenge to be faced and overcome, if the goal is to build a national development project.

TABLE A.1
Gross domestic product (GDP) total and per capita (1990s and 2000-2013)
(U$S) [1]

Year	Country					
	Brazil		China		India	
	Total	Per capita	Total	Per capita	Total	Per capita
1990s average	616.046.70	3.803.46	709.955.70	584.47	360.027.30	385.64
2000	644.734.00	3.696.33	1.198.477.00	945.60	474.570.00	461.11
2001	554.185.00	3.133.16	1.324.814.00	1.038.04	492.736.00	470.17
2002	506.043.00	2.822.49	1.453.833.00	1.131.80	522.715.00	491.24
2003	552.383.00	3.041.20	1.640.961.00	1.269.83	618.186.00	572.13
2004	663.734.00	3.609.73	1.931.646.00	1.486.02	721.589.00	657.52
2005	882.043.00	4.742.50	2.256.919.00	1.726.05	834.218.00	748.85
2006	1.089.255.00	5.795.20	2.712.917.00	2.063.87	949.117.00	839.93
2007	1.366.854.00	7.201.62	3.494.235.00	2.644.56	1.238.478.00	1.080.70
2008	1.653.538.00	8.632.72	4.519.951.00	3.403.53	1.223.206.00	1.052.67
2009	1.622.311.00	8.395.03	4.990.526.00	3.739.62	1.365.343.00	1.158.91
2010	2.142.905.00	10.992.27	5.930.393.00	4.422.66	1.710.997.00	1.432.25
2011	2.474.635.00	12.583.64	7.321.986.00	5.434.36	1.872.846.00	1.546.55
2012	2.253.090.00	11.358.54	8.221.015.00	6.071.47	1.841.717.00	1.500.76
2013	2.190.218.00	10.957.61	8.939.327.00	6.569.35	1.758.216.00	1.414.11

Source: World Monetary Fund l (WMF) – World Economic Outlook Database.
Available at: <http://goo.gl/CxXh3O>. Accessed October 2013.
[1] 2011.

TABLE A.2
Growth of GDP total and per capita at constant prices (1990s and 2000-2013)
(In %)

Year	Country					
	Brazil		China		India	
	Total	Per capita	Total	Per capita	Total	Per capita
1990s average	1.66	3.88	10.00	60.77	5.63	14.67
2000	4.31	2.82	8.43	7.61	4.03	2.11
2001	1.31	-0.09	8.30	7.55	5.22	3.33
2002	2.66	1.28	9.08	8.38	3.77	2.20
2003	1.15	-0.16	10.03	9.37	8.37	6.72
2004	5.71	4.42	10.09	9.44	7.86	6.20
2005	3.16	1.99	11.31	10.66	9.29	7.66
2006	3.96	2.87	12.68	12.08	9.26	7.72
2007	6.09	5.06	14.16	13.57	9.80	8.27
2008	5.17	4.21	9.64	9.08	3.89	2.46
2009	-0.33	-1.21	9.21	8.68	8.48	6.99
2010	7.53	6.60	10.45	9.92	10.55	9.02
2011	2.73	1.84	9.30	8.78	6.33	4.89
2012	0.87	0.00	7.70	7.17	3.24	1.87
2013	2.54	1.76	7.60	7.07	3.80	2.45

Source: World Monetary Fund l (WMF) – World Economic Outlook Database.
Available at: <http://goo.gl/CxXh3O>. Accessed October 2013.

TABLE A.3
Gross fixed capital formation (1990s and 2000-2011)
(In% of total GDP)

Year	Country					
	Brazil	China	India	South Korea	Germany	United States
1990s average	18.47	31.70	24.75	34.68	22.18	17.68
2000	16.80	34.27	23.43	30.04	21.50	20.00
2001	17.03	34.63	24.24	28.84	20.10	19.33
2002	16.39	36.22	24.40	28.67	18.41	18.22
2003	15.28	39.15	25.86	29.31	17.81	18.17
2004	16.10	40.50	29.98	29.17	17.42	18.77
2005	15.94	39.67	31.45	28.93	17.32	19.48
2006	16.43	39.58	32.45	28.71	18.10	19.66
2007	17.44	39.10	33.99	28.61	18.48	18.91
2008	19.11	40.67	33.63	29.41	18.62	17.77
2009	18.07	45.24	33.42	28.86	17.29	15.15
2010	19.46	45.57	32.50	28.13	17.50	14.41
2011	19.28	46.23	32.31	27.44	18.19	14.66

Source: United Nations Conference on Trade and Development (Unctad) - UNCTAD Statistics. available at:<Http://unctad.org/en/Pages/Statistics.aspx>. Accessed: November 2013.

TABLE A.4
Human Development Index – HDI (1990 and 2000-2012)

Year	Country					
	Brazil	China	India	South Korea	Germany	United States
1990	0.590	0.495	0.410	0.749	0.803	0.878
2000	0.669	0.590	0.463	0.839	0.870	0.907
2005	0.699	0.637	0.507	0.875	0.901	0.923
2006	0.704	0.650	0.515	0.882	0.905	0.926
2007	0.710	0.662	0.525	0.890	0.907	0.929
2008	0.716	0.672	0.533	0.895	0.909	0.931
2009	0.719	0.680	0.540	0.898	0.914	0.930
2010	0.726	0.689	0.547	0.905	0.916	0.934
2011	0.728	0.695	0.551	0.907	0.919	0.936
2012	0.730	0.699	0.554	0.909	0.920	0.937
1990	0.590	0.495	0.410	0.749	0.803	0.878
2000	0.669	0.590	0.463	0.839	0.870	0.907
2005	0.699	0.637	0.507	0.875	0.901	0.923

Source: United Nations Development Programme (UNDP) – Human Development Index (HDI). available at:< <http://goo.gl/u6mjim>. Accessed: Oct. 2013.

TABLE A.5
Gini Coefficient (1992-2010)

Year	Country					
	Brazil	China	India	South Korea	Germany	United States
1992-1994	60.8	35.5	30.82	-	-	-
1995-1997	60.53	35.7	-	-	-	-
1998-2000	59.78	39.23	-	31.59	28.31	40.81
2001	60.13	-	-	-	-	-
2002	59.42	42.59	-	-	-	-
2003	58.78	-	-	-	-	-
2004	57.68	-	-	-	-	-
2005	57.42	42.48	33.38	-	-	-
2006	56.77	-	-	-	-	-
2007	55.89	-	-	-	-	-
2008	55.07	42.63	-	-	-	-
2009	54.69	42.06	-	-	-	-
2010	-	-	33.9	-	-	-

Source: World Bank - Poverty and Inequality Database. Available at: <http://goo.gl/647KNW>. Accessed: Oct. 2013.
Note: When the selection is equivalent to a time interval, the data is for the last year available

TABLE A.6
Industry participation in the GDP (1990s and 2000-2011)
(In %)

Year	Country					
	Brazil	China	India	South Korea	Germany	United States
1990s average	23.91	39.73	21.68	29.35	26.68	21.34
2000	22.21	40.35	20.66	31.62	25.23	18.36
2001	21.61	39.74	19.98	29.99	24.92	17.22
2002	21.77	39.42	20.60	29.56	24.42	16.90
2003	23.16	40.45	20.22	29.13	24.55	16.70
2004	25.02	40.97	20.42	30.88	25.05	17.05
2005	24.38	41.76	20.49	30.61	25.23	17.02
2006	24.02	42.21	20.90	30.19	26.09	17.06
2007	22.95	41.58	20.78	30.25	26.42	16.92
2008	23.00	41.48	20.05	30.02	25.93	16.75
2009	21.58	39.67	19.58	30.41	23.33	15.69
2010	22.42	40.03	19.22	33.07	25.26	16.45
2011	21.75	39.99	18.26	33.84	26.21	16.30

Source: Unctad – Unctad Statistics . Available at: <http://unctad.org/en/Pages/Statistics.aspx>. Accessed Nov. 2013.

TABLE A.7
Spending on innovation as a proportion of GDP (1990 and 2000-2011)
(In %)

Year	Country					
	Brazil	China	India	South Korea	Germany	United States
1990s average	-	0.66	0.68	2.37	2.28	2.59
2000	1.02	0.90	0.75	2.30	2.47	2.71
2001	1.04	0.95	0.73	2.47	2.47	2.72
2002	0.98	1.07	0.71	2.40	2.50	2.62
2003	0.96	1.13	0.71	2.49	2.54	2.61
2004	0.90	1.23	0.74	2.68	2.50	2.55
2005	0.97	1.32	0.78	2.79	2.51	2.59
2006	1.01	1.39	0.77	3.01	2.54	2.65
2007	1.10	1.40	0.76	3.21	2.53	2.72
2008	1.11	1.47	-	3.36	2.69	2.86
2009	1.17	1.70	-	3.56	2.82	2.91
2010	1.16	1.76	-	3.74	2.80	2.83
2011	-	1.84	-	-	2.84	2.77

Source: United Nations Conference on Trade and Development (Unctad) - UNCTAD Statistics. available at: <Http://unctad.org/en/Pages/Statistics.aspx>. Accessed: November 2013.

TABLE A.8
Distribution of spending on innovation: companies, public sector, foreign investors and others[1] (1990 and 2000-2011)
(In %)

Year	Country											
	Brazil				China				India			
	Companies	Public Sector	Foreign	Others	Companies	Public Sector	Foreign	Others	Companies	Public Sector	Foreign	Others
1990s avge	-	-	-	-	-	-	-	-	24.43	75.57	-	0.00
2000	44.70	54.10	-	1.20	57.60	33.40	2.70	6.30	18.00	82.00	-	0.00
2001	43.80	54.80	-	1.40	-	-	-	-	19.30	80.70	-	0.00
2002	45.00	53.30	-	1.70	-	-	-	-	19.30	80.70	-	0.00
2003	43.80	54.20	-	2.00	60.10	29.90	1.90	8.10	22.30	77.70	-	0.00
2004	44.50	53.50	-	2.00	65.70	26.60	1.30	6.40	25.00	75.00	-	0.00
2005	48.30	49.70	-	2.00	67.00	26.30	0.90	5.80	30.40	69.60	-	0.00
2006	48.20	49.90	-	1.90	69.10	24.70	1.60	4.60	32.10	67.90	-	0.00
2007	45.60	52.10	-	2.30	70.40	24.60	1.30	3.70	33.90	66.10	-	0.00
2008	45.50	52.30	-	2.20	71.70	23.60	1.20	3.50	-	-	-	-
2009	46.30	51.60	-	2.10	71.70	23.40	1.30	3.60	-	-	-	-
2010	45.40	52.70	-	1.90	71.70	24.00	1.30	3.00	-	-	-	-
2011	-	-	-	73.90	21.70	1.30	3.10	-	-	-	-	-

TABLE A.8 (continuation)
Distribution of spending on innovation: companies, public sector, foreign investors and others [1] (1990 and 2000-2011)
(in %)

Year	Country											
	South Korea				Germany				United States			
	Companies	Public Sector	Foreign	Others	Companies	Public Sector	Foreign	Others	Companies	Public Sector	Foreign	Others
1990s avge	71.63	23.50	0.10	4.78	62.18	35.23	2.25	0.35	64.65	30.85	-	4.50
2000	72.40	23.90	0.10	3.60	66.00	31.40	2.10	0.50	69.40	25.80	-	4.80
2001	72.50	25.00	0.50	2.00	65.70	31.40	2.50	0.40	67.70	27.20	-	5.10
2002	72.20	25.40	0.40	2.00	65.50	31.60	2.40	0.50	65.20	29.10	-	5.70
2003	74.00	23.90	0.40	1.70	66.30	31.20	2.30	0.20	64.30	30.00	-	5.70
2004	75.00	23.10	0.50	1.40	66.60	30.50	2.50	0.40	63.70	30.90	-	5.40
2005	75.00	23.00	0.70	1.30	67.60	28.40	3.70	0.30	63.70	29.80	-	6.50
2006	75.40	23.10	0.30	1.20	68.30	27.50	3.80	0.40	64.30	29.90	-	5.80
2007	73.70	24.80	0.20	1.30	68.10	27.50	4.00	0.40	64.90	29.10	-	6.00
2008	72.90	25.40	0.30	1.40	67.30	28.40	4.00	0.30	63.70	30.20	-	6.10
2009	71.10	27.40	0.20	1.30	66.10	29.80	3.80	0.30	61.00	32.50	-	6.50
2010	71.80	26.70	0.20	1.30	65.60	30.30	3.90	0.20	61.00	32.50	-	6.50
2011	-	-	-	-	-	-	-	-	60.00	33.40	-	6.60

Source: UNESCO - UNESCO Institute of Statistics. Available at: <http://goo.gl/0y6RWJ>. Accessed: Nov. 2013.
Note: [1] Refers to 5% of total spending on innovation.

TABLE A.9
Patents in the European Patent Office (EPO) and United States Patent and Trademark Office (USPTO): applications[1] (1990 and 2000-2011)
(in %)

Year	Country											
	Brazil		China		India		South Korea		Germany		United States	
	EPO		EPO		EPO		EPO		EPO		EPO	
1990s avge	0.08	0.06	0.09	0.09	0.07	0.07	0.63	1.88	19.20	6.78	29.37	52.87
2000	0.10	0.07	0.28	0.25	0.15	0.18	1.09	2.23	18.98	6.28	27.51	53.00
2001	0.12	0.07	0.36	0.32	0.24	0.28	1.43	2.95	19.12	6.21	27.57	52.67
2002	0.11	0.07	0.49	0.46	0.38	0.38	1.99	3.66	18.52	5.77	28.04	52.68
2003	0.14	0.07	0.67	0.62	0.42	0.40	2.71	4.71	17.99	5.63	27.51	51.22
2004	0.14	0.08	0.76	0.79	0.40	0.44	3.43	5.08	17.68	5.76	27.21	50.08
2005	0.15	0.06	1.23	1.26	0.44	0.47	3.81	5.75	17.78	5.48	27.38	48.94
2006	0.17	0.08	1.38	1.59	0.43	0.54	3.86	6.53	18.02	5.18	25.75	48.06
2007	0.20	0.08	1.81	1.88	0.48	0.61	3.52	5.57	18.60	4.60	24.09	49.77
2008	0.23	-	2.15	-	0.56	-	3.16	-	18.46	-	23.95	-
2009	0.20	-	3.09	-	0.64	-	3.74	-	18.37	-	23.20	-
2010	0.22	-	3.70	-	0.72	-	3.69	-	18.50	-	22.28	-
2011	-	-	-	-	-	-	-	-	18.47	-	21.63	-

Source: Eurostat. Available at: <http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database>. Accessed: Nov. 2013.

Note: [1]Proportion of total patent applications.

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CHAPTER 6

INFRASTRUCTURE PROJECT IMPLEMENTATION AND THE (RE)PRODUCTION OF SOCIAL INEQUALITY: THE CASES OF THE BELO MONTE DAM AND THE TRANSNORDESTINA RAILWAY

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1. INTRODUCTION

The second half of the 2000s was marked by a resumption of State action in the development and implementation of infrastructure projects in Brazil. The sectors that stood out the most, in terms of public investment, were energy and transportation (Pinheiro and Castelar, 2014). The construction of power plants and road infrastructure were the main pillars of the Growth Acceleration Program (Programa de Aceleração do Crescimento, PAC) across its two phases (2007–2010 and 2011–2016). The project selection criteria emphasized the official discourse that these projects would leverage local and regional development and reduce social and regional inequality (Brazil, 2011). In spite of this clear objective, the implementation of some projects aggravated existing inequalities or even contributed to create new ones. The arrival of large construction projects in territories where the presence of the State and public policy was precarious, if not absent, often generated new social tensions, with the influx of large amounts of temporary workers to the worksites burdening local public services and changing the way of life of local populations.

In this chapter, we examine the idea that the implementation of infrastructure projects is liable to impact the (re)production of inequalities involving historically marginalized populations and territories in Brazil. Two cases were selected for review, major infrastructure construction projects that had significant impacts

upon local populations, especially minorities. At the same time, due to the conflicting dynamics entailing their implementation, the latter underwent substantive changes along the process. The selected cases were the Belo Monte Hydroelectric Plant (Usina Hidrelétrica de Belo Monte, UHEBM) and the Transnordestina Railway (Ferrovia Transnordestina, FTN), in the North and the Northeastern regions, respectively, of Brazil.

The Belo Monte Dam on the Xingu River, a tributary of the Amazon River, in the state of Pará was inaugurated in April 2016. Belo Monte has strategic importance for the national energy matrix, since the plant would potentially represent the second- largest Brazilian hydroelectric plant in terms of installed electric potential.[1] In the 2010s, when the decision-making process for Belo Monte intensified, the argument posed by officials, including the Chief of Staff, to justify the construction of this plant was that it was essential for the maintenance of Brazil's economic growth (Pereira, 2013, 2014). In spite of this compelling rationale, the project's history was marked by social conflict and denunciation that its implementation would involve socioenvironmental impact risk to vulnerable communities, not to mention overloading the precarious local capacity to provide basic social services. The initial disputes arose as a reaction to Eletronorte's first version of the project from 1975 to 1980. In the original project, Belo Monte would flood an area of 1160 km^2, flooding part of two Indigenous Reservations (Terras Indígenas), Paquiçamba and Arara da Volta Grande do Xingu. The plant design was modified in the 1990s to reduce the flooded area, but negative consequences for vulnerable populations remained, including a Reduced Instream Flow stretch of the river affecting indigenous communities and loss of fishing access in some stretches of the river.

The Transnordestine Railway's cornerstone was laid down in 2006 in the municipality of Salgueiro, Pernambuco, by President Luiz Inácio Lula da Silva. The purpose of the railroad was to link the region of the southern Piauí *cerrado* semiarid region to the main ports of the Northeast, namely Suape in Pernambuco and Pecém in Ceará. Its route crosses key farming and mining regions, which are

[1] The power potential of the dam is 11233 MW (peak power – with a baseline of 4400 MW), with a flooded area of 516 km^2. http://g1.globo.com/economia-e-negocios/noticia/2010/04/belo-monte-sera-hidreletrica-menos-produtiva-e-mais-cara-dizem-tecnicos.html.

only economically feasible with rail transportation, given the weight and volume of the goods produced there. The coming of the railroad was pitched as having a developmental aura, capable of bringing social development and income to a pauperized population in the interior of the country. However, its implementation was also fraught with problems and conflicts. To begin with, several flaws in the project's design and issues in the socioenvironmental licensing processes only came to light in 2009, three years after the beginning of the work. Thus the budget had to be increased more than once, reaching R$11 billion (around US$3 billion) in a 2014 review. Moreover, there was a high level of conflict around the impact of the project's construction, both regarding the smallholders and small landholders affected by the over four thousand expropriation lawsuits and the widespread violation of the rights of traditional populations along the route (Machado, 2016).

Thus, the present objective is to investigate the relation between the conformation and transformation dynamic these projects' implementation arrangements underwent and their effect on social inequality. To address this issue, the following questions will be asked: (*a*) Did the interaction among actors and instruments explain the arrangement outcomes? (*b*) Did the arrangements produce or exacerbate social inequalities in the vicinity of the infrastructure project works? (*c*) To what extent were the arrangements flexible enough to address negatively impacted social groups? and (*d*) What were the effects of the changes in the arrangements, with respect to the (re)production of social inequalities?

To investigate these questions, the cases will be reviewed and compared at different moments in time, as any dynamic analysis of the arrangements will require a diachronic assessment. The case studies are based on official sources and secondary material highlighted by the reviews by Pereira (2013, 2014) and Machado (2016).

In addition to this introduction, this chapter includes four more sections. The definition and operationalization of the concept of implementation arrangement, and its relation to the (re)production of inequalities, is presented in section two. Section three reviews the selected project arrangements. A comparative analysis of the cases is presented in section four. The main findings and answers to the questions then follow in the conclusion.

2. IMPLEMENTATION ARRANGEMENTS AND PUBLIC POLICY INSTRUMENTS

Analysing public policies exclusively in terms of their formulation (diagnoses and proposals) may lead to a simplified, naive view of actual State intervention processes. It is the interaction among actors inserted in specific political-institutional contexts, often involving conflicting interests, that materializes public policies. In this process, the initial formulations of plans, programs and projects can be transformed or even thwarted. The specialized literature has already shown that implementation entails several consequences that alter the content and the form of policies; the analysis of this process is central to the understanding of State action and its impacts (Pressom and Wildavsky, 1973; Gomide, Silva and Pires, 2014).

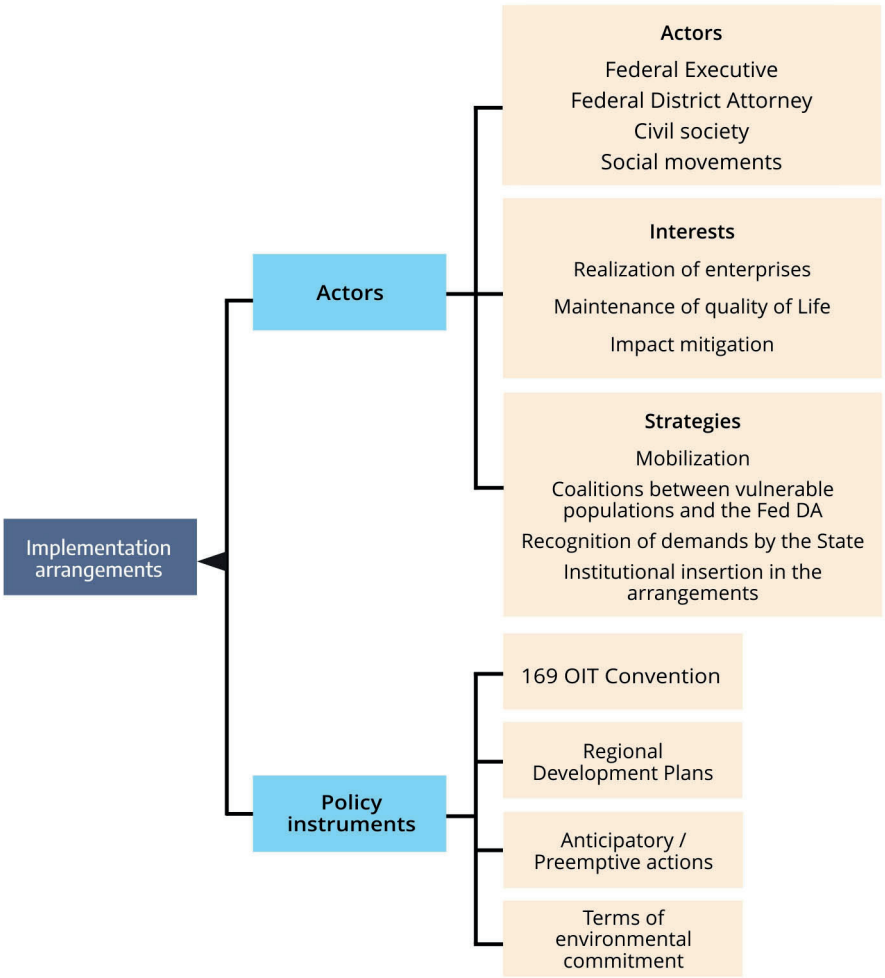
Public policies depend for their realization on a conformation of specific arrangements to support their implementation (Pires and Gomide, 2016). Such arrangements can be understood as the set of rules, procedures and instruments that define the modes of interaction among the various actors involved in any given enterprise. In this sense, these arrangements function as structures for the distribution of power by defining competencies, possibilities of participation and allocation of resources among stakeholders. For this reason, implementation arrangements are naturally contentious, because they create or reproduce rules and instruments that benefit certain social groups in detriment of others (Moe, 2005; Le Galès, 2013).

In turn, public policy instruments provide concreteness to State actions. For Lascoumes and Le Galès (2007), such instruments are technical and social devices that organize the relations between a government and its people. The instruments are influenced by political relations, precisely because they bear material effects upon the implementation of public policies.

For Capano et al. (2015), actors are perfectly aware that the specific characteristics and details the arrangements and instruments assume will generate impact on the interests the actors pursue. Furthermore, they are cognizant that the positions they hold in the arrangement will represent a source of power. Thus, these arrangements are at the center of constant political dispute. As actors pursue their goals and interests, they vie to secure the best position, both within the arrangement and regarding the selection of instruments.

For the purposes herein, the concept of implementation arrangement will be defined as 'the set of State and non-State actors, in specific institutional contexts, using instruments to pursue their goals'. A conceptual clarification for use with the analysed cases follows in Figure 1.

Figure 1. Operationalization of the concept of implementation arrangements



It is understandable that a given arrangement, as initially formulated, which brings together a specific group of actors, will be altered throughout a project's implementation cycle. The arrangements are dynamic (Capano et al., 2015). As the arrangements are institutionalized, the study of their transformation processes can be carried out through institutional change reviews.[2]

In this sense, Mahoney and Thelen (2009) argue that the institutions' basic characteristics contain their own possibilities for change. With regard to our work, we can trace three factors that influence arrangement transformation processes and consequently affect the results attained by these arrangements: the asymmetric effects of *power distribution*, the degree of *institutional representativeness* and the *timing* in which the actors and instruments are incorporated within the arrangement. These factors have operated throughout the arrangements here reviewed and produced the inclusion or exclusion of actors, the creation of instruments and affected preexistent inequalities.

These arrangements, once adopted, become institutionalized and thus resilient to radical change (Pierson 2004). Therefore, the accommodation of new stakeholders and demands within an arrangement is usually made within the existing institutional framework. For this reason, late-stage changes in the institutions often produce only limited results (Menicucci, 2014).

3. THE CASES OF THE BELO MONTE DAM AND THE TRANSNORDESTINE RAILYWAY

This section examines the implementation arrangements of the Belo Monte Hydroelectric Plant and the Transnordestina Railway and their effects upon social inequalities.

3.1 – The Belo Monte Hydroelectric Power Plant

Next, follows a review of the evolution of the plant's implementation arrangement focusing on the 2005–2010 period, which represents the late stage

[2] Implementation arrangements can be seen as institutions, because they represent a set of relations that influence the behaviour of actors, determining what parties are able to participate in a given process, its object and objectives. Therefore, the arrangements contribute to reducing the uncertainty regarding the behaviour of several actors and to stabilizing expectations, thus facilitating the execution of a given project (Machado, Gomide and Pires, 2018).

of the decision-making process of the dam, after the project kick-off through the approval of Decree 788/2005 by the National Congress, and the 2011–2013 period, the first two years of the plants implementation process.

In 2005, Congress approved the Belo Monte project, following the legal determinations of articles 170 and 231 of the 1988 Brazilian Constitution, which states the need to organize prior consultation with the indigenous communities affected by such a plant. In the case of Belo Monte, these communities would be impacted by the creation of the Reduced Instream Flow stretch. This tract spans a 100 km area which, amongst other impacts, would cause drought in the Arara (da Volta Grande do Xingu) and (Juruna do) Paquiçamba reservations (Jaichand and Sampaio, 2013; Magalhães and Hernandez, 2009). Regardless of the foreseen impact, the decree was passed in the record time of less than fifteen days in both legislative houses; nor did the National Congress hold any indigenous hearings whatsoever. The way in which the decree was approved motivated the appearance of countless contestation foci and the mobilization of several actors, resulting in a strong coalition being formed among indigenous groups, academics and scientists, human rights movements and advocacy groups (including the bishop-organized Conselho Indigenista Missionário) and the Federal District Attorney.

The decree was followed by a natural acceleration in the plant decision-making processes. In 2006, the environmental licensing process began under the auspices of the Brazilian Institute for the Environment and Renewable Natural Resources (Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renováveis, IBAMA). The subsequent environmental impact studies made it evident that several negative consequences from implementation would impact specific populations, jeopardizing fishing in long tracts of the river and reducing the area of surrounding fields used for farming. In addition, the attraction of a large populational flow would bring about an increase in crimes against women and multiply severalfold the murder rate in surrounding towns,[3] and overtax such precarious basic social services as were available, i.e. local clinics and schools (Pereira, 2014). This led to the organization of several regional and national actors in the years following the opening of the environmental licensing process, including the

3 https://noticias.uol.com.br/cotidiano/ultimas-noticias/2017/03/04/depois-de-belo-monte-altamira-pa-supera-taxa-de-homicidios-de-pais-mais-violento-do-mundo.htm.

Movement of Women Workers in the Farms and City of Altamira (Movimento das Mulheres Trabalhadoras do Campo e da Cidade de Altamira), rural trade unions, the progressive wing of the Catholic Church, the Socioenvironmental Institute (Instituto Socioambiental) and the Xingu Alive Movement (Movimento Xingu Vivo para Sempre). Protests against the plant intensified and lawsuits often halted the environmental licensing process.

Unlike the context of the first cycle of environmental mobilizations in the 1980s, in the 2000s the implementing arrangements for hydropower in Brazil involved decentralized decision-making, because the government bureaucracy responsible for electric utilities now had to share power with environmental and traditional community rights agencies. Both Ibama (the federal environmental agency*)* and Funai (the federal indigenous tribe protection agency) participated formally in the decision-making process (Hochstetler and Keck, 2007).

The first effect this arrangement had on the State's ability to process social conflicts and mitigate the plant's impacts was the holding of four public hearings in 2009. These hearings were organized by Ibama and culminated in the entering into the record of several technical contributions from civil society regarding the plant's impacts, such as the Expert Panel studies (Magalhães and Hernandez, 2009). Ibama technicians praised these contributions as essential to enable the agency to understand that the plant's main impact was its social implications, in that several groups would be exposed to an increase in vulnerability. This representation of civil society within the arrangement produced a second result, the elaboration by Ibama of a checklist of requirements in the prior license, called 'anticipatory actions'. Their purpose was to create requirements for the completion of the next stage (the issuing of the 'installation license'), which would require the prior delivery of a series of projects to improve local infrastructure and the provision of basic social services. These actions were to be carried out prior to the start of the plant's implementation (i.e construction) to prepare the region for the project and thus avoid adverse social impacts.

In spite of enabling inclusive instruments, such as public hearings and the 'anticipatory actions', the arrangements at that moment hindered effective conflict management. The key obstacles derived from three factors: the ephemeral nature of the actions by the actors and instrument implementation, the unequal

distribution of roles and powers among the actors within the arrangement and the weak participation of environmental agencies and civil society within the arrangement. Unlike Ibama and Funai, which acted only during Belo Monte's environmental licensing, the government entity for electric utilities remained involved throughout the decision-making and implementation cycles, from the preparation and approval of the inventory studies on the Xingu River basin and Belo Monte's viability studies to the setting and monitoring of the implementation schedule. This revealed an unbalanced concentration of power in the electric bureaucracy in detriment of Ibama's environmental stewardship decisions, which had minor effects, and in detriment of the impacted local stakeholders, who were only weakly represented.

These obstacles were highlighted at two moments in the environmental licensing process. In 2009, shortly after the public hearings, Ibama technicians working on the project pointed out in Technical Report 114/2009 that they were unable to analyse in depth the contributions from the public hearings, because a memo from the president of the government utility entity requested they cut short these analyses, due to looming deadlines for the start of implementation. The technicians affirmed that the prior license had been approved amidst an atmosphere of intense uncertainty regarding the project's impacts and under strong political pressure. In January 2011, the approval of the installation license occurred despite the release of several technical notes by Ibama mentioning the noncompliance with several requirements among the 'anticipatory actions' (Pereira, 2014).

In this scenario, the implementation stage began with the project and its arrangement being publicly regarded as having low political legitimacy, which spurred on the protests and lawsuits. The Federal District Attorney moved class action lawsuits for cancelling the construction bid and revoking the installation license. The state of Pará's Public Defense office also filed lawsuits defending the rights of the affected population. At the same time, awareness grew within the federal government that infrastructure projects in the Amazon needed to avoid the mistakes incurred during the 70s and 80s, regarding their intense socioenvironmental impacts, and should furthermore be used to leverage and 'lead' federal action into regions lacking basic social services, extending the State's reach (Abers, Oliveira and Pereira, 2016).

This context produced new adjustments in the arrangement that resulted in an inclusion of new actors, notably the Secretary of the President's Office (Secretaria Geral da Presidência da República, SGP). This office's action was triggered by the minister of SGP, Gilberto de Carvalho, in January 2011, requesting that two officials from the National Secretary for Social Coordination visit the impacted region on the Xingu River and dialogue with key stakeholders to appraise firsthand how the plant's construction process was unfolding. This office's involvement was a direct result of intensified mobilization against the plant. At that juncture, some groups, notably the Bishop's Prelature of Xingu, through Dom Erwin, and several indigenous communities, represented by the celebrity Native American congressman, Chief Raoni, advised President Lula regarding the impacts the plant would have. In this context, the federal government strove to avoid the project coming in for the same criticism as had previous infrastructure projects in the Amazon, and to facilitate greater participation by and representation of social groups in the arrangement.

In addition to the SGP, social actors and state and municipal governments were also brought into the arrangement. These actors' participation and management occurred through additional inclusive instruments. The Xingu Regional Development Plan (Plano de Desenvolvimento Regional do Xingu, PDRS-X,) and its steering committee led by the Chief of Staff was established. The committee was composed of five representatives from the municipal, five from the state, and five from the federal government; and in addition, fifteen representatives from civil society. Its decree mandated a certain diversity among the social groups that were to be included,[4] including urban and rural employer unions, the fishing industry, the business sector, trade unions of urban, rural and fishing workers, indigenous communities, environmental activists and research institutions. This committee's main function was to decide on how to spend R$500 million (US$300 million, at the time) from the fees paid by the bid winner, Norte Energia.

Another instrument for the coordination of actors and interests was an ad-hoc 'Government House' (Casa de Governo),[5] which represented the presence

4 Decree 7340 / 2010.

5 Decree 7577 / 2011.

of the federal government, in the nearby city of Altamira. This office was set up by suggestion of the SGP after they visited the region in January 2011, finding it advisable to open a special, temporary federal office to strengthen local bodies through closer interaction among federal, municipal and state governments. In addition, the Government House had the responsibility of referring the demands from impacted social groups to the relevant federal bureaucracies. The body was composed of representatives from SGP, the task of which was to formally dialogue with social movements, and the Planning Ministry, the task of which was to liaise with state-level agencies participating in federal projects in the region, in particular Belo Monte.

The new adjustments to the arrangement produced positive effects, including social and local infrastructure projects funded by PDRS-X. However, such advances remained limited, and some ongoing problems remained unresolved – notably the Reduced Instream Flow stretch of the river, which deprived three indigenous reservations, Arara da Volta Grande, Paquiçamba and Trincheira Bacajá of their access to water – and demands from social groups remained unmet, including the creation of a mitigation program for fishermen who became unable to fish. One possible explanation for the limited effects lies in the arrangement's tardiness in addressing issues concerning the inclusion of new actors and demands. The change occurred gradually, with peak decentralization and inclusion taking place only at the start of the implementation phase, during the beginning of construction. During this period, a number of decisions – such as the dam's exact siting, which would produce a Reduced Flow stretch in the river, with the attendant consequences – had already been taken. The Government House was created with deliberately little decision-making or executive power and acted mainly in intersectoral coordination and as an ombudsman. In this regard, interviewees refer to the entity as 'the bellboy', because it was limited to passing along demands and had no power of execution. Furthermore, it was created in 2011, when several problems could no longer be reversed.

3.2 – Transnordestina Railway

The Ferrovia Transnordestina (FTN) assigned nearly all responsibility regarding the implementation studies to the concessionaire, and had few clearly established contractual obligations. For instance, the original contract drafted in

the 1990s did not even mention railway construction as a concessionaire obligation. For its part, the Brazilian State assumed the duty of expropriating all required properties and land for the railway – delivering unobstructed worksites to the concessionaire – and overseeing legal and agreement compliance. The sui generis nature of the construction concession and the complexity of its implementation plan facilitated poor legal compliance and helps explain the abundance of disputes that arose along the route.

The concessionaire responsible for the construction and operation of the FTN, Transnordestina Logística SA (TLSA), had promised social and environmental licensing bodies that it would take a series of actions in exchange for the installation licenses needed to begin construction.These included mapping the villages and traditional communities in the immediate vicinity of the project route, consulting with bodies including the Palmares Afro-Brazilian Cultural Foundation (Fundação Cultural Palmares, FCP), the Small Landowner Agency or Institute of Colonization and Agrarian Reform (Instituto da Colonização e Reforma Agrária, INCRA) and Funai. However, the simultaneous development of engineering projects and socioenvironmental studies during the railroad's implantation led to several perverse impacts on the populations directly or indirectly affected by the project, one example being the lack of any mapping of the existing *quilombola*[6] territories along the route.

The consultation was done in a perfunctory manner without consideration of the records being outdated or of the new communities that had emerged. Lotta and Favareto (2018) call this process 'territorial blindness'. The communities and populations neighboring infrastructure development projects are, quite often, notified only after socioenvironmental licensing has reached an advanced stage. Most of the time, key project decisions have already been made and agreements among the large stakeholder organizations, local political actors and the business community have already been confirmed by the time the population is notified (Zhouri, 2008).

At the very beginning of the licensing process, the population was asked to participate during the public hearing phase of the process of granting the installation

6 A resident or descendent of a resident of a *quilombo,* freedom-fighting villages founded by Afro-Brazilian slaves who had escaped from captivity. https://en.wikipedia.org/wiki/Quilombola.

licenses. However, the hearing was conducted in a perfunctory manner, with the public being merely 'notified' of the project with no space allotted for questioning the project or even making suggestions about its implementation (Abers, 2018). The timing in incorporating actors, interests and new instruments, not to mention the asymmetric distribution of power within the arrangements, are the major factors that explain the poor results.

The first conflicts involving the project appeared during the expropriation phase, when real estate and land was being cleared along the strip of land the railroad would occupy. The instrument used to carry out this phase of the project was the signing of agreements between the National Department for Land Transportation Infrastructure (Departamento Nacional de Infraestrutura de Transportes Terrestres, DNIT) and the infrastructure secretaries of the states of Piauí, Pernambuco and Ceará, in 2009. According to DNIT, the establishment of these agreements with state-level entities was justified due to their knowledge of the local reality being more accurate than the federal government's. The option of negotiating with the smallholders, although foreseen in the DNIT regulations, was never explored. The agency chose to simply sue for expropriation in all cases, with the justification that this ensured fairness through the right to litigate Around 4000 lawsuits were filed in courts along the railroad route. Regarding this process, critiques written by popular lawyers in Piauí (Sousa, 2013) pointed out several irregularities: to start with, the very task of carrying out mass expropriation is extraneous to DNIT's mandate. According to Sousa (2013), the Union would be represented by each state's district attorney, configuring the unusual situation in which one federated entity sponsored an expropriation and the lawsuit's object is awarded to another, here the federal government. The process defined in the environmental licenses for the installation phase was 'negotiation and expropriation'. As it occurred in fact, the process was ruled by a clearly skewed interpretation of the environmental licensing guidelines for the railway's construction. The steps the processes should follow, as specified in the licenses, were perfectly clear and well defined; however, this was not at all the procedure used throughout project development. Testimonies from expropriated landowners reveal the process was perceived as clearly mismanaged: 'When the Transnordestina Railway arrived here in Piauí . . . they [had] barely set foot and already started off by saying: "My boy, here I have a document for you, you're being served. This is a court summons for you to go to the Justice Forum".

A court summons, for these people here, who live in the countryside . . . born and raised on the land, is akin to hitting us with an ax. There were many people who nearly panicked. Why, because they arrived impromptu [suing everyone in sight]' (Interview 1, 05/21/2015). Although the lands had a high rate of titled ownership, about 80% along the route of the railroad, this arrangement's result was a high dispute rate about the sums paid for the expropriated lands. The virtually non-existent representation of the small landowners impacted by the railway culminated in ample disregard for regional specificities and socioeconomic conditions. This contributed to worsening social inequality in a region already burdened by high levels of it. This situation escalated into the centralization of the more complex lawsuits in the courts of Brasilia, the federal capital, pointing to the difficulties in (legal) representation faced by the arrangement constructed by the DNIT and state-level infrastructure secretaries.

The poor timing of the railway's implementation also directly impacted traditional communities along its route. In 2011, the construction work entered *quilombola* territories in the southern region of Piauí, near the town of Paulistana. The intervention in *quilombola* territory was carried out in violation of both international and national legislation, specifically Convention 169 of the ILO and Presidential Decree 5051/2004, which require prior consultation with impacted communities, i.e. *before* the start of construction work in such localities.The communities of Contente and Barro Vermelho, crossed by the railway line route, had not been mapped in the initial studies done by the TLSA, however, testifying to the poor quality of the studies done for the intervention in these territories, as noted above. This inadequacy was already known to the FCP, which, in the role of intervening entity in the environmental licensing process, raised the alert concerning the important gaps in these documents during in the installation license report. The Environmental Impact Assessment (EIA) of the Transnordestine Railway, EMT tract,[7] diagnosed the need for primary and secondary data collection on potentially affected *quilombola* communities, which could not be obtained during the preliminary phases of the Impact Assessment Diagnosis. For this purpose it

[7] The 'EMT tract' is the Eliseu Martins (Piauí) – Trindade (Pernambuco) Tract, mostly across southern Piauí. For a guide on the tract codes, along with several maps, dates, statistics and budget data, see http://legis.senado.leg.br/sdleg-getter/documento/download/529b78a4-3b20-4d3f-b37c-df1ac8d6bcd8

provided for the implementation of a Verification Program on the Interference and Support to Traditional Populations, through which it would be possible to establish adequate parameters for the identification, analysis and evaluation of the impacts that would be suffered by *quilombola* communities (Brazil, 2009).

Some of the conflict caused by the environmental licensing process may be partially attributed to the weak involvement of state-level organizations in the early stages of environmental studies (Borioni et al., 2017). In the face of such asymmetries, Ibama may request additional information, or even suspend or cancel the licensing process for noncompliance with requirements. In the case of the Transnordestine Railway, the project forged ahead unmindful of any problems presented in the initial studies. It was the FCP, through its documents, that alerted the state and federal authorities to the socioeconomic conditions of the neighboring communities in the vicinity of the project.

The *quilombola* communities living in the municipal areas under potential influence of the Transnordestine Railway system (EMT tract) are in the micro-region of the Upper Middle Canindé, the population of which has low rates of human development. The municipalities here are characteristically composed of small family farmers, living in economic precariousness and social vulnerability (Brazil, 2009). The arrival of construction fronts to these *quilombola* communities took place in 2010, bringing insecurity to the residents due to the heavy influx of workers, mostly men, around their houses and families, and in the explosive detonations to open the roadbed, concerning which residents reported, 'They arrived saying there would be small blasts. And those were most certainly not small.' The concessionaire was accused of damaging several houses with the explosions. Note the entire situation unfolded without any intervention whatsoever on the part of the FCP or any other body monitoring that the environmental licensing requirements were being met. In part, this was due to the FCP or INCRA not being aware of a few new communities. However, this cannot be considered a minor oversight; the possibility of new ethnic communities demanding protective status along the route should have been considered during the initial stages of environmental licensing (Hanna et al., 2014).

The conflict between local communities and the TLSA concessionaire culminated in the shutdown of at least one construction site and the idling of machinery and equipment. Only in 2011, after mobilization by *quilombola* residents from the communities of Contente and Barro Vermelho, did the FCP begin mediating the conflict and representing the communities in the arrangement. At that point a Term of Environmental Commitment (Termo de Compromisso Ambiental, TCA) was signed by TLSA, FCP and the communities, which regulated Installation License 638/2009, covering the EMT tract. This term was an attempt to resolve the conflicts surrounding the railroad construction in southern Piauí, by forging an agreement among the *quilombola* communities, INCRA, the FCP and the concessionaire to enable the implementation arrangement. Thus, one may safely conclude that the arrangement underwent changes over time, incorporating new actors, stakeholders and demands.

However, the practical effects of the TCA were unsatisfactory for the communities, because the concessionaire only partially fulfilled its commitments. The document listed eighteen requirements for the railroad implementation process within the impacted territories. These commitments should have led to the establishment of programs benefitting the *quilombolas* to remedy or mitigate the impact from the heavy construction chewing up these communities' 'back yards'. The FCP's powers to enforce the agreement, however, were severely limited. The communities participated in the term's drafting process, but lacked legal instruments to actually ensure the term's conditions were met. One important factor was the distant relations between these communities and the FCP, leaving these traditional populations unprotected against violations and abuses.

The lack of any agreement regarding term compliance led to a resurgence of lawsuits moved by the *quilombola* movement, seeking the courts to resolve the impasse. The stakeholders' capacity to be properly represented within the arrangement was exiguous. The *quilombola* movement did receive support from a voluntary lawyer collective connected to the Federal University of Piauí. The lawsuit was also supported by the Federal District Attorney and the Ministry of Public Defense (Ministério Público Federal, MPF) which, during the complaint formulation phase, expanded the suit's claims to request the suspension of environmental licensing for the EMT Section of the railway as a whole. The MPF

understood that the Ibama environmental reports[8] suggested that the licensing should no longer be in force, due to requirement nonconformities and the violation of rights of the population along the railroad route.

The disregard for key actors during the implementation arrangement, and the poor oversight of the concessionaire's compliance with requirements and agreements, including the term of conduct, resulted in the suspension of the installation license and the consequent interruption of the work in 2016.[9] The court decision to the MPF-moved lawsuit pointed out (Brazil, 2017) that 'there is nothing on record to suggest the start of the heavy construction work occurred after prior consultation with the affected communities, nor has the concessionaire implemented any mitigating or compensatory measures to offset impact from railroad construction'.

Even after changes in the Transnordestina Railroad's implementation arrangement, however, the level of conflict surrounding the enterprise did not diminish. The failure to comply with the tripartite agreements (government, concessionaire and communities) provoked additional disputes, which developed into lawsuits. The suspension of the installation license of the EMT section was instrumental to ensuring the rights of the *quilombola* communities in southern Piauí, but very damaging to the continuity to the construction of a railroad central to the development of the region. The region's residents were not unfavorably disposed to the project itself. On the contrary, what was evidenced was a reaction against constant disrespect of legislation, both Brazilian and international, which contributed to heightening the already significant social inequality in the region. The delayed timing of the inclusion of *quilombolas* into the arrangement; the low quality of the institutional representation – wherein INCRA and FCP dealt with the problems in only a limited way; and the asymmetrical distribution of power within the arrangement all help to explain the negative effects the railway construction had on these populations. Even though these factors triggered changes in the arrangement, the new instruments proved ineffective in mitigating social conflict in the impacted areas.

8 Cotra (Transports Coordination) – Ibama – Technical Opinion 02001.000647/2015-41.

9 The Piau branch was the most active of the Transnordestine Railway, in terms of construction; consequently, its closure caused a halt in the implementation of the entire project.

The arrangement's first instruments were the agreements between DNIT and the state-level infrastructure secretaries. As noted, these were unable to prevent subsequent legal contestation, and stumbled upon socioeconomic elements within the context that were not considered in the early stages of the project's implementation. It was flawed in failing to heed the unfairly low sums paid for the expropriated lands and it fell short in representing the smallholders and in ensuring they were able to maintain their way of life.[10] The arrangement was unable to include stakeholders or solutions to mitigate the litigious burden from the expropriation process.

The second instrument, the TCA, did bring about a significant change in the arrangement, incorporating both actors and stakeholders that had formerly been excluded from the initial phases of the project. However, its actual impact was limited, in that its conditions were simply not met by TLSA, and there were no consequences due to the lax oversight of FCP and PAC, the government agency involved in the development construction effort.

In light of this evidence, it may be concluded that the initial conformation of the implementation arrangement of the Transnordestine Railway underwent few material changes, and was ineffective in bringing together new stakeholders and demands during its mandate. Thus, the arrangement's flexibility in incorporating changes to its initial structure was proven to be low.

4. ARRANGEMENTS AND INEQUALITIES

The two cases under review were initially ruled by arrangements that, in effect, disregarded the situations and rights of the peoples affected by the projects, adding to the vulnerability of those peoples. This was due to the limited capability of the implementation arrangements to include the interests of vulnerable stakeholders, the delayed timing in incorporating demands and the asymmetrical distribution of power within the arrangement.

With regard to the Belo Monte Plant, the Reduced Flow Tract would make fishing and navigation impossible in two reservations, and the dam also would

[10] In contrast, the *current* federal administration has vowed to simply eliminate *quilombola* communities and indigenous reserves, and certainly veto the creation of any new ones. Even the limited care for vulnerable populations these projects afforded may be lost in the future. [T.N.]

impact fishing, making it more difficult, as well as reducing the area available for small-scale agriculture. In addition, the construction of the dam would attract a populational flow of migrant workers the region was incapable of absorbing, leading to an increase in violence, with the murder rates multiplying in neighboring towns,[11] and the providers of basic social services would be overwhelmed, especially in the nearby town of Altamira, Pará.[12] The first two environmental licenses (Previous License or Licença Prévia [LP], and Installation License for the beginning of construction, Licença de Instalação [LI]) were ineffective in mitigating the plant's socioenvironmental impacts in spite of the Ibama technicians' best efforts, including defining anticipatory actions.[13]

During the construction of the Transnordestine Railway, in its turn, the expropriation process paid out unfairly low sums and the licensing disrespected the rights of the traditional populations. This is because the interests of local stakeholders were not addressed, which points out difficulties the arrangements must overcome in including and representing stakeholders and social actors, limiting the effectiveness of the new instruments.

In face of the identified socioenvironmental impacts, these projects' arrangements were challenged and, therefore, underwent modifications in the process by incorporating new actors and stakeholders and new instruments, which Tables 1 and 2 present.[14]

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11 https://noticias.uol.com.br/cotidiano/ultimas-noticias/2017/03/04/depois-de-belo-monte-altamira-pa-supera-taxa-de-homicidios-de-pais-mais-violento-do-mundo.htm

12 'The R$ 30 billion enterprise made the population of Altamira leap from 100 thousand (according to the 2010 Census) to more than 140 thousand. Among the problems are the worsening of local traffic caused by the increase in the motorcycle fleet - many without a driver's license [or skill] and an increase in violence'. https://en.wikipedia.org/wiki/Altamira,_Par%C3%A1

13 From from the Belo Monte Installation License: 'Include among the anticipatory actions: i) the beginning of construction and reform of (education/health) equipment, where it is clear that they will be necessary, such as near the building sites and in the neighboring municipalities of Altamira and Vitória do Xingu; ii) the beginning of the basic sanitation works in the municipalities of Altamira and Vitória do Xingu; iii) the implementation of a basic sanitation system in Belo Monte and Belo Monte do Pontal, before the beginning of construction of the worker housing facilities'. https://www.socioambiental.org/banco_imagens/pdfs/licenca%20Belo%20Monte.pdf

14 The frameworks include only actors and instruments related to the aggravation / (re)production of inequalities.

Table 1. Belo Monte dam implementation arrangement dynamic

<table>
<tr><th>2005–2010 Arrangement</th><th>Results</th><th>2011–2013 Arrangement</th><th>Results</th></tr>
<tr><td>Actors / Stakeholders
Ministry of Mines and Energy, Ibama (Federal Environmental Agency), Funai (Federal Indigenous Tribe Agency), District Attorney (federal level) – MPF</td><td rowspan="2">Fishing became impossible in large tracts; reduction of area available for small farming; population overload (violence, prostitution and demand for basic services)</td><td>New Actors / Stakeholders
Ibama, Funai, District Attorney / Public Defense (state level), Pará Secretary-General of the President's office, state and municipal governments and local civil society</td><td rowspan="2">Social projects funded by PDRS-X, resources, anticipatory actions (tardy implementation), meetings with indigenous tribes and fishermen; TVR – Reduced Flow Tract mitigation measures and mitigating instruments</td></tr>
<tr><td>Mitigating instruments
Environmental licensing, anticipatory actions, public hearings</td><td>New instruments
PDRS-X (Plano de Desenvolvimento Regional Sustentável do Xingu [Sustainable Regional Development Plan – Xingu]) and its steering committee
Government House</td></tr>
</table>

In the case of Belo Monte, the State-level legislation in effect at the time determined the participation of multiple governmental actors – including Ibama, Funai and MPF – in the decision-making and implementation processes. However, the legislation that regulates the sector (then as now) conferred great decisional centrality on the actors within the bureaucracy managing the electric sector. This is evidenced in the temporality of each agency's performance and their competencies in the process. In addition, the employed instruments, including public hearings and anticipatory actions deriving from the environmental licensing process, were ineffective in minimizing the social and environmental impacts from the plant's construction.

The Transnordestine Railway's arrangement also proved quite limited in terms of mitigation, due to the low level of participation of environmental agencies and civil society stakeholders in the project planning phase. The simultaneity between the execution of the engineering projects and the environmental studies caused the existence of traditional communities along the route of the railway to be ignored. This resulted in violations of the law, as heavy construction work marched into *quilombola* territories crossed by the tracks without the consent of these communities. The agreements made between DNIT and the state infrastructure

secretaries suffered from *territorial blindness*, the incapacity to consider local specificities. What was proposed as a mitigative measure, the filing of expropriation proceedings without prior negotiation with the affected smallholders, was 'justified' as a means of ensuring fairness by ensuring the possibility of litigation. However, this instrument proved to be more a source of tension within the arrangement than anything else: it neither ensured the payment of fair sums for expropriations nor safeguarded their way of life. The lack of prior negotiation with the expropriated smallholders was symptomatic of the asymmetry of power in the arrangement, and aggravated the social inequalities already in place in the region.

Table 2. Transnordestine Railway implementation arrangement dynamic

2006–2010 Arrangement	Results	2011–2016 Arrangement	Results
Actors / Stakeholders Ministry of Transportation, ANTT (Agência Nacional de Transportes Terrestres [National Land Transportation Agency]), TLSA (concessionaire), Ibama (Federal Environmental Agency), FCP (Afro-Brazilian Cultural Foundation), INCRA (Federal Agricultural Smallholder Agency), Funai (Federal Indigenous Tribe Agency)	Dispute over unfairly small sums paid for expropriation Disrespect for the rights of traditional populations Withdrawal of housing without payment of indemnity or reallocation proposals	**New Actors / Stakeholders** Traditional populations (quilombolas), popular / volunteer lawyers, District Attorneys (federal / state)	Non-compliance of the TCA by the concessionaire, and no oversight by competent organizations Suspension of installation license by court order
Instruments DNIT expropriation agreements with state secretaries, contract award environmental licensing		**New instruments** Population mapping, prior consultation (as per ILO 169), Term of Environmental Commitment (Termo de Compromisso Ambiental, TCA), mitigative / compensatory measures	

Furthermore, the planning instruments in both infrastructure construction projects proved to be flawed in terms of anticipating impacts, such as fishing becoming no longer viable along the Reduced Flow Tract in Belo Monte, and the lack of identification of socioeconomic conditions of the affected population along the Transnordestina Railway.

The two arrangements under review both present a clear direction of causality in their transformation over time. After mobilization by community stakeholders and government actors who had initially been ignored in the arrangement, coalitions with partners within the federal bureaucracy were formed, and the instruments were modified. Actors mobilized to attain public recognition; thus, under a socially concerned federal administration, protests may in fact limit the implementation of projects decided by a coalition from which they were excluded (Le Galès, 2011). As mentioned in the introduction, the actors are aware that the adopted arrangements and instruments exert an impact upon their interests (Capano et al., 2015).

In the case of the Belo Monte Dam, the change was provoked by claims from actors who had been marginalized in the decision-making process, promoting the inclusion of new stakeholders and actors and more-effective coordinating instruments, such as the PDRS-X steering committee and the Government House. In this sense, it is important to point out the methods adopted for collective mobilization. The holding of meetings with indigenous tribes in 2009, for example, was considered by the MPF as an insufficient instrument of consultation, yet the law requires *prior* consultation before initiating such projects. Other groups were mobilized with the same purpose, such as the fishermen, who were initially not considered to be an impacted group. The result of the process of contestation was a reformulation of the arrangement that saw the entry of new stakeholders and actors. Thus, as of 2011 the Belo Monte Dam implementation arrangement had come to involve the General Secretary of the President's Office, the District Attorney and Public Defender of the state of Pará, and greater participation by the Pará state government and Altamira City Hall, with the purpose of giving the implementation process greater legitimacy. New instruments were also incorporated, such as the PDRS- X. The result of this change was the realization of social and local infrastructure projects funded by PDRS-X resources, reducing the plant's impact on the affected population.

The reformulation of the Transnordestina Railway arrangement was also achieved as a result of contestation by previously marginalized stakeholders and actors, who succeeded in having the FCP mediate the conflict between *quilombola* communities and the TLSA. In 2011 a Term of Commitment was signed – considered a victory for these communities – that established mitigating and compensatory measures. However, the TCA proved to be an instrument of limited efficiacy, because there was little oversight regarding its execution, revealing a difficulty in achieving effective institutional representation by the population in this arrangement.

Thus, the changes the arrangements underwent were incremental, based on the existing institutional framework. While these changes were achievements, the fact they only happened at a late stage of the processes limited their effect, which explains their inadequate results as regards the reduction of social inequality in the regions of the projects. In the case of Belo Monte, the delayed timing of the changes was a factor in limiting the arrangement's legitimacy from the point of view of the affected populations, as was the lack of executive power of the federal instance set up to manage the project's impact, since the incorporation of new stakeholders and actors into the arrangement occurred belatedly, well into the implementation phase. Thus, in spite of including new actors and intensifying the dialogue on the plant impacts, some consequences of the project could not be reversed, notably the impact of the Reduced Flow Tract parallel to the new dam canal on indigenous communities and the lack of delivery of the anticipatory actions prior to the beginning of construction work. For its part, the invasion of the heavy construction associated to the Transnordestina Railway into *quilombola* communities in violation of ILO Convention 169 produced a coalition uniting those communities, volunteer lawyer groups and the MPF, which obtained the suspension of the railway's installation license for the southern Piauí branch.

7. FINAL CONSIDERATIONS

This chapter had the objective of pointing out the influence of infrastructure project implementation arrangements on the (re)production of inequalities. As has been demonstrated, the arrangements were composed of actors and stakeholders from within and outside the State, and public policy instruments which, together

and in interaction with one another, directly impacted the situations of social inequality that were present.

Factors that encompass arrangements, actors and stakeholders and instruments promote changes in these relationships. Thus, the late stage at which these new actors, stakeholders and instruments were brought into the implementation arrangements did indeed affect their capability to resolve the conflicts generated by the development projects. The arrangements' low institutional representational capacity jeopardized local stakeholders and prevented their interests from being considered, generating social protests over the constructions. In addition, the asymmetric distribution of power within the arrangements alienated the impacted populations from decision-making processes. On the other hand, social contestation and demands for inclusion from these negatively affected groups became exogenous forces that brought about changes to the arrangements.

However, these changes were insufficient to reverse, or even offset, the negative impacts generated by the projects. An explanation for these poor results lies in the sequence of events, as well as in the low capacity for representing stakeholder interests in the arrangements. In the case of the Belo Monte Dam, the creation of the PDRS-X and a steering committee representative of local interests occurred late, well into the implementation and construction phase, while the concentration of decision-making power in the hands of the electric sector bureaucracy inhibited legitimate oversight by the environmental agency (Ibama). In the case of the Transnordestina Railway, the filing of expropriation lawsuits before a negotiation phase, demonstrating aberrant timing and lamentable judgement in the conducting of the project, generated negligible compensatory sums for the expropriated smallholders, negatively affecting their way of life. The low representativeness of the FCP, or Afro-Brazilian Cultural Foundation, within the arrangement explains the truncated implementation of the Term of Environmental Commitment.

One may therefore conclude that the local communities lost the struggle regarding the adopted instruments and the conformation of power in these development projects' implementation arrangements, accruing negative impacts – the aggravation of social inequalities – in the regions where the projects were located.

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CHAPTER 7

STATE CAPABILITIES, LABOUR AND SOCIAL SECURITY: SOUTH AFRICA, ARGENTINA AND BRAZIL IN COMPARATIVE PERSPECTIVE

Arnaldo Provasi Lanzara

1. INTRODUCTION

The effective integration of social security with the job market holds a deep associative meaning that constitutes, in itself, a striking expression of the social contract. The more closely connected these two dimensions of social protection are, the more a labour market is typified by relations of protection and the social security system is strengthened by organized labour. This relation between labour and social security, in turn, is dependent on a State's ability to enforce its regulatory standards on the economy.

This paper analyses in comparative perspective the social protection systems in South Africa, Argentina and Brazil, highlighting the different levels of articulation between welfare and labour regulation policies. From the perspective of *State capability*, we seek to ascertain how these countries are building up, or mobilizing, this capability in the areas of public regulation of labour and social security in face of the challenges posed by economic globalization. The recent resumption of social development strategies in a democratic environment has provided these countries with a new juncture enabled by critical skills that suggests a shift from distributive conflict towards a more closely integrated relation between labour and social protection. However, surprises along this trajectory highlight the difficulties each country must address in order to consolidate this trend in the current scenario.

It must be borne in mind that the social progress described herein applies to a period in the histories of Argentina (2003–late 2015) and Brazil (2003–mid-2016) with labour-friendly governments. More recently, the elected Macri administration in Argentina and the controversial post-impeachment Temer administration in Brazil have pursued aggressive neoliberal agendas, reverting a large amount of social gains; the next two years (2017–2018) will be crucial in determining whether such aggressive reforms will be consolidated or repealed after the next elections.

This chapter is divided into five sections, including this introduction. The second section briefly discusses the topic of State capability and its importance in mobilizing social resources in societies marked by deep inequality. The third section analyses the case of South Africa and the disjunctive, or widening, divide in the country between labour and welfare coverage. The fourth section deals with the Argentine case and the recent recovery of State capacity to provide social benefits in the country after the failure of the market-oriented reforms of the 1990s. The fifth section highlights the recent case of the Brazilian restoration of State capability for social provision through a successful minimum-wage- boosting policy and expansion of redistributive welfare benefits. The sixth and final section presents our conclusions.

2. STATE CAPABILITY AND SOCIAL POLICY

Amongst the several notions of State capability highlighted in the literature, some stand out for their emphasis on the power of a State to mobilize the resources and assets of its society. From a sociological perspective, the management of State capability is seen as the result of tensions generated by society-State relations, implying either the 'despotic'or 'infrastructural' mobilization of resources (Mann, 1993). A State's social policy is an integral part of this dynamic of mobilization of resources and enforcement capacity. While the sovereign controls exercised by a State on the one hand generate coercion, resistance and protests, on the other hand democratization processes undermine this sovereignty from below, prompting demands for the expansion of State social policy through collective bargaining and being routinized among social actors (Mann, 1993).

By stating that there is no logical, linear relationship between State capability and democracy, Charles Tilly (2007) introduced a novel element in the studies on

State-society relations. According to this author, State capability may range from extremely low to extremely high *regardless* of the democratic content of a regime and its public policies.

Considering the particular route within a State's transformation of macro processes, State capabilities specifically for the development of social policies are implemented faster than those for their democratization. In these cases the democratization of a policy and its collective bargaining take place through the authoritarian mobilization of resources. This mobilization, however, denotes the way in which some nations had to come to terms with the conflicts of an industrial society, using the advantages of their relative backwardness to resolve these conflicts, leapfrogging the classic liberal institutional canon.[1]

As noted by Karl Polanyi (2000), the values that initially served as the fundament of liberal societies – the sovereign individual and a self-regulating market – raise considerable barriers to the emergence of a society based on the solidarities of the world of labour, especially when assimilated uncritically by peripheral nations, creating strong obstacles to a distribution of resources likely to alter the collective action of social groups excluded from formal decision-making processes. It is for this reason that some countries that underwent *conservative modernization* were also the first to solve the issue of expanding political participation through the use of social policy resources.

From these arguments, it may be possible to draw an initial comparative approach to the countries covered in this study. In the countries that underwent conservative modernization, State authority constrained the emergence of civil and political rights, but did not prevent the proliferation of social citizenship laws, which subsequently proved essential to the processes of social policy democratization. The emblematic case here is Bismarckian Germany. This same 'authoritarian' consolidation of citizenship rights was also pursued by Brazil and Argentina, whose social protection systems were established by the State, in response to a social environment hostile to the consecration of worker rights.

[1] Here the concept of backwardness advantages is used as formulated by Alexander Gerschenkron (1962).

At the other extreme, when the democratization processes in a particular public policy regime occurs faster than the construction of State capability, the trajectory of social policy will *tend* to cross a 'danger zone' during the building up of these capacities (Tilly, 2007, p . 77). In this context, the process of democratization of public policies may become entrapped by social inequalities, and there remain indefinitely. Examples of this can be provided by some 'pioneer' countries of liberal modernity, such as the United States, in which collective rights have always been seen as a threat to individual freedom. In spite of glaring social problems, South Africa seems to approach this model, emphasizing the ability of individuals to self-manage and self-fund, rather than the State's ability to transform the *status quo* of collectivities through social policy.

The important thing in this regard is to note that liberal institutions do not provide a rationale for the reordering of strongly unequal social structures (Moore, 1978). Hence, the solution to combating inequalities in peripheral societies requires prior action by the State and the deployment of social policy assets. And this leads directly to the subject of public regulation of labour as an effective measure for social protection.

2.1 – Public regulation of labour and social security

In the last decades of the last century, a radical separation has grown between labour and welfare, the two pillars that ensured social protection during the 'Fordist cycle of political economy regulation' (Boyer and Saillard, 2000). In face of the various atypical forms of work that proliferated during the deregulation of labour markets, a new social policy, decoupled from collective relations, has emerged based on the privatization and individualization of social benefits (Castel, 2003). Under the prescription of market-oriented reforms, secure, protected jobs have become a difficult privilege to justify in a competitive economic environment.

Affirming social policies as a valuable tool for the stabilization of a society's expectations for social security has become consensus. However, there is no unanimity as to the economic importance of these policies, especially when their goals are called into question by the imperative of economic competitiveness. Over recent years, the idea that social protection systems are important foundations for economic development has been gaining momentum. Several European and East

Asian countries, one example being South Korea, introduced programs for labour protection and social security in the early stages of their industrial development process (Kwon, 1997; Kangas and Palme, 2009). Such programs played an important role in determining the shapes and functions of production systems in these countries, providing them with significant comparative institutional advantages to pursue successful development strategies while focusing on production and equity.

Therefore, it is clear that labour protection and social security institutions are crucial for the development process, especially in societies that have accumulated a heavy deficit in the social area. In these, social protection institutions must tackle a more urgent task, due to the accumulation of inequality and insufficient State capability in the face of privatist behaviours by powerful segments of society, which oppose the incorporation of popular demands into the legislative public policy agenda and usually control the media and the political establishment. This has been a key factor in the recent collapse of social policies in Brazil.

In this discussion, it is important to ascertain the degree of effectiveness of social legislation, and its concrete effectiveness in day-to-day labour relations. State capability is closely related to the capability for effective law enforcement. But one cannot reduce this capability to a single set of legal provisions with the sole purpose of ensuring property rights (North, 1990). It is worth remembering that the democratic transformation of the State made of social rights a key constituent element of political society. It was through the collective inclusion of social actors in statutes consolidated by social rights that the democratic State overgrew the narrow limits of the liberal constitutional State. According to Claude Lefort (2011, p. 75), the novelty brought about by the democratic State 'was experimenting with rights that were not yet incorporated' – including the social right to work. This State became an arena for contestation, the object of which was not reduced to the preservation of a pact that had been tacitly established, but rather had formed as an ongoing process spurred by outbreaks of militancy that the central power was unable to constrain (Lefort, 2011, p. 75). Therefore, in progressing from the right to strike to the right to employment and social security, an entire movement developed that transgressed the boundaries by means of which the State itself and the economic power initially sought to define themselves.

Although this movement remains fluid in its structure, and subject to its typically constitutive conflicts, it is severely curtailed by the ethical imperative of economic competitiveness. Employment today is increasingly distant from what was proclaimed by the statute of rights originally associated with the social, legal and political identities of waged labour (Supiot, 1994). It is in this sense that the importance of public regulation of labour, in its role of including workers in collective protection and factual labour-relations regulation systems, is underscored in this study.

However, the establishment of labour relations protected by regulations and social security faces difficulties, especially in the countries highlighted herein. Currently, the *growth* of exclusion is becoming at once the foundation of government action in the social field and its ultimate purpose. But it is especially in these countries – which did not universalize wage standards – that the just and fair priority concern with the excluded demographics cannot be considered, without taking into account the destabilizing factors deriving from the structural precariousness of the labour market. In these countries, unlike what occurs in the central States, the persistent inequality is a factor that lies at the very core of society and not only at its fringes, and constantly reproduces the heterogeneity of working conditions, which ultimately creates a feedback loop that tends to heighten the exclusion of the masses.

As will be seen, the protective instruments recently put forward (or reactivated) in Argentina and Brazil differ from those in South Africa, as they pursue a more deliberate strategy of recovery of formal employment and welfare protection. This strategy is closely related to the mobilization of State capabilities previously built for social protection, and which in the current scenario in Brazil and Argentina have been deployed to overcome obstacles to social development. If this strategy appears inadequate in view of the structural problems arising from decades of low-quality employment and meager social protection, it at least repositions these countries in the civilizational trajectory of addressing inequality.

3. SOUTH AFRICA: WORK WITHOUT PROTECTION AND PROTECTION WITHOUT WORK

3.1 – The apartheid legacy

The connection between the segregationist apartheid regime and the existence of abundant, cheap labour is evident. During much of the period in which the regime was in force, African worker wages[2] were kept at exceedingly low levels.

In the early 1920s, South Africa started to organize its first social security arrangements. White workers, with high salaries, had already satisfied their security and healthcare needs by hiring insurance (Lund, 1993). Social programs to fight poverty, such as guarantees for the elderly poor, were used as protection resources far more than contributory social security, revealing a liberal welfare regime with modest welfare provision to targeted individuals as the origins of the South African social welfare system (Esping-Andersen, 1990).

In 1948, with the implementation of segregationist policies during the National Party (NP) administration, the already inadequate public provision of social security was further restricted through spending cuts and increases in the mandatory contribution. Emblematic of this type of policy orientation was the Unemployment Insurance Amendment Act of 1949, which required of workers a high salary contribution in return for access to unemployment insurance. This measure hit African (Black) workers hard, who, in spite of comprising the majority of the unemployed, were completely unable to access the benefit because of their low wages. The motivation behind this measure was not only to avoid solidarity funding for unemployment insurance among the different races – which, incidentally, would call into question the legitimacy of the segregationist bases of the regime – but also to inhibit unemployment welfare causing any 'disincentive to work' (Seekings and Nattrass, 2005, p. 58). The liberal spirit that sustained this measure catered to the aspirations of the economic elite of the country by providing abundant, unprotected, cheap labour. This touchstone of South African social legislation, built on racial segregation and economic liberalism, remained unchanged for many years.

[2] The ethnic classifications that divided South African society at the time of apartheid are still used for statistical purposes. The components are: Whites, Asians (mostly Indians), Coloureds (mulattos), and Blacks (Africans).

However, when the apartheid regime approached its end, expectations for the discarding of this model grew in step with the increase in the cost of the maintenance of the repressive apparatus of the segregationist regime, and that regime collapsed largely thanks to the mobilization of workers, finally opening a precedent for the democratization process. The establishment of democracy, with the end of the apartheid and the rise of the African National Congress (ANC) to power in 1994, represented, at least with regard to expectations, a real possibility of reversing the model in question.

3.2 – The post-apartheid period: Labour market stagnation and insecurity

In South Africa, the post-apartheid constitution (1996) established the right to social security as a fundamental guarantee to the citizenry. However, the policies pursued by the new political coalition led by the ANC in the domain of social protection, beyond the provision for minimum benefits, seemed to aspire to conflicting goals.

South Africa's democratic transition was perhaps excessively bent on preserving the 'economic liberality' of the old regime, favoring the deregulation of the labour market in order to facilitate the creation of jobs and maintain the competitiveness of the economy (Standing, 1997; Rodrik, 2006). In this sense, there is a strong disparity between the objectives of economic growth and the generation of stable, secure jobs. There is, in this respect, a sharp decline in the ability of wages to act as a structuralizing element of social and political citizenship (Barchiesi, 2008). Symptomatic of the current state of social policy in the country, for instance, is the excessive tendency to focus on social spending on non-contributory social assistance programs for the most vulnerable demographic segments. Moreover, due to the absence of a public social security system, governments have encouraged the creation of private capitalization funds in companies (Hendricks, 2008).

This bleak portrait of the South African labour market contrasts with the relative strength of the economy in recent years. The average increase in the gross domestic product (GDP) between 1993 and 2008 was 3.1%, and the GDP per capita grew an average of 1.2% p.a. over the same period. This growth, however, did not benefit the population as a whole. Income inequality has increased in spite

of the relative improvement in poverty indicators, demonstrating that precarious working conditions are responsible for the recent increase in inequality (Table 1). According to Leibbrandt et al. (2010), the non-contributory assistance programs have had scant effects on the aggregate inequality level, focusing only on families without access to labour income.

Table 1. South Africa: Gini coefficient – aggregate and by race, 1993–2008

Year	Aggregate	Africans	Coloureds	Asians	White
1993	0.67	0.55	0.43	0.46	0.42
2000	0.67	0.61	0.53	0.50	0.47
2005	0.72	0.62	0.60	0.58	0.51
2008	0.70	0.62	0.54	0.61	0.50
Change: 1993–2008 (%)	3.1	12.50	25.00	31.90	19.10

Source: Leibbrandt et al. (2010).

The precarious working conditions in South Africa are exemplified by the low participation rates in the labour market (55% in 2008, male and female population between 15 and 64 years of age) – a direct consequence of long-term unemployment. Among the youth, participation rates are even lower (33.6% in 2008, male and female population between 15 and 24 years of age). Although the unemployment rate remains high for the country as a whole, it is especially so among Africans and Coloureds, albeit having ebbed from 29% to 23% between 2001 and 2008. But this decrease can be attributed both to the recent economic growth and to the low population growth due to the HIV/AIDS epidemic (Ilo, 2008). Unemployment has increased, however, even among the educated and with a particularly high rate among college graduates. This is due to a change in the hiring strategies of companies, which began hiring low-skill workers in response to the introduction of labour legislation in 1995. Informality is high and the workforce remains underutilized. This means that there are considerable barriers to entry for African workers in the labour market, due to the persistence of strong racial segmentation and the qualification differential among the different ethnic groups.

Even if determined by structural factors, this precariousness of the labour market derives from the low efficiency of the State in terms of monitoring

compliance with labour regulations. The agencies responsible for labour inspection have little or almost no regulative effectiveness. Added to this, informality has risen in recent years due to an increase in outsourced subcontracting and temporary work, which grows in defiance of the new labour law enacted after the establishment of democracy (Valodia, 2001; Casale, Collete and Dorrit, 2004; Benjamin, 2008). Informality is currently increasing in step with the deregulation of formal employment (Figure 1).

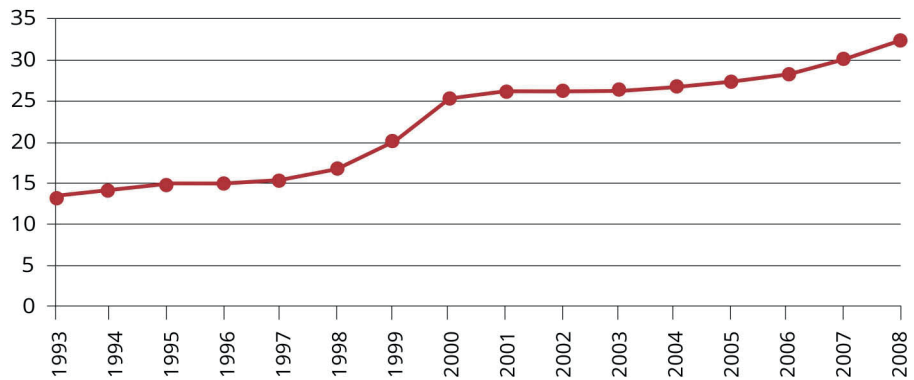
South African employers, in turn, complain about the 'strictness' of labour legislation, blaming it for the high levels of informality and the increase of outsourcing. The main target of vocal complaining by the business community is the collective bargaining system, by industry, strongly supported by trade unions and structured through the main tripartite bargaining council in the country, the National Economic Development and Labour Council (Nedlac) (Godfrey, Theron and Visser, 2007).

In fact, this increase in outsourced and temporary work did intensify after the implementation of a package of labour laws enacted after the return to democracy: the Labour Relations Act (1995), Basic Conditions of Employment Act (1995), Employment Equity Act (1998), Skills Development Act (1998) and the Unemployment Insurance Act (2001). But current labour policies, contrary to accommodating the regulation of labour, have tended to further increase the flexibility of work contracts, working against the recent process of regulating in support of worker rights.

South Africa is a textbook example of when a novel labour law is overburdened by problems arising from a poorly structured labour market, where the prevailing business style is refractory to compliance with labour regulation. In turn, the absence of effective State action in labour regulations makes the application of these regulations hardly enforceable. Even though the country's private sector enjoys a significant 'comparative advantage' with labour being abundant and labour regulation having limited effectiveness, South African business associations insist in deconstructing labour rights even further. The growth of irregular labour is due, among other factors, to the almost unilateral rejection by employers' associations of centralized and compulsory bargaining, privileging negotiations at company level – which tend to result in unfavorable conditions of employment

for the workers – in detriment of trade unions' strategies (Godfrey, Theron and Visser, 2007). As a result of noncompliance with labour laws, there is a marked tendency to pulverization in wage negotiations. This tendency is encouraged by the practice of bargaining concerning occupational benefits that are exclusive to a private workplace, breaking the solidarity among unions organized by industry (Hendricks, 2008).

Figure 1. South Africa: Temporary and casual employment over total employment, 1993–2008 (in %)



Source: Leibbrandt et al. (2010).

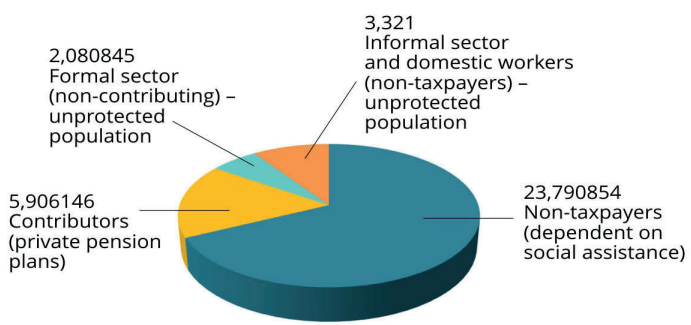
It should be noted that, in South Africa, there is no single national minimum wage. Wages in the various industries that comprise the economy depend predominately on company-level negotiations through the so-called Bargaining Councils (Benjamin, 2008). The situation has changed somewhat with the creation of the Employment Conditions Commission (ECC) in 1997. The role of the ECC is to advise the Department of Labour on the establishment of guidelines for setting industry-wide minimum wages, and to determine minimum working conditions for industries not covered by collective bargaining. In 2005, a minimum wage, for domestic and rural workers specifically, was established. However, wages continue to be freely established without any legal requirement in most of the activities within the services industries, which have seen strong growth in recent years due to a decline in industrial employment.

Many of the problems related to the low level of labour protection in the South African market derive from the lack of public, compulsory, contributory welfare.

The creation of contributory public unemployment insurance could render formal employment more attractive, reducing the problems arising from the low percentage of participation in the labour market. However, the central feature of the social security system in the country is the almost absolute predominance of welfare in the form of non-contributory benefits intended for groups in vulnerable situations (State Old Age Pension, Disability Grant, Child Suport Grant, Care Dependency Grant). The State provision of contributory social insurance is comprised by only two contributory benefits provided to formal workers: the Unemployment Insurance Fund (UIF) and the Worker's Compensation Fund.[3] The unemployment benefit is of very short duration, covers less than 10% of the unemployed, and the long-term unemployed are seldom if ever eligible to receive the benefit.

On the other hand, there is a strong market presence of private occupational insurance, especially in the areas of health and welfare. The South African pension system combines a private pillar comprising voluntary capitalization with a welfare pillar focused on the elderly in poverty (Hendricks, 2008). The total number of persons not covered by the private pillar is relatively high (5.4 million). This suggests that coverage is not very significant when considering all workers, particularly those in informal labour, which is totally excluded from private protection. Currently, it is estimated that the number of workers covered by private arrangements is 6 million. With the exception of non-contributory benefits intended for the elderly poor, half of all workers receive no retirement benefit whatsoever (Figure 2).

Figure 2. South African pension system: Number of contributors and uncovered persons (in millions)



Source: South Africa (2007). Author's elaboration.

3 Contributory fund for compensation of industrial accident casualities.

Neither are workers covered by private pensions safe. The income replacement level of most private funds does not reach 50% of the insured salaries. Also, due to the intermittency of employment and insufficient income to make regular payments, few workers are able to contribute to private funds (South Africa, 2007).

As a result of these factors, if no action is taken towards the creation of a public compulsory arrangement for social security, a considerable part of the paid labour force is likely to become, in the not-too-distant future, dependent on non-contributory social assistance. In 2007, the government began a discussion proposing a comprehensive reform of the pension system by adopting a contributory public pillar based on the joint risk distribution model (Reform of Retirement Provisions). This initiative, however, was met with strong opposition from employers, as the tripartite contributory system would increase production costs.

Thus, what must be determined is whether or not, in a society deprived of effective labour regulations and public social security such as the current South African one, coupling with public policy goals such disparate instruments for social intervention would serve to project upon the non-contributory welfare benefits for the poorest a typical 'workfare system' based on the promotion of heavily commoditized social security and employability.

4. ARGENTINA: FROM THE DISMANTLING OF LABOUR INSTITUTIONS TO THE RECOVERY OF SOCIAL PROVISION STATE CAPABILITIES

4.1 – The centrality of labour in Argentine social security

Social rights in Argentina have always been associated with waged labour. During the first Peronist government (1946–1951) the basis was laid down for the so-called Argentine model of social protection, based on the regulation of employment contracts and a comprehensive, but very fragmented, contributory social security system (Andrenacci, Falappa and Lvovich, 2004).

In spite of the troubled political processes that characterized the country during the twentieth century, in particular labour disputes, the Argentine state after the first Peronist government developed extensive capabilities for the regulation of labour. Most State intervention in labour disputes was facilitated through the creation of an important institution for coordination of social

policy, the Secretariat of Labour and Welfare (Secretaria de Trabajo y Previsión, StyP) in 1943. Another measure that attests to the scope of these capabilities was the Law on Collective Conventions (Ley de Convenciones Collectivas) of 1953, which introduced legal standards for protection within capital-labour relations. The law consolidated the monopoly of representation by trade unions in different industries and extended collective agreements to all industry workers, unionized or not (Golbert and Roca, 2010, p. 78).

Therefore, the Argentine State's experience in social intervention was strongly centered on the labour-welfare axis. This experience, in turn, led to a symbiotic relationship being established between the unions and the State, comprising a promising sociopolitical matrix regarding the possibilities of structuring a 'wage society' in the country (Castel, 1998). The social protection system set up by Peronist governments retained its basis of employment and its correlated protections without undergoing major changes until the implementation of pro-market reforms of the 1990s.

4.2 – The deregulation of the labour market and privatization of social security of the 1990s

The reforms undertaken by the Menem administration (1989–1999) during the 1990s represented a step backwards in the construction of Argentine social security. The privatizing reforms caused a regressive redistribution of national income, due to the dismantling of social programs – and, particularly, the mercantilization of the social security system – and a drastic weakening of the collective bargaining capability of trade unions. The deregulation of labour directly collided with the centrality of labour as a pillar of social protection.

The deregulatory measures of the 1990s favored collective bargaining at the company level, discouraging industry-wide negotiation, and encouraged outsourcing.[4] It eliminated the obligation for ministerial approval for wage agreements, greatly reducing State control over the regulation of waged labour (Palomino and Trajtemberg, 2007; Novick, 2010). Workers' rights were withdrawn without any attempt at reaching any political consensus, contributing to an

4 The deregulation of labour relations in Argentina was implemented by the National Employment Law (Ley Nacional de Empleo) in 1991 (Palomino and Trajtemberg, 2007)

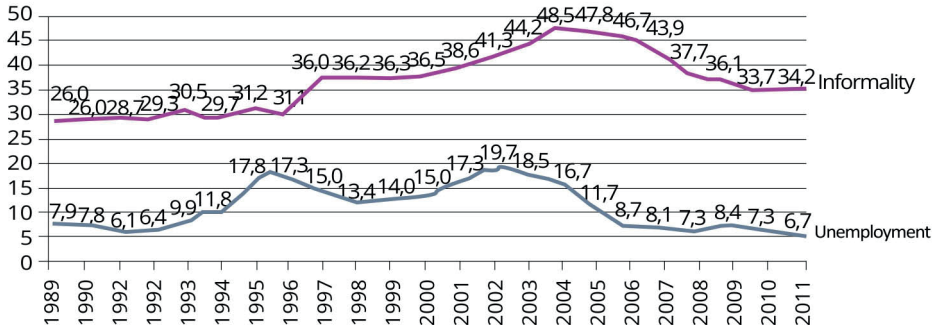
increase in social conflict. In this sense, important regulatory measures that related to working hours, compensations, social security, and other fringe benefits and components of indirect salary were blunted.

In 1993, the government undertook a profound reform in the pension system. Law 24.241 of 1993 set up a two-pillar system for social security: a pay-as-you-go (PAYG) system under State oversight and individual private pension funds under private management by the Retirement and Pension Fund Management (Administradoras de Fondos de Jubilaciones y Pensiones, AFJPs). This change caused a drain on assets from public contributory social security, as they were funneled to individual capitalization funds, resulting in the consequent depletion and loss of attractiveness of the public pillar. Added to the changes in rules in the social security system, the escalating deterioration of labour conditions and an increase in informal jobs led to a sharp reduction in social security coverage (Roca, 2005).

It should be noted that when this pension reform was implemented all benefits allocated to the public regime were managed by the National Social Security Administration (Administración Nacional de la Seguridad Social, Anses), the main State institution for the coordination and management of social security assets. In addition to bearing the system's transition costs, Anses lost a considerable amount of resources when the contributions to the capitalization system were exclusively dedicated to the funding of benefits managed by the AFJPs. Between 1994 and 2008, during the period in which the private subsystem prevailed, the annual loss of assets was significant. The loss of tax revenue reached 2% of the GDP between 1999 and 2001 and was further aggravated by a reduction in employer contribution obligations to social security (Roca, 2005).

All the social depletion generated by the privatizing reforms did not merely produce precarious working conditions, it resulted in a significant increase in unemployment and underemployment levels. Informality grew at a rate never seen before, peaking in 2004 (Figure 3). With the rise in unemployment and informal jobs came a loss of meaning and of personal and social identity, as in Argentina social integration mechanisms were strongly associated with secure formal employment.

Figure 3. Argentina: Rates of unemployment and informality, 1989–2011 (in %)



Source: Argentina (2010).

In short, the regulatory regime that had guaranteed minimum worker rights in the era of 'Argentine regulated capitalism' was rolled back, and the intermittence of wages, due to the deregulation of contracts, significantly expanded informal employment in its different expressions, casting the salaried middle class into poverty. With the dismantling of the social security system, the proliferation of unprotected occupations had strong repercussions on the design of State policies, especially through the emergence of policies focused on mitigating poverty and promoting employment, which however did little to contribute to the rebuilding of social wellness.

4.3 – The strengthening of the State and the recomposition of the labour-welfare axis

In the face of the so-called 'Convertibility Crisis' of 2001, the opportunity to strengthen the Argentine State arose, as decisive action was called for. The exit from the crisis occurred in a context of social deterioration and worsening of sociopolitical conflict, presenting a new situation that pointed to the need to restore State authority in the recomposition of social policies (Repetto, 2003; Rey, 2011).

With the rise of Nestor Kirchner to power in 2003, the conditions for this recovery acquired more precise contours, privileging a growth model in which all productive policies would be geared to the generation of formal jobs. The use of macroeconomic policies that encouraged productive investment sought, amongst

other objectives, to reinstate work as the central structural axis of social policy. Given the intensity of the privatizing reforms, employment-recovery strategies faced considerable challenges, which, strictly speaking, are still strongly felt in Argentine society, as the informality rate remains high and the precariousness of the new jobs that were created remains a problematic element for the recovery of employment.

However, these strategies allowed at least the partial recovery of the Argentine sociopolitical matrix based on the State and trade unions. The restoration of the historic alliance between the State and labour was effected through the immediate enforcement of minimum wage valuation policies and the promotion of collective negotiation, which as a whole helped to boost the value of real wages and improve working conditions. In a way, the Argentine case falls within a context of (re)regulation of labour relations, that is, the recovery of State involvement in social issues. The role played by the State institutions responsible for planniing and executing these social policy actions – the Ministry of Labour, Employment and Social Security (Ministerio de Trabajo, Empleo y Seguridad Social, MTEySS) and Anses – was symptomatic of this new situation.

Since 2003, the MTEySS has been the main actor in the recent recovery of the Argentine State's capability for the enactment of social policy. Intervening in industries that had been completely abandoned by the State in the previous years, the ministry pursued a deliberate strategy of restructuring labour market institutions. The liaising of this ministry with Argentine trade unions does not represent any rent-seeking or cooptation of trade unions, given that its management consists of a community of experts in labour issues with strong presence in academia and institutions such as the International Labour Organization (ILO).

Although outside the structure of the MTEySS, Anses acts as the main agency in the formulation and implementation of social security policies, in addition to managing the assets of contributory social security and other non-contributory benefits. Within the framework of the Argentine state, it is recognized for its managerial competence and wide territorial coverage, and as being structured as a typical Weberian bureaucracy. Anses has considerably broadened the scope of its duties after the (re)nationalization of the pension system in 2008. This action has improved the funding of social security, which gave back to Anses – i.e. the State -

a monthly inflow of contributions previously managed by private funds (Repetto and Dal Masetto, 2011).

Regarding labour market policies, several measures were taken to reverse the deregulation of the 1990s. It should be noted that legislative and legal changes also helped in this regard. A milestone in this process was the enactment of the Law of Labour Ordinance (Ley de Ordenamiento Laborial) of 2004, which restored the regulation of labour relations and reconfigured the industrial relations system to bring back collective negotiations covering whole industries, removing the company-level ones. It should be noted that the legal oversight of employment contracts was reinstated under this legislation. The law also helped to curb the wave of employer evasion triggered by the mandatory payment of social security contributions, a measure that marked social security policies in the 1990s. A direct consequence of the legislation was the reorganization of labour inspection carried out by the MTEySS, which had been completely eliminated during the 1990s. After 2003, in response to the high rate of unemployment, labour qualification programs assumed a prominent role. The MTEySS transformed the formerly strictly emergency nature of these programs, based on conditional cash transfers, by implementing more-permanent productive inclusion policies, especially for the short-term unemployed. Programs such as the Training and Employment Insurance (Seguro de Capacitación y Empleo, SCyE) were designed in order to provide professional guidance for unemployed workers, as well as mediation, qualification and training. As a typical retraining public policy, the SCyE still functions as a kind of unemployment insurance,[5] providing a monthly benefit to unemployed workers worth Arg$225. Beneficiaries may not remain in the program for more than two years, but the period is computed as a contribution period for retirement (Argentina, 2010).

Undoubtedly, the appreciation of the minimum wage and the nationalization of the pension system were the two policy measures with the greatest impact taken by the Argentine government in recent years. The former action reflected

5 For historical reasons, unemployment insurance has never been valued as a social protection instrument in Argentina. Despite its minor importance, however, the fact is that it has been widely demanded in recent years, as a result of the direct increase in number of registered employees and high turnover in the labour market.

a deliberate strategy to adjust wages according to GDP growth and productivity gains. A key step in this direction was reactivating the Council for Minimum Wage, Productivity and Employment (Consejo del Salario Mínimo, la Productividad y el Empleo) a tripartite body with the participation of the government, trade unions, and business associations. The council defined annual minimum wage readjustments and mediated wage negotiations.

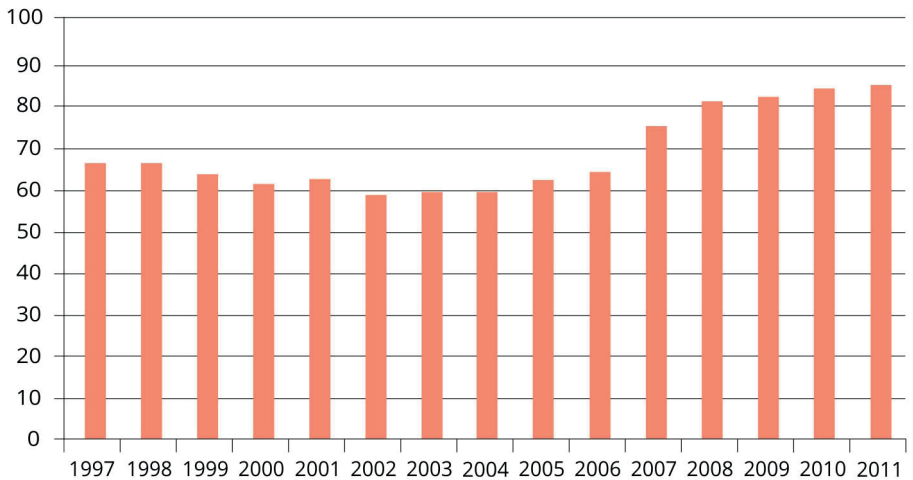
Between 2003 and 2011, the minimum wage saw a substantial increase, from Arg$ 200 to Arg$ 2300. According to official estimates, the minimum wage rose 830% compared its level in the 1990s, when adjusted for inflation (Argentina, 2010). The increase in the minimum wage helped raise wages of all workers receiving lower-tier salaries and create new jobs, which substantially expanded the contributor accrual base of the pension system.

In step with this policy, there were been considerable advances in collective bargaining and social dialogue. The number of collective agreements reaching across several industries increased significantly; these were annually renewed under the approval of the MTEySS. Collective bargaining also took hold in industries where trade unions had previously had difficulty negotiating. In spite of the fierce opposition from some business sectors, especially the agri-extractive industry, collective bargaining on wage coordination enjoys a relative consensus never before seen among the key actors who comprise the Argentine industrial relations system, such as the Confederación General del Trabajo (CGT) and the Unión Industrial Argentina (UIA). According to some experts on the subject, collective bargaining is changing the dynamics of distributive conflict, in that they are becoming more routinely institutionalized and coordinated around State redistributive action (Palomino and Trajtemberg, 2007; Etchemendy, 2010).

As for social security policies, since 2003 there has been a profound change in their design and scope. Between 2006 and 2011, the number of welfare contributors increased significantly, partially the result of the rise in formal employment. This growth was also due to a major initiative for welfare inclusion, the so-called Moratoria Previsional of 2005, which added more than 2.6 million new contributing beneficiaries into social security, many of whom proved unable to meet their contribution obligations, however. This initiative for welfare inclusion greatly increased pension coverage in the over-60-years-old demographic, reaching

almost 90% of this population (Figure 4). The covered population also expanded with the extension of benefits to vulnerable groups not previously included in the contributory scheme. Particularly exemplary in this respect was the Universal Child Allowance program (Asignación Universal by Hijo, AUH), analogous to the Brazilian Bolsa Familia and German Kindergeld programs, in Argentina's social protection system, and other non-contributory pensions.

Figure 4. Evolution of the coverage rate of the Argentine social security system, 1997–2011 (in %)



Source: Argentina (2010).

In this respect, the elimination of the private pillar of capitalization in 2008 is worthy of note, because it was the first step in the State's to regaining control over these assets. Consequently the public pillar of social security regained attractiveness and strengthened its relationship with the labour market. Thus, by means of Law 26.425 of 2008 the Argentine Integrated Pension System (Sistema Integrado Previsional Argentino, Sipa) was created, which unified the pension system under a single public sharing system, eliminating individual capitalization and private pensions managed by the AFJPs. As mentioned above, this initiative allowed Anses to recover the assets from worker social security contributions, thereby replenishing the system's funds.

The recovery of these resources, combined with the effects of economic growth and tax revenues, enabled the formulation of several new policies and

increased the amount of welfare benefits. The establishment of the Sustainability Guarantee Fund (Fondo de Garantía de Sustentabilidad, FGS), administered by Anses, was emblematic in the recomposition of funding capabilities for social policies. The FGS strives to ensure financial sustainability for social security, and is also a sovereign investment fund for surplus funds – assets in stock that exceed benefit payout obligations – in productive investments.

In order to prevent the management of Argentine social security policies as redistributive policies, a law was enacted, the Mobility Act of Performance of Public Social Security System (Ley de Movilidad de las Prestaciones del Régimen Previsional Público), to ensure regular and automatic upward adjustment of benefit value in accordance with the available budget. Of course, the sustainability of the Argentine pension system in the long run will depend on the situation of the labour market, the creation of stable jobs and the fiscal capability of the State to diversify the sources of tax revenues to fund welfare. In this regard, however, it must be noted that the Argentine pension system is funded by tax revenue from the value added tax (VAT), with its highly regressive incidence.

5. BRAZIL: THE RELATION BETWEEN LABOUR AND SOCIAL SECURITY

5.1 – The role of the State and of social security in structuring the Brazilian labour market

Unlike countries in which social protection rights were from the outset securely interwoven into the greater social density of trade unions,[6] in Brazil the absence of this density meant that the social legislation passed by the Corporative State during the first Getulio Vargas administration (1930–-1945) played a germinal role in a kind of 'capitalist institutionalized class struggle' (Korpi, 1983, p. 22). This process in Brazil, quite differently than in other countries, occurred with labour regulations and protections slowly organizing the structuring forces of the working world.

The powerful imagery of *regulated citizenship* (Santos, 1979) created for the first time among workers an expectation of actually becoming integrated into

6 As defined by Durkheim, or *dynamic density*.

the State's social protection framework, through the creation of Retirement and Pension Institutes (Institutos de Aposentadoria e Pensão, IAPs) and a minimum wage protected by law (Cardoso, 2010). The establishment of these protective institutions was not trivial, given the predominance of poorly structured relations in the labour market and the existence in the country of an environment hostile to social rights.

The strategy pursued by social policy-makers of the 1930s and 1940s brought with it the promise of building a *wage society* centered on the labour-welfare axis. This promise derived from the advantages of compulsory membership in trade union involving, above all, access to social security. Through legal requirements welfare protection eligibility induced, or rather required, membership in trade unions.[7] This, in turn, could strengthen the connection between welfare benefits and the appreciation of the minimum wage, once there was an ongoing expectation that the more strongly mobilized categories would drive increases in the wages of the least mobilized ones (Lanzara, 2012). If, on the one hand, this dynamic has been constrained due to strong opposition from agricultural and industrial employers, on the other, it nevertheless stood out for having given rise to the first public regulations of labour that minimally reduced employer leeway, building the foundations for labour protection in the country.[8]

In Brazil the labour market is regulated, insofar as legal protection of labour is upheld by the State and represented by the Consolidation of Labour Laws (Consolidação das Leis do Trabalho, CLT) defining the form and content of labour relations (Noronha, 1998; Cardoso, 2003; Campos, 2009).[9] It should be noted that formal employment in Brazil is of high symbolic and practical value,

7 Even though the Unionization Act by Vargas instituted voluntary unionization (Decree 19,770 of March 19, 1931), in practice this made it compulsory, where only union members enjoyed social benefits.

8 The CLT, enacted in 1943, established the principle of job stability, affording some protection to workers by penalizing companies that terminate without just cause. The severance fee grew in proportion to the length of service time in the company. In 1966, with the end of mandatory stability, employers' demands prevailed, enabling limitation of the duration of employment contracts. This allowed hiring casual labor, which was plentiful, rendering it increasingly difficult to distinguish between employees and the underemployed.

9 It must be borne in mind, however, that the CLT is being in effect repealed by the Temer administration with vocal support from the neoliberal, strongly hegemonic, mainstream press.

playing a role similar to that in Argentina (Guimarães, 2011). Having a formal job, for the vast majority of Brazilian workers, means having a job protected by the Labour Courts and by social security.

It is important to note that, organized under an authoritarian environment insulated from political pressures, the institutions responsible for the public regulation of labour and for the provision of social security in Brazil, such as the CLT and the former National Social Security Institute (INPS),[10] have not been immune to the influences of the redemocratization process, making they likely to be re-signified by the struggles and achievements of workers – or dismantled by conservative forces. Finally, the strategy of strengthening the identity of labour as coupled to social security benefits – however contradictory the results for the production of equity, in a context in which a 'salary norm' (the prevalence of standardized salary levels by industry and job role) is never effectively universalized – at least kept workers motivated by the connection with formal employment. It can be said that this association between social security and public regulation of labour remains intact to this day, or rather, did remain up to 2016.

5.2 – The resilience of the labour-welfare arrangement in face of the destructuring attempts of the 1990s

The timid economic growth and fiscal adjustment policies of the 1990s had an enormous impact on the labour market and on social security. Throughout the decade, over 50% of the Brazilian workforce was forced to seek informal employment. Concurrently with the reduction in formal employment, there was a strong movement of disaffiliation from contributory social security. Notwithstanding these impacts, the institutional and legal framework that regulates labour relations did not undergo substantial revamping. Several specific measures, both pertaining to the flexibility and the re-regulation of labour, were introduced without a major labour law reform catering to either workers or business.

[10] The CLT was passed during the New State (Estado Novo) dictatorship (1937–1945). The National Institute for Social Security (Instituto Nacional de Previdência Social, INPS) created in 1967, became the great institutional provider of resources for social policies during the military regime (1964–1985). In 1990, the INPS merged with the Financial Management Institute of Social Security (IAPAS) to form the National Institute of Social Security (Instituto Nacional de Seguridade Social, INSS).

In the field of social security policies, no privatizing reforms were instituted. The pension reforms undertaken in Brazil since the 1990s have preserved the public component of the system. However, changes in benefit eligibility requirements created additional difficulties for a considerable percentage of workers, especially those earning low wages and employed irregularly or intermittently.[11]

Despite some topical, specific changes, the regulation of labour in Brazil remained strongly connected to contributory welfare, revealing a certain resilience in face of the repeated attempts at reducing the State's role and asset allocation to social protection. Thus, the unfavorable conditions prevalent in the Brazilian labour market in the 1990s managed to momentarily demobilize, but not deactivate, the political-regulatory framework that governs labour relations in Brazil, revealing the strong dependence of the trajectory of labour institutions upon their initial configuration.

5.3 – Rediscovering the labour-welfare connection: The appreciation of the minimum wage as a social policy

The growth of the Brazilian economy in recent years has been one of the most important aspects of the improvement of the national labour market. Since 2004 there has been a relative high degree of growth in formal employment, leading to a return of worker participation in contributory social security. Between 2003 and 2012, formal employment positions in Brazil increased from 29.5 million to 47.4 million, an absolute increase of about 17.9 million. Over this period approximately 1.8 million formal jobs were added per year (Table 2). The accumulated growth in contributory social security between 2003 and 2012 was 70.4%, and the average annual rate of growth was 6.1%. The unemployment rate of the economically active population (PIA) declined from 10.5% in December 2002 to 4.9% in April 2014.

[11] After the introduction of the so-called Welfare Factor Law (Lei do Fator Previdenciário), with the welfare reform of 1998, the requirements concerning pensions have become too strict for workers affiliated to the Brazilian General System of Social Security (Regime Geral de Previdência Social, RGPS), particularly in terms of the minimum employment period for eligibility.

Table 2. Brazil: Number of jobs, absolute and relative variation – all activities, 1990–2012

Year	Number of jobs	Absolute variation	Relative variation (%)
1990	23,198,566	-1,287,912	-5.26
1991	23,010,793	-187,863	-0.81
1992	22,272,853	-737,950	-3.21
1993	23,165,027	892,184	4.01
1994	23,667,241	502,214	2.17
1995	23,755,736	88,495	0.37
1996	23,830,312	74,576	0.31
1997	24,104,428	274,116	1.15
1998	24,491,635	387,207	1.61
1999	24,993,265	501,630	2.50
2000	26,228,629	1,235,364	4.94
2001	27,189,614	960,985	3.66
2002	28,683,913	1,494,300	5.50
2003	29,544,927	861,014	3.00
2004	31,407,576	1,862,649	6.30
2005	33,238,617	1,831,041	5.83
2006	35,155,249	1,916,632	5.77
2007	37,607,430	2,452,181	6.98
2008	39,441,566	1,834,136	4.88
2009	41,207,546	1,765,980	4.48
2010	44,068,355	2,860,809	6.94
2011	46,310,631	2,242,276	5.09
2012	47,458,713	1,148,082	2.48

Source: Relação Anual de Informações Sociais, do Ministério do Trabalho e Emprego (Rais/MTE) (2013).

However, it is important to note that this improvement in labour indicators originated from a *deliberate policy strategy* to boost formal employment and increase overall wages. In terms of the recovery of the state's ability to set a miminum level of pay and therefore generate redistributive effects from the constitutional pegging of welfare pension values to the minimum wage, the relation with erstwhile State capabilities in this area is evident.

The minimum wage valuation policy was the most important measure implemented by the Luiz Inacio Lula da Silva (2003–2010) and Dilma Rousseff

administrations (2011–2016). This policy, aside from being crucial to the elevation of basic wages, influenced negotiations on entry- and basic-level wages across all industries, positively impacting income distribution and helping to reduce poverty and increase household consumption.

The importance of the minimum wage in the Brazilian case is due to the large amount of workers who receive wages close to minimum wage level, and that most welfare benefits are pegged to the minimum wage as a reference value. The minimum wage also serves as a reference for all wages in the market, since its real increase (over inflation) exerts a positive influence on wage negotiations. This in turn boosts trade unions' capability for collective action under a favorable economic and political environment. (Baltar and Leone, 2012). According to data from the Inter-Union Department of Statistics and Socioeconomic Studies (Departamento Intersindical de Estatística e Estudos Socioeconômicos, Dieese), from April 2002 to January 2013 the minimum wage accumulated a real gain of 70.49%; and in 2008, 80% or more of all professional categories negotiated wage increases above the inflation rate, and almost 95% the professional categories did so in 2012 (Dieese, 2013).

The most important recent measure taken in this context was the enactment of Law 12,382 of February 25, 2011, which set guidelines for the valuation of the minimum wage between 2012 and 2015, with automatic adjustment to preserve purchasing power corresponding to the variation in the National Consumer Price Index (Índice Nacional de Preços ao Consumidor, INPC) which measures inflation, therefore building in real gains. It mandated that wage increases from 2012 be adjusted according to the actual growth rate of the previous year's GDP, and so on for subsequent years.

In addition to wage-buildup policies, also deserving of note are the social security, employment and labour protection policies, as well as the supervisory role of labour regulatory bodies which, as a whole, that have institutionally strengthened the Brazilian labour market in recent years. Brazilian social security is contributory, mandatory for formal jobholders, provides retirement benefits and disability and death pensions and includes maternity, unemployment, sickness and accident benefits. It is managed by a large State agency, the National Institute for Social Security (Instituto Nacional do Seguro Social, INSS), responsible for the

distribution of pensions and other benefits to workers, except for public servants, and is marked by strong bureaucratic capability and broad territorial capillarity. Among the social security benefits administered by the INSS are minimum wage pensions for the majority of inactive urban workers, who are affiliated to the RGPS, and almost all rural workers,[12] which together currently represent about 66% of the total social security benefits paid out (Jaccoud, 2009; Brazil, 2011a).

The social security coverage levels of the elderly in Brazil are reasonably close to universal, with over 80% of this group receiving pensions (Brazil, 2011a). It is worthy of note that social assistance in Brazil is a universal right guaranteed by the 1988 Federal Constitution (CF/1988), which includes benefits for the protection of vulnerable groups, highlighting non-contributory 'continued provision benefits' (Benefícios de Prestação Continuada, BPCs) for the elderly and the disabled.[13]

The reduction of poverty and inequality observed in Brazil in recent years is largely due to income transfer through welfare pension and social assistance. However, an ongoing challenge for the Brazilian social security system is the existence of 10.7 million people working autonomously without any protection. The Brazilian government has taken steps to remedy this by encouraging the inclusion of workers without means to meet contribution obligations through the 'Super Simple' or 'National Simple' regime for micro-businesses and autonomous workers, and Complementary Law 128/2008, which created the figure of the individual micro-entrepreneur (MEI). The effectiveness of these measures was evident by 2009, when an increase of 3 million self-employed workers protected by social security was recorded (IPEA, 2012).

The future of Brazilian social security will depend, therefore, on formal, stable jobs. In recent years, the growth in this type of employment has increased the number of RGPS contributors, thus ensuring its financial sustainability (Figure 5).

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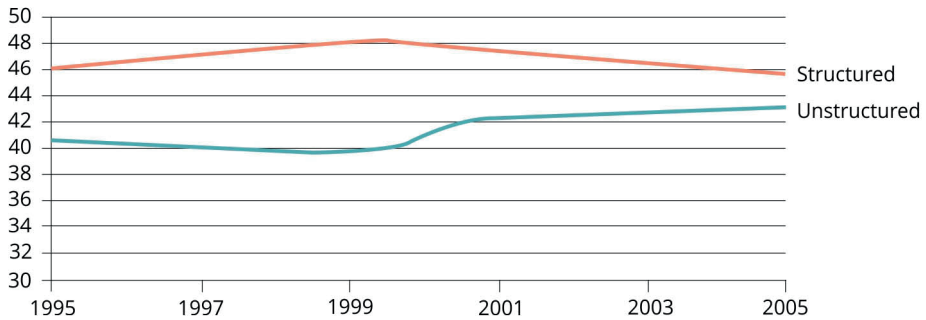
12 Brazil has an emblematic, unique rural social security system that has contributed to a substantial reduction of rural poverty and of disparity among the different regions of the country by enabling the non-contributory participation of rural workers as a 'special welfare beneficiary'.

13 The BPC is a monthly transfer of the equivalent of a month's pay at the minimum wage to people over 65 or persons with disabilities whose per capita monthly family income is less than one quarter of a month's pay at the standard minimum wage. This benefit, although processed by the INSS, is funded by the Ministry of Social Development and the Fight against Hunger (Ministério do Desenvolvimento Social e Combate à Fome, MDS).

As regards the supervision of the labour, the actions undertaken by the Public Surveillance System for Labour Inspection (Sistema Público de Vigilância e Inspeção do Trabalho), which consists of three bodies: the Ministry of Labour, the Labour District Attorney (Ministério Público do Trabalho) and the Labour Courts (Justiça do Trabalho), are worthy of mention. The trend during the 1990s in Brazil was direct negotiation mechanisms for the private, decentralized settlement of labour disputes. In this sense, the predominant orientation ran against regulated labour relations, emphasizing the decisions reached on the factory floor in detriment of legal rules. Within the various regimes themseleves, there was a consistent effort to bring about 'systemic impracticability' among supervisory bodies.

Figure 5. Evolution of the formally and informally employed populations in Brazil, 1995–2005 (in %)



Source: Cardoso Jnr (2007).

However, in the last decade there has been a significant reaffirmation of ILO's principles of 'decent work,' which comprises labour inspections, increasing the autonomy of labour inspectors in the exercise of their functions. Even though the Ministry of Labour's auditor contingent is still insufficient to tend to all labour inspection issues, a significant increase in the number of hires for this function has been observed in recent years, from 250,000 in 1999 to 746,000 in 2007 (Brazil, 2011b). The inspection system also bears important effects on social security, in terms of preventing employers from committing fraud with regard to their contributions and the illegal accumulation of benefits. In this respect, it should be noted that the creation of the 'Super-Revenue' in 2004, which unified the social security collection and tax collection and inspection systems, has enabled

cross-referencing and thus improved the monitoring capability of the entire system. Another measure worth mentioning in this context was the creation of mobile inspection groups to implement the Child Labour Eradication Program (Programa de Erradicação do Trabalho Infantil, Peti) and the National Plan for the Eradication of Slave Labour, in partnership with the ILO.

Policies to improve the labour market – in particular, labor intermediation and professional qualification – have always had little impact in Brazil. Professional qualification actions were limited to directing unemployed workers to qualification courses, which did little to improve their practical skills for the labour market, there being a marked dissociation between educational and pro-labour policies. Government efforts to overcome these problems led to the creation of the Access Program to Technical Education and Employment (Programa de Acesso ao Ensino Técnico e Emprego, Pronatec), which seeks to improve the qualification services in the country and strengthen the public vocational and technical education network.

However, the operational and qualification policy management structures are still inefficient with regard to their integration. The first challenge is therefore to overcome the structural problems that hinder the implementation of an integrated national professional qualification policy that would involve different ministries, especially to address the intense turnover that characterizes the Brazilian labour market.

5.4 – Old constraints

Notwithstanding the presence of comprehensive labour legislation ensuring a variety of key rights, a peculiarity of the labour regulation system in Brazil revolves around the fact that companies enjoy a considerable degree of autonomy in making adjustments in their employee relations. In fact, in spite of a well-articulated legal framework for labour protection, the fact is that the Brazilian labour market is characterized by strong *contractual flexibility*.

Analysed from the angle of employment periods, the labour market's flexibility is remarkable. A large number of workers participate only intermittently in the formal labour market, constantly alternating between jobs and being out of work for years in a row, which jeopardizes their regular participation in welfare contribution. When considering formal jobs alone, per the 2010 RAIS the average

employment time in Brazil was estimated at 4.4 years (Dieese, 2011, p. 59), which places the country behind all other OECD countries except the United States, a paradigm of flexible labour.

From 2000 to 2009, in spite of a recovery in formal employment levels, in-between-job periods lasting less than six months of duration exceeded 40% of all terminations recorded each year. About half of the jobs did not last three months, two-thirds did not last a year and 76% to 79% did not last two years. It is noteworthy that more than two-thirds of the layoffs in this period were due to employer strategies such as downsizing (Brazil, 2011b).

A particular aggravation of the sharp turnover rates in the Brazilian labour market involves the fact that the average pay of new hires is less than the average salary of terminated person in the same job role, with few variations. The high worker turnover in companies is a powerful mechanism to contain wages, with the replacement of better-paid workers by others earning lower wages. Moreover, this turnover is strongly pro-cyclical, revealing that the restrictions on layoffs in the country are mainly economic, being due to the ample freedom employers enjoy to adjust labour relations to economic cycles and the seasonality of activity levels.

In spite of shrill employer outcry against the 'rigidity' of labour legislation, Brazil remains a non-signatory party to ILO Convention 158, which seeks to inhibit unjustified dismissal. In this sense, the obstreperous discourse in vogue in Brazil calling for further deregulation makes little sense, given a reality that prevents the attainment of several ILO objectives and impedes the attainment of the objectives of several labour and social security norms.

6. CONCLUSION

This chapter has demonstrated the importance of public regulation of waged labour and of welfare for the structuring of highly heterogeneous labour markets that coexist with high levels of informality, such as the labour markets in the countries under discussion.

Given the widespread notion that the pathways for the institutionalization of a social policy supported by labour protection statutes are definitely precluded by fiscal constraints and the requirements of economic competitiveness, countries

such as Argentina and Brazil have shown in recent years that regardless of their problems there is considerable ground for a State to replicate forms of protection similar to those prevailing during the so-called Fordist cycle of capitalist regulation.

Notwithstanding the issues pertaining the informality and quality of the jobs created, Argentina bet successfully on the replication of social policies focused on protected labour, which seemed exhausted under the hegemony of market-oriented reforms during the 1990s. Exemplifying a typical case of (re)regulation of labour relations after the dismantling of social security and labour institutions, the Argentine State in the 2000s and up to the current Macri administration expeditiously recovered its traditional prerogatives in the field of social intervention. In Argentina in the mid-2000s, unlike in the 1990s, labour conflict became more institutionalized and focused on capital/labour relations. This was due to the credibility that collective bargaining dynamics acquired, especially among workers, and their support by the State. Incidentally, if there is an element of novelty in the Argentine context in relation to prior periods, it is the greater involvement of the State in the coordination of distributive conflict.

In Brazil, the new process of social rights regulation that derives from the CF/1988 Constitution is ultimately the late fruition of a truncated movement that had emerged in 1930 and was materialized by the CLT, was interrupted by the Military dictatorship, and once again is being aborted by the new non-elected, aggressively neoliberal Temer administration. What was new during the 2003–2016 Labour Party (Partido dos Trabalhadores, PT) government was that this process occurred in a democratic environment, with widening political participation. Since then, the tone of social legislation has focused on the core principles of social security through the boosting of universal access to various initiatives, such as public healthcare and non-contributory poverty-relief welfare, but has not failed to uphold the former protection system initiated by the Vargas administration's legislation, which was typified by the connection between labour and contributory welfare. Thus, the democratization context set a precedent, a new critical juncture, for the mobilization of the Vargas social legacy, side by side with building up new social rights provided for in the 1988 Constitution. However, fiscal austerity policies undertaken in the 1990s tried to demobilize this legacy and, though unsuccessful, deepened the labour market's structural problems, with a consequent growth of informality and unemployment.

In response, without neglecting the laws that guided the construction of its social protections, Brazil from 2003 to 2016 seems to have rediscovered the path of growth that includes redistribution and the creation of formal jobs. Wage recovery policies, supported by contributory welfare programs and non-contributory constitutionally guaranteed benefits that are considered rights, all of which are pegged to the minimum wage as a reference value, had a solid impact in reducing poverty and inequality. Therefore, the current 'comparative institutional advantages' in the Brazilian context, involving a comprehensive contributory public social security system with labour regulation policies along with a recent emphasis on vocational qualification policies, ensured up to 2014 sustained economic growth and ushered in a new favorable environment for the integration of new demographics into social protection statutes. However, issues pertaining to intense labour turnover still persist, and pose serious challenges to the continued growth of formal, regulated employment.

Roussef was removed in September 2016 through a controversial impeachment process, originally on the basis of corruption, then of violation of fiscal regulations, then at last on the basis of a merely political judgment. Immediately after her reelection in 2015 a filibustering campaign started, demanding her removal at all cost. The hegemonic strength of the conservative media, which is not balanced in the country by any moderate media or press, is considered to have been key factor in this process.

The current Temer administration is dismantling all labour and social rights and attempting to modify the constitution to severely curtail public social spending, place rent-seeking as the priority in the federal budget, and privatize public health and education. The next two years, which will see elections in 2018 and their repercussions, will be determinant in defining the country's path, currently at a crossroads in terms of development between continuing on a virtuous path and embarking upon a profound regression.

Diverging significantly from Argentina and Brazil, the situation in South Africa has demonstrated that mere non-contributory poverty relief assistance is a fragile basis for the construction of social policy, whereby minimum-guarantee policies are disjointed from labour protection dynamics. Unlike Argentina and Brazil, South Africa lacks institutions and policies that ensure protection

for and income to workers, having insufficient bureaucratic capability in this area. Symptomatic of this difference is the fact that South Africa finds it very difficult to distribute income in times of growth, due to the absence of a public contributory social security system, the inconstancy of labour regulations, and the low effectiveness of labour policies. The South African case is emblematic of a dilemma faced by some peripheral countries: the choice between pursuing an effective welfare-state-building strategy and adopting 'efficient' but self-limiting measures to relieve poverty. Once these policies have exhausted their potential for inclusion, thinking up new and more stable strategies for the integration of vulnerable demographics into the labour market becomes necessary.

It is very difficult to fight poverty without an explicit commitment from a State to the creation of stable quality jobs - especially in societies marked by deep inequality. The question is what to do with those segments of the population who have just recently emerged from extreme poverty, often mistakenly called a 'new middle class'. Simply include them in the consumer market, via a hypothetical equality of opportunities? After all, when the simple inclusion through consumption reveals itself to be a fragile fortress, where will the 'new middle class' turn, without support from stable jobs and social protection?

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CHAPTER 8

COMPARED STATE CAPABILITIES: CHINA AND THE REFORM OF THE NATIONAL INNOVATION SYSTEM

Anna Jaguaribe

1. INTRODUCTION

Technological development, understood as the promotion of knowledge and of scientific and technological catching-up, has been a central objective in the reform and opening-up processes in China from the start and present in all government plans since 1978. As pointed out by Wu Jinglian, one of the main economists who worked on the reform process, 'the economic development of a country has two major driving forces: technology and institutions' (Naughton, 2013, p. 33). Reform of the National Innovation System (NIS) began in 1985, with the reorganization of the academies and research institutes, and the Torch Program, dedicated above all to the expansion of knowledge. After 2004, planning for science and technology became far more detailed and included goals that associated the development of new fields of knowledge and research with the manufacturing industries and subsequently the strategic industries.

China's Medium- and Long-Term Plan for Development of Science and Technology for 2006–2016 stipulated thirteen science and technology megaprojects with implementation goals for each area. With the Twelfth Five-Year Plan (2011–2015), technological development – in particular, the ability to develop endogenous technologies – became a strategic goal for the transformation of China into an innovation economy. It should be noted that development policies

for scientific and technological catching-up preceded and to an extent guided the formulation and execution of industrial policies (Xue, 2011).

Throughout the reform process, there has always been a strategic concern with harmonizing the following elements: the expansion of knowledge, industrial catching-up, economic and industrial positioning at the frontiers of knowledge and adaptation to the changes throughout national and global economic cycles.

Interviews with faculty at Tsinghua University and the Chinese Academy of Science and Technology for Development (CASTED) for this study suggest that the strategic industries development program is, by and large, a more strategic than economic objective.

Planning for technology policy, its formulation and execution bear special features. Such policy is quite distinct from industrial sectoral policies in terms of methodology, scope, the consultative and consensus-building process and variety of actors involved in the preparatory process and in decision-making. Furthermore, in China the programs are unique, because of the magnitude of financial resources available; the coordination of targets with macroeconomic, trade and foreign investment policies; and prospective visions of the country's role in global economic competition.

Planning for science and technology is approved by the State Council. The consultative process begins with one of the leading groups with high-level representation; the academies and ministries dedicated to the theme are among the most qualified organs of State. In this sense, a study of the evolution of technological policy unveils a microcosm of the institutional changes characterizing the relations between State and market in China today.

This chapter examines the evolution of Chinese technological policy, focusing on its objectives, governance and vision of the future. It is proposed that technological policy, throughout the reform process, gradually grew in scope and complexity to create a new paradigm in technical and industrial policy.

The NIS, which began in 1985, functions with a coherence of its own in terms of goals, interests, targets, rules and constant review of policy instruments so as to build a political standard, a particular modus operandi, for the relation between State and market. The State's role in technological policy is marked by a strategic

concern for knowledge, as distinguished from policies encouraging innovation merely due to market failures. Technical-industrial policy in China distinguishes itself from other Asian catching-up experiences, due to the policy instruments it uses, notably foreign direct investment (FDI) for the reform of industrial manufacturing; the particularity of the financial system, which favors State-owned companies; and the very process of market creation, which is also driven by the State. A paper by the Organization for Economic Cooperation and Development (OECD) on the Chinese NIS discusses the special role the State plays in innovation policy, which is needed because of the fragility of businesses, the regional disparities within the manufacturing industry, the distortions between incentives for research and for innovation and the uncertainties regarding laws regulating private property (OECD, 2007).

What is argued herein is that China's particularity is grounded not so much in the fragility of market regulations, but rather on the fact that the NIS develops concurrently with the market's expansion, i.e. organically with the businesses. Equally important, the technological policy is a response to criticism regarding the country's lagging behind in science and technology, in historical terms. The emphasis on scientific and technological modernization is prior to industrial policy. The emphasis on technology also creates in turn an environment conducive to coordination between trade, investment and industrial policies. China stands out for the unique way reform of the country's economic-industrial system has been tied in to the sweeping changes in production relations caused by the fragmentation of the electronics industry, globalization of research and the revolution in manufacturing production.

In this sense, the challenge today facing innovation policy, after over thirty years of reform, revolves not so much around the institutional deficiencies commonly attributed to the State – even if they are present – but around the difficult task of governing the choices and contradictions that necessarily arise during the transition of an innovation system based on catching-up policies to a full-fledged innovation economy.

2. EVOLUTION OF STATE-MARKET RELATIONS IN CHINA: CONCEPTS AND THEORETICAL PARAMETERS

In the context of this study, the NIS is seen from the perspective of the evolution of State capabilities, being understood as the institutional capacity to formulate, coordinate and realize technological policy objectives. In this sense, the concept of State capabilities embraces both the bureaucracies and the spaces for State action, such as the dynamics of political activity – that is, the ability to build coordination and consensus-building spaces, or policy spaces, between the mid-term and long-term goals and the national and international opportunities.

The importance of forging coalitions of interest and structured consensuses capable of promoting and reviewing policy goals is emphasized (Naughton and Chen, 2013). It also points to the capacity of managing conflicts, pursuing a vision of the future and articulating political spaces around working towards the attainment of goals. This is based on the assumption that the transformational capacity of such policies ultimately depends on the relationship between the relevance of the policy (its goals and objectives) and the adequate governance of the process and the circumstances that contextualize it (Rodrik and Hausmann, 2003).

The analysis of the reform process in China tends to contrast the synchronic and diachronic views, highlighting institutional failures in a system marked by continual, if not constant, change. The analysis of Chinese development conducted by the World Bank is a good example of this vision (World Bank, 2012). The most ubiquitous criticism focuses on the operation of the Chinese market and the precariousness of the rules defining relations between State and market and safeguarding economic activity and private property. Critics hold that the absence of, or bias in, rules makes the Chinese business community volatile, the market opaque, the financial system limited and industrial growth overly associated to the public investment machine. Huang (2008) and Pettis (2013) consistently point to these institutional weaknesses as crucial for the evolution of Chinese balanced growth. Behind these arguments lies the idea that capitalism when driven by above and catering to markets abroad limits the incentives and market mechanisms that drive innovation.

The discrepancy among assessments of Chinese economic success and market frailty is explained, in part, by the theoretical baggage associated with the analyses of the models and *varieties of capitalism*. These theoretical schemes have historical etiologies that orbit the evolution of the capitalist State in the West and, in particular, how the spaces between State and market articulate with the development of power and legitimacy structures in Western societies.

In the West, the legitimacy and authority of a State and its autonomy to implement public policies unfold from the institutionalization of the separate spaces occupied by a State and its market. The very concepts of a company and of management depend on the delimitation of such areas – a delimitation that is still imperfect in China. Yet in spite of the legal indetermination that persists regarding private property, China was the emerging country that attracted the most foreign direct investment in the late twentieth century.

China's uniqueness had already been pointed out by Weber, for whom the mandarin system, even though it promoted meritocracy in government, did not ensure the bureaucracy independence from the emperor and, as such, was not capable of supporting capitalist development. This same argument has been repeated with respect to the role of the Party-State in contemporary China. In the classical liberal context, the Party-State cannot provide the separation of powers that a capitalist market society requires. In this sense, the criticism of the development of the market economy in China highlights the fragility of the institutions that would allow for the full-fledged development of market capitalism. Seen in this light, the singularity that would make of China an example of an extreme variety of capitalism is its distinct historical evolution regarding market development and regulation. The ongoing reform process shows attempts to regulate an institutional framework that will incorporate and modernize long-standing market practices. The discrepancy between the idea of governance by law, on the one hand, and the practices of socialization or use of social capital, which is known as *guanxi*, on the other, is an example of this.

Nevertheless, as argued by authors as diverse as Arrigui (2007) and Kissinger (2012), China has always been a regional market economy that has developed in an alternative manner. The formation of the State in Asia, like the evolution of the market and tax system in the region, both precede and differ from the evolution

of their counterparts in Europe. Arrigui (2007) points out that State-market relationships do not always necessarily evolve in the direction of capitalism. Complex commercial networks have thrived in China since the Song period both under the protection of and sidestepping the tributary empire, allowing the evolution of the parallel careers of the merchant class and the mandarins, responsible for trade and for the meritocratic public bureaucracy, respectively.

As of 1949, the new Chinese State rearranged several types of State capability that had developed under Japanese occupation during the Kuomintang period. New skills and numerous sectoral ministries were organized vertically under the aegis of central planning that commanded industrial activities and specific economic functions. After 1978, the dismantling of the planned economy and the expansion of the market economy led to significant changes in State organization and the governance of the relations between State and market. New administrative and financial bodies were created with autonomy over their own jurisdictions. There was a gradual separation between State and government, sector ministries and State industries. Sectoral and functional bureaucracies were gradually replaced by ministries and horizontal coordination bodies, enabling greater inter-ministerial coordination. Table 1 presents the important changes in each of these instances.

The governance rules that guide the relation between State and market changed along the different stages of the reform process. As mentioned by Naughton (1996), urban markets and industry were freed to 'grow out of the plan'. In this context, economic fact precedes institutional adaptation. Business regulation and the financial and fiscal reform of 1994 followed the opening of the market. Similarly, the reform of State companies began long before the creation in 2003 of the organ designed to control them, the State-Owned Assets Supervision and Administration Commission of the State Council (SASAC). These examples indicate how the market economy preceded and stimulated institutional change.

Changes in the State apparatus and the rules of governance of the interaction between State and market are processed within the political framework of the Party-State. In search of the new capabilities and governance arrangements needed for an increasingly complex society, State and party are transformed.

Table 1. Institutional changes in China (1978–2012)

	1978–1992	1992–2000	2000–2012
State	Abolition of controlled planning structures. Transformation of village and town companies. Creation of exports processing zones.	Reform of the financial system and fiscal reform. Reform of state-owned companies. Opening to FDI	Reorganization of ministries. Creation of the National Commission of Development and Reform (NDRC), responsible for horizontal coordination of reforms. Creation of SASAC, responsible for state-owned companies.
Communist Party of China (CPC)	Evolution of the party system. Separation between political and military leaders. Increased technical staff – partisan technocrats.	Consolidation of the collegiate leadership and 'collective presidency' consensus-building system.	CPC opens to varied political representations. Flexibility in the nominations of political nomenclature/ leaders.
Government	Strategic planning with extensive consultation.	Business regulation and company laws. Reform of the financial and tax system. Opening to FDI and setting up of regulatory framework for investments. Regulation of the capital market in preparation for entry into the World Trade Organization (WTO).	Regulation of the renminbi, progressive regionalization. Increased regional and inter-regional agreements. Expansion of global investments. Creation of the Shanghai free trade zone.

Source: Prepared by the author.

The government proposed several objectives for State reform through the creation of new legal and institutional arrangements that allowed greater flexibility in the response to governance demands. *Democratic governance* was sought, defined as an efficient legal and administrative system. The CPC strove to professionalize its cadres in order to maintain its centrality among government functions (Florini, Lai and Tan, 2012). Both the State and the Party were transformed with the reform. The State expanded and was institutionally modernized, separating its administrative bodies. The separation of the State companies from the sectoral

ministries and the latter's conversion into legally autonomous groups was part of this process. The CPC, as mentioned by Shambaugh (2009), was transformed by means of a process that included professionalization, expansion and streamlining.

3. THE SINGULARITIES OF THE REFORM PROCESS AND OF THE CHINESE DEVELOPMENT MODEL

The institutional changes described in the previous section partially explain the singularities in the relationship between State and market in China, but it was the economic choices made at each step of the reform that shaped the development of State organization.

Over the past 35 years, China's gross domestic product (GDP) has skyrocketed an average of 10% per year. The economy expanded into a global manufacturing center and the final stage in a complex electronics value chain. Various elements characterize this accomplishment: strategic long-term planning, high rates of investment and savings and a financial system composed of public banks that not only facilitated large investment in infrastructure, but also provided abundant credit for the large State companies (Breznitz, 2011).

The literature on the reform process points to a few unique characteristics that distinguish China from both the Eastern European transitions from socialism to a market economy in the 1990s and the catching-up process of the Asian Tigers (Anderson, 2011; Heilmann and Shi, 2013). The historical singularities of market development in China, as well as the legacy of a controlled economy and the lack of a suitable financial system, made it difficult for China to replicate the modernization strategy of Japan, South Korea and the other Asian Tigers.

The comprehensive study of Chinese innovation made by the OECD in collaboration with the Ministry of Science and Technology of China (MOST) in 2007 highlighted a number of factors that set the Chinese model apart from the rest of Asia: their way of opening up to international business, the modalities of FDI that were used and the negotiations that required technology transfers for market access (OECD, 2007). It points out that the use of FDI was not an option motivated by precarious domestic savings, but rather a strategy for technological modernization. The high savings and investment rates, higher than the Asian

average, remained elevated throughout the entire productive transformation process.

The expansion of the market economy happened concurrently with the scientific and technological catching-up effort. This implies that the creation of new private companies and the restructuring of the public sector took place simultaneously with modernization, influencing the domestic competition. The high import rates associated with the processes of diversification and of closing the technology gap were offset by ample exports and the transformation of China into a global manufacturing center. The diversification of the manufacturing industries and productive sector that began with the creation of export processing zones was followed by the insertion of China into global production chains.

This complex opening-up and reform process led to the development of a very differentiated manufacturing industry, where several types of property coexist: large State-owned companies in strategic sectors controlled since 2003 by a horizontal committee (SASAC), several types of public companies, cooperatives, private companies, joint ventures and foreign companies.

Table 2 shows a profile of the manufacturing industry and the technological and research and development (R & D) capability of companies in 2003.

Table 2. Profile of the industrial sector and of the technological and R & D capability of companies (2003)

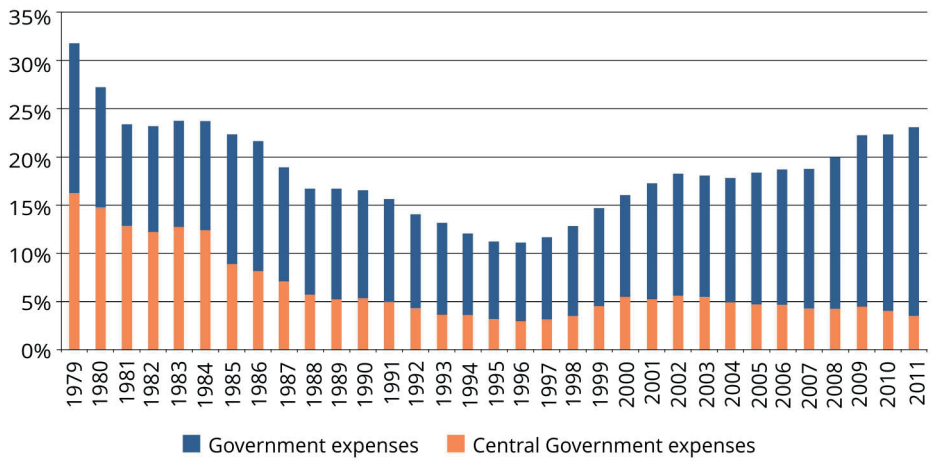
Companies	Universities	Research institutes
Of the 22,276 large and medium-sized Chinese companies, 5,545 have R & D laboratories.	Of the 1,552 Chinese universities, 678 conduct R & D activities, and 87 have public laboratories.	4,169 research institutes operate 52 major laboratories.
Of the 248,813 small businesses, 22307 carry out R & D activities.	In 49 university technology parks, 4,100 start-up businesses are housed.	
There are technology parks in 32,857 companies.		
There are incubators in 27,285 companies.		

Source: OECD (2007, p. 30, box 2.1).

The industrial sector is widely varied in size, as shown in Table 2, and also geographically. Several various industrial and technological regimes coexist within the country: exports manufacture processing zones, industries associated with global production chains in the electronics industry, small and medium-sized high-tech companies, and traditional industries competing in the domestic market for local niches.

Notwithstanding that China's constitutional system is unitary and not federal, local governments still enjoy great autonomy over investment decisions. This autonomy derives mainly from the control of land assets and the privatization of local State enterprises. This has enabled the development of varied, manifold production and technological regimes throughout China. Figure 1 illustrates the importance of regional decisions in the Chinese economy.

Figure 1. Central and local spending in proportion to GNP, 1979–2011 (in %)



Source: Naughton (2013)

The market-opening process was designed largely as a catching-up program, and the economic policy was designed taking into account the need for transfers and acquisitions of and large investments in technology (Naughton, 1996; Hu, 2011). In this sense, China's growth followed a trajectory similar to other Asian catching-up processes. However, there are singularities in the Chinese growth model that carry direct implication for technological development.

3.1 – Implications for technology policy

Box 1 shows how the conduct of economic policy, geared for growth, can give direction to technological and industrial policy.

Box 1. Economic and industrial policy

- Investment-driven growth enables long-term funding for science and technology.
- State companies help structure the investment process.
- Technology import policies with low tariff rates are warranted by the massive exports.
- Market access is negotiated with priority for the desired technologies.
- The construction of the market economy simultaneously with technological catching-up fosters competitiveness in the domestic market and the compliance with global technological standards in production.

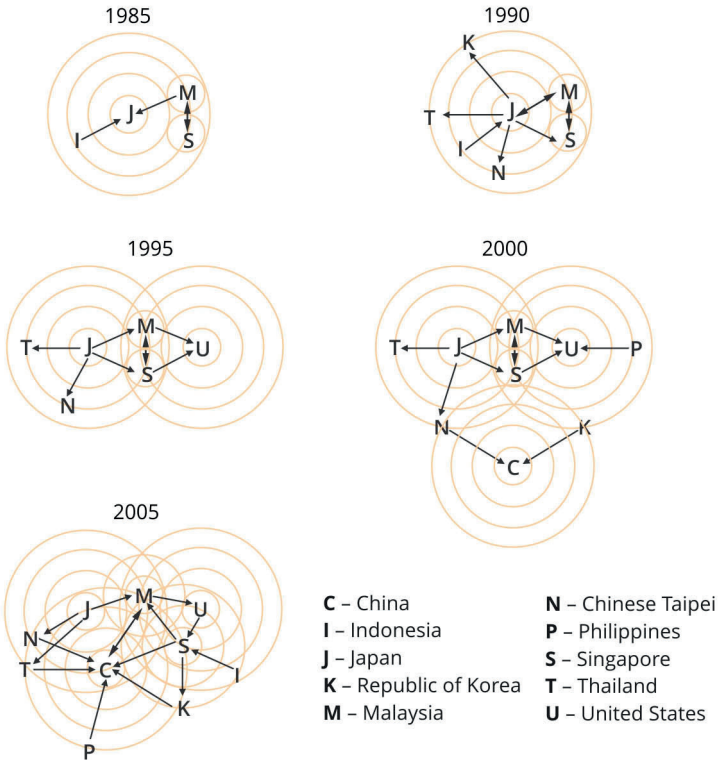
Source: Prepared by the author

3.2 – Globalization, reform and access to technology

China in the 1950s benefitted from an intensive scientific and technological program of cooperation with the former Soviet Union. The détente with the United States in 1972 also brought about American goodwill for technological cooperation with the West. However, China, when embarking upon reforms in 1978, already possessed an impressive ensemble of scientific capabilities, as well as a versatile and skilled reserve of manpower that facilitated the absorption of foreign investments and predisposition for international cooperation.

The opening process also benefitted from a long tradition in regional trade, the great Chinese Diaspora having been the first to participate in the process of globalization of China's economy. Exports manufacturing and processing zones opened by Deng Xiaoping in the early reforms were located in close geographic proximity to the large diasporas of Hong Kong, Taiwan, Singapore and Malaysia (Arrigui, 2007). Figure 2 shows the evolution of China as a manufacturing center and its insertion in the Asian production chains.

Figure 2. Evolution of regional production networks, 1985–2005



Source: WTO and FDI-JETRO (2011, p. 75).

As shown in Figure 2, the industrial diversification process became a global business strategy after China's entry into the WTO in 2001. There is consensus in the academic debate that China's entry into the WTO has worked both as a driver for internal reform and as a long-term international protection strategy. WTO's legal framework, cleverly used, did not preclude China from combining an industrial incentive policy (wages, prices and subsidies) with an aggressive global marketing policy.

It should be noted that the active WTO-insertion policy did not contradict a commercial policy pursuing regional agreements and keeping close proximity with the Association of Southeast Asian Nations (ASEAN). This proximity is conducive to the development of multiple free trade agreements and intensifies

trade and investment relations between China, South Korea, Taiwan and Japan. This scenario, marked by China benefiting from both a global presence and intense regional trade, is today being challenged by the US attempt to negotiate mega-trade agreements with the Asia-Pacific economic area and between the European Union and the United States.

The economic opening and the reform of the NIS coincided with major paradigm shifts in global production relations. The fragmentation of the electronics industry, the centralization of retail and the progressive globalization of R & D are elements that radically modified the process and the options for technology transfer, and created possibilities that simply did not exist before for the catching-up process. China has positioned itself skillfully to participate actively in such international openings (Breznitz, 2011).

4. INSTITUTIONAL FRAMEWORK: PLANNING AND DECISION-MAKING

China today has accumulated more years under reform than were spent building socialism. Over this long, ongoing experimentation process, the unique manner in which planning and decision-making dynamics have been developed, to counterpoint regional planning and decentralization, bears particular importance.

Strategic planning in China is associated with great decision-making latitude and flexibility at the regional level during the execution of policies. This decentralized decision-making process has provided China with several industrial manufacturing and production areas that evolved in parallel, each with its specific labour relations and markets geared to local production conditions. This has engendered a wide variety of technological paradigms, each with different relationships with the global economy. Added to this, the significant diversity of income levels between the rural and urban areas and among the manufacturing centers across the widespread geography make of China a palimpsest of production systems. To date, the labour market and the social security system in China have kept up with this diversity in production systems. That is, general guarantees are common to all, but the level of social benefits varies among the various regions and follows the geographical distribution of income (Florini, Lai and Tan, 2012; World Bank, 2012).

Although the economy's strategic industries are sheltered under the umbrella of large State enterprises, the reforms did bring about significant opening to FDI, which in many cases participated in the reform process of State-owned companies (Naughton, 1996, 2007). The role of foreign investment evolved gradually. It started with policies for opening to foreign investment restricted zones that specialized in exporting low-technology goods, progressing up to the achievement of integration into the electronics manufacturing regional chains. The Shanghai Free-Trade Zone – which allows trade in local or in international currencies and experiments in the opening of capital accounts, as approved by the government in 2013 – is the latest example of a new initiative.

The State's presence in the economy and its regulatory dynamics evolve with each planning exercise. The State centralizes, opens or deregulates, and then goes back to regulating again, the industries that are considered strategic to economic growth and technological progress. This capacity to *calibrate* institutions, combined with a significant decentralization in the implementation of policies, means that China does not fit into the developmental typologies that oppose State and market. The country would be better described as a form of hybrid capitalism in which the roles of the State and the market in the development of the GNP are constantly changing.

4.1 – Coalition of interests and consensus building: a few hypotheses

The combination of strategic planning and regional autonomy has given rise to several theories regarding the failures in governance during Chinese decision-making processes. Lieberthal and Oksenberg (1988), in a paper on Chinese energy policy, formulated the hypothesis that the decision-making process is characterized mainly by *fragmented authoritarianism*.

The association of planning, with its characteristics of vertical command, to the relative decision-making autonomy of local governments and the existence of multiple agencies and bureaucratic intermediations, at both central and local levels, will make the decision-making process fragmented and negotiated.

The financial system is a prime example of this fragmented authoritarianism. Public control of the financial system ensures investment decisions, but fragmentation during the implementation of policies favors the occurrence of

bubbles and the duplication of products. The excessive production of solar panels, and periodic bubbles in the construction market, are examples of this process.

Breznitz (2011) developed the hypothesis that the combination of decentralization with ample State investment creates zones of structural uncertainty that promote freedom of investment decisions. Thus distinct technological regimes are generated in the various regions of the country that are, however, favorable to secondary innovation. For example, the association between FDI and local governments in Beijing, Shanghai and Shenzhen has given rise to completely different technological and innovation regimes. In Beijing, the presence of science academies, large State-owned companies, and universities encourages the development of innovations in industrial parks. In Shanghai, the partnership between local government and FDI favors the creation of private companies with high technological density. Finally, in Shenzhen, conveniently distant from the dictates of State companies and universities, the major Chinese brands can develop. The structural uncertainty, according to Breznitz (2011), stimulates the spirit of competitiveness, global insertion, and investment in innovation – and makes China Asia's main manufacturing hub and a champion of secondary innovation.

Zeng and Williamson (2007), studying the performance of Chinese firms competing in the global market, point to other important factors. According to these authors, Chinese companies working in highly competitive conditions in the internal market can – due to low-cost skilled labour – reverse the costs of the innovation process, and are thus able to produce for the domestic and foreign markets technologically competitive goods at reduced cost. Thus, through secondary innovation, Chinese companies are able to develop different business strategies that guarantee niches in the global market. Another consequence is that a 'reverse Fordism' is created, producing cheap goods for consumers who receive low wages. This phenomenon, as pointed out by Castro (2011), has greatly benefitted the emerging middle class of large countries such as Brazil and India.

The interpretation that attributes China's growth to planning and State investments is often contrasted with the argument that it was, above all, the structural conditions of the economy in 1978 – labour, pent-up demand, low energy costs – that facilitated growth. In this context, the leap in Chinese growth of the 1980s was due to entrepreneurship being unshackled from the constraints

of a tightly planned economy. For Huang (2008), theoretician of this current of thought, China's economic dynamism thus stems from a combination of unique entrepreneurial spirit and exceptional production factors. It is not just the planning in itself, but rather an entrepreneurial and commercial spirit, education, the quality of labour and modern infrastructure that explain the success of the Chinese model. To these, I would add the unique opportunities of globalization of the 1990s: fragmented production in electronics value chains, unification of retail and displacement of R & D. From the point of view of this narrative, State expansion in the early twenty-first century and the globalization of Chinese enterprises form, in part, a setback to a market-opening process that would increase funding to private companies but not reaffirm the public company.

The binomial 'structural factors x historical circumstances' does not explain, however, China's success in navigating the reforms process across several economic cycles; the harmony between economic, scientific and technological policies; and the ability to forge new political spaces in the global economy. Naughton and Chen (2013) and Heilmann and Shi (2013) have returned to the discussion on the importance of planning with new arguments. They propose that the planning process has been modified over the years of reform, becoming more strategic and advisory at the same time. Planning was in equal measure strengthened by institutional changes that enhanced governmental horizontal coordination. For all of these scholars, China today, especially in the area of technology policy, is guided by a structured consensus – a basic agreement on the objectives, means, and ends among the managers directly involved in the decision-making and executive process. This consensus derives, in part, from the creation of groups and intellectual generations that circulate among academia, think tanks and planning agencies.

From a formal point of view, the planning process for science and technology includes several steps, intended to increase the scope of the objectives, detail targets, identify the appropriate mix of policy instruments and facilitate decision-making by government leadership. Naughton (2013) identifies four stages in this programmatic formulation: (*i*) extensive consultation within the academic and business communities, (*ii*) development of a programmatic document, (*iii*) decision-making and (*iv*) implementation. These steps lead to the building, in the author's opinion, of a broad consensus on the goals and methods, creating

institutional routines and reducing bureaucratic struggles for the control of the process.

Heilmann and Shi (2013) point to historical and political factors that complement the concept of structured consensus. According to the authors, during the reform process China forged an elite of planning technicians, a departure from the Japanese planning experience which the Chinese had studied, and developed a new interpretative paradigm for industrial and technology policy. This group of thinkers reached positions of command during the Hu Jintao administration and formulates policies under the aegis of a *common paradigm*.

The continuity in program objectives since 2004 and, in particular, between the mega-programs of 2006 and the new strategic industries program of 2011, points in the direction of this new paradigm. Interviews conducted at the academies of science and universities have confirmed the existence of a group of researchers and managers in the various formulation and decision bodies who share the same interpretative perspective on policy guidelines.

5. NIS: GOALS, STRATEGIES AND ACTORS

The first steps of the reform of NIS happened in 1985 with the restructuring of scientific academies and the policy of encouraging university modernization. The NIS is today composed of ministries, academies, universities, public laboratories and State company laboratories. The Council of State chairs the NIS and coordinates all bureaucracies and groups of science and technology leaders. These *leadership groups*, a particularity of the Chinese executive process, are organized around the strategic objectives of reform. They generally consist of the central figures heading the ministries involved and are chaired by the Prime Minister. The duty of leadership groups is both to supervise the implementation of policies and to critically evaluate their path and facilitate decision-making under the Party-State's command.

The NDRC acts as a horizontal body for liaising among the ministries and the State Council, with authority over the ministries and academies involved in the development and execution of plans. The main ministries in the system are Finance, Industry, Science and Technology, and Information Technology. The

main academies are the China Academy of Sciences (CAS), CASTED, and the Academy of Engineering.

In this institutional universe, there are universities and technology centers that operate as part of an epistemic community. There is also a scientific diaspora that stretches across the Pacific, encompassing Hong Kong, Taiwan, Australia, Japan, South Korea and the East Coast of the United States. This universe also incorporates the European Union, in particular Germany, with whom China has institutionalized innovation dialogues and regularly conducts future scenario exercises.

Xue (2011, p. 14) identifies three major movements and goals in NIS reform: (*i*) mid-1980s – domestic reform, stimulated by external examples; (*ii*) late 1990s – reform associated with the integration of China into the global economy; and (*iii*) after 2006 – integration with the global economy enabled by domestic reform. The policies adopted for this purpose were

- significant changes in the public research institute working model, after funding cuts to institutions and changes in the system of allocation of priority, incentives, and research evaluation;
- the integration of scientific production with the international scientific community;
- the opening of universities to the international community and to students and faculty from abroad;
- the providing of stimulus for intellectual production, publication of papers and patent registrations;
- the support of scientific academies, with guaranteed funding;
- the transformation of applied technology institutions into companies, and creation of technological and scientific parks in universities;
- the expansion in enrollment, strengthening universities;
- the creation of R & D centers in State companies;
- the establishment of a foundation to fund innovation in small and medium-sized companies; and
- the stimulation of the creation of R & D laboratories in multinational companies operating in China.

According to estimates by the OECD (2007), in 2003 about 1,050 applied technology centers incorporated, or were registered as companies; around 750 R & D centers in multinational companies were created; and college enrollment skyrocketed from 6.43 million in 1998 to 26.6 million in 2009. The World Bank estimates China will have a college graduate population of about 300 million by 2030 (World Bank, 2012).

Table 3 shows the changes in the entities receiving R & D funding.

Table 3. R & D funding by type of institution (1986–2001) (in %)

	1986	1997	2001
Industrial	35.3	42.9	60.4
Research Institutes	60.7	42.9	27.7
Universities	4.0	12.1	9.8
Others	0	2.1	2.1
Total	100	100	100

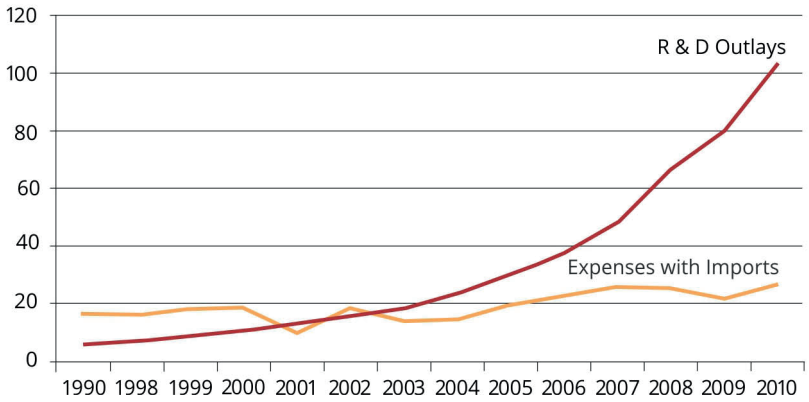
Source: Xue (2011, p. 16). Elaboration by the author.

The whole point of the reform of the NIS was to lead China to the frontier of scientific capacity and training, while strengthening businesses and the manufacturing industry. For this purpose, qualification and training in State–owned industrial manufactures was strengthened, which included the creation of R & D labs in companies. A gradual transformation of the exports agenda was promoted, along with the creation of champion companies and new Chinese brands capable of competing in the global market. State companies in strategic areas were strengthened in their global positioning, and the internalization of the value in production chains was worked on, making an innovation economy more sustainable. Figure 3 shows the takeoff in spending on R & D compared to technology purchases – an indication of a strategy focusing on strengthening the knowledge economy.

As of 2014-2015, China began an evaluation process of the described policies. Nevertheless, the gains made since 1985 are undeniable. China radically changed its export agenda and has seen a significant increase in company-driven innovation. Universities entered the global excellence rankings and the number of graduates in scientific disciplines grew exponentially. The comparison with Brazil in this

context is interesting. Tables 4, 5 and 6 reveal significant differences in the direction of spending on R & D and in the composition of human resources.

Figure 3. Spending on R & D and technology imports, 1990–2010 (US$, billions)



Source: Naughton (2013).

Table 4. China and Brazil: Spending on R & D relative to GDP and spending on R & D (2000–2009) (% of GDP)

	China (% GDP)	Brazil (% GDP)	China[1] (% GDP 2000)	Brazil (% GDP, 2000)	China / Brazil[2]
2000	0.9	1.0	0.9	1.0	2.2
2001	1.0	1.0	1.1	1.1	2.4
2002	1.1	1.0	1.3	1.1	3.0
2003	1.1	1.0	1.6	1.1	3.6
2004	1.2	0.9	1.9	1.1	4.3
2005	1.3	1.0	2.4	1.2	4.7
2006	1.4	1.0	2.9	1.4	5.2
2007	1.4	1.1	3.5	1.7	5.2
2008	1.5	1.1	4.2	1.8	5.7
2009	1.7	1.2	5.1	1.9	6.5

Source: Iedi (2011).

Notes: [1] Data on annual R & D spending in dollars, in purchasing power parity (PPP), relative to 2000 GDP.

[2] Ratio between the absolute values of R & D spending in China and Brazil, measured in 2000 dollars.

Table 5. Brazil and China: Degree-earning undergraduates and postgraduates, by field of study (2009)

Brazil (absolute numbers)		Brazil (%)	Brazil (per 10,000 inhabitants)	China (absolute numbers)	China (%)	China (per 10,000 inhabitants)
College Education – integral (A)	722,202	100.0	37.5	2,455,359	100.0	18.4
Sciences	64,291	8.9	3.3	264,494	10.8	2.0
Engineering	38,826	5.4	2.0	763,635	31.1	5.7
College education – technical / three years (B)	104,726	100.0	5.4	2,855,664	100.0	21.4
Sciences	0	0.0	0.0	15,543	0.1	0.0
Engineering	16,601	15.9	0.9	1,154,793	40.4	8.6
College education (A + B)	826,928	100.0	43.0	5,311,023	100.0	39.7
Sciences	64,291	7.8	3.3	266,037	5.0	2.0
Engineering	55,427	6.7	2.9	1,918,420	36.1	14.4
PhDs	11,368	100.0	0.5	48,658	100.0	0.4
Sciences	2,388	21.0	0.1	9,570	19.7	0.1
Engineering	1,284	11.3	0.1	17,386	35.7	0.1
Master's degrees	38,800	100.0	1.9	322,615	100.0	2.4
Sciences	5,819	15.0	0.3	32,252	10.0	0.2
Engineering	4,986	12.9	0.3	113,128	35.1	0.8

Source: NBS (2010); Inep (2009).

Table 6. Brazil and China: Basic indicators of ST & I systems (various years)

	Unit	Year	Brazil (A)	China (B)	B/A
Staff dedicated to R & D activity	Thousands	2008	128	1,965	15.4
Total spending on R & D	US$, billions in PPP	2009	23.5	155.3	6.6
Government spending on R & D	US$, billions in PPP	2009	12.1	41.1	3.4
Corporate spending on R & D	US$, billions in PPP	2009	11.4	114.2	10.0
Total spending on R & D / GDP – gross domestic expenditure (2009)	%	2009	1.2	1.7	1.4
Commercial balance, high technology industry [1]	US$, billions	2009	-18.4	113.0	-
Commercial balance, high technology industry [2]	US$, billions	2009	-30.9	67.0	-
Exports in high technology / manufacturing exports	%		14.0	31.0	2.2
Doctorates completed	Absolute numbers	2004	8.109	23.446	2.9
Doctorates completed	Absolute numbers	2009	11.368	48.658	4.3
Graduate enrollment (science and engineering)	Absolute numbers	2009	51.745	643.078	12.4
Publications (Thomson ISI)	Absolute numbers	1981	1.949	1.204	0.6
Publications (Thomson ISI)	Absolute numbers	2009	32.100	118.108	3.7
Patents registered with the United States Patent and Trademark Office (USPTO)	Absolute numbers	1990	53	7	0.1
Patents wtih the USPTO	Absolute numbers	2009	464	6879	14.8
Population	Million inhabitants	2011	192.4	1336.7	6.9
GDP	US$, billions in PPP	2009	1958.8	9.135.3	4.7

Source: Iedi (2011).

Notes: [1] IT, telecommunications equipment, medical and optical instruments and aeronautics.

[2] IT, telecommunications equipment, medical and optical instruments, aerospace and chemical industry (including pharmaceuticals).

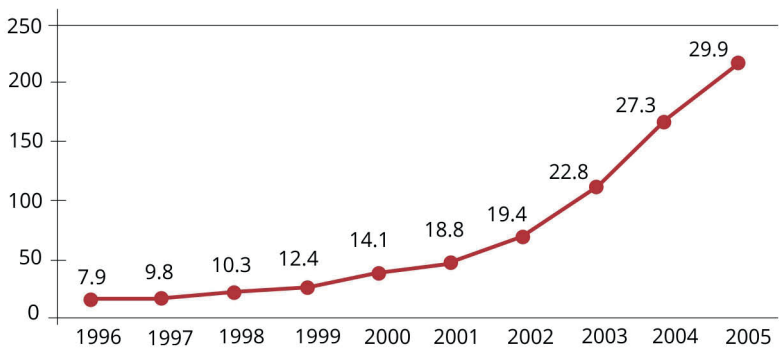
Both Brazil and China have repositioned themselves to meet the new challenges after the reorganization of international economic relations that followed the

subprime crisis. For China, there are challenges arising from the reform process itself. The emphasis on the creation of new companies left science policy relatively uncovered. R & D in China was strongly focused on development, which explains the great success in secondary innovation. Thus, a series of megaprograms began in 2006 that sought to balance this trend. These policies are, however, in the opinion of many analysts overly top-down and focused on supply problems, and place little importance on organizational innovation and stimulating demand.

Chinese companies have so far had little success in building major global brands, even though China's large State companies, especially in the infrastructure, communications and commodities sectors, have managed to secure relevant global positions. Problems remain in State companies, though, regarding corporate governance, which may escalate as the natural protection they previously received from the financial sector and low energy costs dwindle, as mentioned during the last CPC Congress. Technology-based companies in China are, with rare exceptions, small and medium sized, and the current public financial system does not favor them. Figures 4 and 5 show the successes and challenges in technological production.

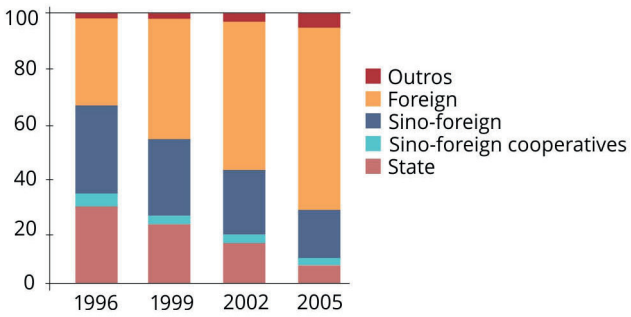
The aforementioned shortcomings began making themselves apparent around 2004. Then, in the academia among public and private managers, a new debate began on qualification; it was concluded that the skills acquired for secondary innovation and absorption of technology transfers were an insufficient basis for sustainable economic development.

Figure 4. High-tech exports, 1996–2005 (US$, billions)



Source: OECD (2007).

Figure 5. High-tech exports by type of company, 1996–2005 (in %)



Source: OECD (2007).

5.1 – Megaprograms and strategic industries

The percentage of added value that China incorporates into its participation in the global electronics chains is low, and companies that export electronic components are mainly multinational subsidiaries. The recognition of this reality, central to the formulation of the Medium- and Long-Term Plan for Technological Development 2006–2016, led to a major change in direction in politics: the emphasis on endogenous innovation.

Endogenous innovation is considered, in academic parlance, to consist of both the capacity to generate primary innovations and the ability to solve indigenous technological problems. The urban air pollution in Beijing and the precariousness of the water infrastructure in China (and its impact on agriculture) are two examples of indigenous issues. Endogenous innovation in this view is a strategic concept, even before it becomes an economic or even a technological goal.

The Medium- and Long-Term Technological Development Plan 2006–2016 and the Twelfth Five-Year Plan 2011–2015 testify to the new policy purposes. The thirteen megaprograms that represent the focus of these two plans are listed in box 2.

BOX 2. The thirteen megaprograms

1. Core electronic components, high-end generic chips and basic software
2. Extra-large-scale integrated circuit manufacturing and technique
3. New-generation broadband wireless mobile telecommunications
4. Advanced numeric-controlled machinery and basic manufacturing technology
5. Development of large fields of oil, natural gas and coal-bed methane
6. Advanced Pressurized Water Reactors
7. Large advanced high-temperature nuclear reactors
8. Water pollution control and treatment
9. Genetically modified new-organism variety breeding
10. Drug innovation and development
11. Large aircraft
12. High-definition Earth observation systems
13. Manned aerospace, moon and space exploration, including their own space station (of which the Tiangong-2 module is already operational)

Source: Medium- and Long-Term S&T Plan, 2006–2016 / MOST. Prepared by the autho

The megaprograms have the core objective of promoting achievement and filling in technology gaps, in order to reach the global frontier in the selected domains.

The Twelfth Five-Year Plan of 2011 moved in the same direction, favoring industrial fields where Chinese companies must thrive to reach the frontier. The strategic emerging industries are:

- new information technologies;
- environmental protection and energy efficiency;
- biological industries;
- high-tech equipment;
- new energies;
- new materials; and
- alternative-energy vehicles.

Both megaprograms and strategic industries were intended to enable the reaching of the technological frontier in areas where China, thus far, had participated only in a secondary capacity. Together, the megaprograms and strategic industries represent a huge range of new capabilities. The program is unique in scope, volume of resources, strategy, and form of organization.

Technological innovation has always been an area where support in the forms of both civil and military public funding is constant. In the United States, the numerous programs support innovation are numerous have evolved in complexity since World War II. There are multiple combinations and possibilities of public funding and private venture capital. This funding network, combined with government procurement for various organs and institutions, particularly for security and defense, creates what Linda Weiss (2014) calls the technological security model.

Unlike the US model, the Chinese model stands out for its scope and breadth (number of areas), the simultaneous manner in which all of these areas are funded and the public and civil dimension of funding and coordination. Chinese innovation policy incorporates both classic supply-side instruments and elements of demand-side management. The programs are designed not only to enhance knowledge and business development, but also to make good use of the coordination mechanisms of State control. This is clearly the case in telecommunications, and increasingly so in health and transportation, which are gaining ground as the service economy grows. A wide range of stimulus instruments is used, in addition to direct research funding: government procurement, tax incentives and credit lines. The program was also designed to leverage certain characteristics of the industrial structure: investment by State-owned companies and their areas of expertise, technology parks, university-incubated start-ups and the small and medium-sized companies that compete in the high-tech industries.

Although still lacking exact administrative definitions, the new decisions of the XVIII Congress of the CPC regarding the expansion of the financial system will open a new range of credit opportunities for small and medium-sized companies, thus increasing the ties of the innovation program with the market.

The Japanese and South Korean experiences in industrial modernization were, and still are, important mirrors for China, in spite of the particular evolution of Chinese companies. In Japan and South Korea, there were national companies to develop and stimulate during the catching-up effort, and these companies guided, to some extent, the financial architecture, whereas the reforms in China, which are still ongoing, have seen the simultaneous creation of companies and financial structures, with all the mishaps and dissonances that this simultaneity may entail.

6. CHALLENGES AHEAD / FUTURE CHALLENGES

Sanjay Lall has throughout his work returned to the point that industrial catching-up processes are unlikely to bring about, at the same time, the creation of autonomous technological capability (Lall, 1996). South Korea and Taiwan were clear exceptions to this rule. China, by combining strategic planning, State control of investments and opening up to foreign investment, has likewise achieved, at least partially, that which seemed unlikely to Lall.

The success of Chinese programs in attaining their objectives is evident, as is a growing perception that China represents a new paradigm in industrial and technological policy. Central to this model is comprehensive collective participation during strategic planning and horizontal inter-ministerial coordination. From these structured consensuses emerge that guide policy-making.

The policies' success demystifies in part the controversy over the institutional precariousness of Chinese capitalism. In addition to tremendous economic growth, China is proving successful in the search for a new public policy model. But what will the future characteristics of this model involve? The question that arises is whether the skills and advantages built during the catching-up process will be as important during this new globalized phase.

Clearly, the international and national conditions for the exercise of policies today are very different from those that prevailed during the early stages of the Chinese reform effort. From an international point of view, the decline in global demand after the 2008 crisis brought new challenges for sustained growth – including escalating competition for trade benefits and conflicts in economic and political international governance. The new American push for the creation of inter-regional trade agreements – the Trans-Pacific Partnership (TPP) and the United States – European Union agreement (Transatlantic Trade and Investment Partnership, TTIP) – has diminished the importance of the WTO and other forums in which China was organized to participate and in which Brazil participates actively. However, this may be reversed by the recent change in US policy after the unexpected 2016 election results.

The globalization policy promoted by Chinese companies, as well as their policy of overseas procurement and of seeking investing opportunities outside

of China, has proved more challenging than anticipated. The number of major international Chinese brands remains limited, while Chinese investments in the central economies have stumbled due to entry barriers. Some successful exceptions among large state-owned companies, however, include Huawei and Zte (telecommunications), Lenovo (IT), Haier and Gree (consumer goods) and State Grid (infrastructure).

From the national point of view, the measures to rebalance the economy and lighten investment participation in the GDP will certainly tend to hinder an aggressively expansive technological policy. The decisions made at the XVIII CPC Congress, announced November 12, 2012, confirmed new guidelines for the economy, with a reduction in the relative advantages (financial and fiscal) for the State sector and increased funding for the private productive sector.

One may also question the efficiency of excessively top-down policy instruments, in face of an increase of choices that cannot be neatly summarized as win-win situations. The growing complexity of the industrial and financial sectors – and with it, the increased conflicts among the various stakeholders – will no doubt represent a test in coordinative capacity for the internal governance system. The structured consensus that has guided policy will also have to counter the contradictory dynamics between public and private industries and the rules for access to credit.

One may also question the direction of policy choices. Planning in China sets sectoral goals and specific technological paths. The policy on national technology standards as a way to pursue the technological frontier is an example. In the current transition, selecting the path to follow is far more complex than before; the actors are more varied and independent; and the prospects and technology paths are more uncertain. New demands for knowledge and management present themselves, different from those in the catching-up phases. Will the economic and innovation policies prove reconcilable, as they were in the past? What are the implications of the concept of *endogenous technology* within the current industrial network?

The search for a balance between growth and reform, change and stability, encompasses the whole of China's transformational effort over the last thirty years. The emerging challenges seem to demand new answers.

There is clear, ongoing demand for social policies, without any obvious answers from catching-up models. This is evident in both the field of sustainability and education and urban organization. A new range of possibilities unfolds, associating technological policy with social change. The question is whether the chosen path will lead to policies that encourage ambitious responses to indigenous problems.

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CHAPTER 9

INTERNATIONALIZATION POLICIES IN THE FACE OF THE CHALLENGES OF THE TWENTY-FIRST CENTURY: INSTITUTIONS AND POLICIES FOR THE EXPANSION OF FOREIGN TRADE AND SUPPORT FOR BRAZILIAN MULTINATIONALS

Maria Antonieta Leopoldi

1. INTRODUCTION

This chapter analyses the form of Brazilian capitalism over the last two decades, pointing to some of its transformations, as well as changes in the country's business environment. The unit of analysis is the development policies, involving several agencies and ministries, focused on the internationalization of the economy that have been integrated into the Brazilian foreign policy agenda and diplomacy. The manner in which the agenda has been geared towards insertion into the international economy through effective State action over the last two decades will be the focus of this chapter.

In a narrower scope, the effort to expand Brazilian foreign trade over the last two decades will be reviewed, along with the policies intended to strengthen and internationalize Brazilian multinational companies. One objective is to identify the government agencies engaged in the push for 'active' international insertion and the arenas created for integration among the bureaucracy, the business community, labour, politicians, the academy, and consultants. All of these sectors participate in the country's international integration process through coalitions to support the internationalization of the economy. As we shall see, these coalitions operate in both State arenas (forums, business chambers, councils) and in the market.

2. CHANGES IN THE INTERNATIONAL ECONOMIC ORDER

There are several factors that have contributed to the shifts in the types of actions taken by the State seen over the last two decades. These include major changes in the productive structures, trends towards trade liberalization to counteract the protectionism of the developed nations, the dispersion of the manufacturing industry across the nations of the Global South, the mobility of capital, and the knowledge economy, which enabled revolutions in telecommunications and information technology. The supranational union of European states and the forging of other trade blocs made it essential for State action in Brazil to bring together the economic and diplomatic agendas, so that domestic policies were coordinated with international action (Strange, 2002). As we shall see, one may talk of two forms of diplomacy at this juncture, State-firm, and firm-firm (Strange, 2002).

In the approach taken in this study, the internationalization process is seen as a movement in *response* to external pressures for the liberalization and internationalization of the developing countries' economies, simultaneous with the *choice* by government and society regarding the direction and pace of this internationalization.[1] This choice determines the degree of dependence that the economy being internationalized will maintain vis-à-vis the central economies, and the winners and losers among local players that will result from this process. The external factors that have impacted the Brazilian economy most profoundly since the 1990s comprise the Washington Consensus's proposals for economic and social reforms in Brazil, the various international crises over the last two decades, and the emergence of China in the international economic context.

3. THEORETICAL FRAMEWORK AND WORKING THESIS

3.1– Institutionalism

This chapter holds an institutionalist perspective (historical institutionalism) and highlights the importance of studying institutions and their trajectories in order to understand the changes in Brazilian capitalism. It is within institutions

[1] Robert Boyer (2005, p. 523) states that 'the way a national economy is inserted into the international system is largely a matter of political choice and not simply the legacy of the insertion into the international division of labour'.

that the clashes among stakeholder interests take place and where the paths of the capitalism under construction are defined, particularly in times of crisis and paradigm shift.

Among the institutions considered in this chapter are Brazilian companies and their interaction with the Brazilian State, the international economy, and the world of finance. One also strives to understand the changes within the State through their restructuring processes and the creation of strategic agencies to formulate and execute international policy. The ties between the Brazilian business community, the foreign companies already established in the country or interested in operating in it and the governments of the countries in which those companies are based are also subjects of analysis.

3.2 – The role of the State and of the coalitions of interests in the transformations of Brazilian capitalism

Since the 1990s, the Brazilian State's domestic economic agenda has intermingled with the international agenda, and this has impacted State institutions. These need to act in a coordinated manner, conciliating in each ministry, party, and legislative arena the local- and national-level issues with those at the international level. Liaising with the business and political sectors, the Brazilian State was the architect of economic and social reforms in the 1990s, delimiting the pace, depth and breadth of the economic changes in the market and within the State itself. As pointed out by political scientist Jerome Sgard, the economic liberalizing process in developing countries was also, quite unintuitively, a State-building process (Sgard, 2008, p. 36; Weiss, 2006).

It is worthy of note that the changes that started in the 1990s were not the legacy of Brazilian presidents or of neoliberal political blocs in the Congress or even the consequence of inevitable pressures from international circumstances. The starting point of the widespread post-1990 Brazilian change was the 1989 presidential election. The politicians who had stood out during the transition process to democracy in Brazil failed to win enough votes in the first round of the elections to move on to the second. Thus the final choice was between two proposals for change: that of the coalition supporting the Labour candidate Luiz Inacio Lula da Silva, and the coalition supporting the debuting Neoliberal party of Fernando Collor. Even Mario Covas, senator of the Brazilian Social Democratic

Party (PSDB) (which in spite of the party's name has generally favored neoliberal positions) and who stated in his farewell speech to Congress in 1989 that Brazil needed a 'capitalist shock, did not make it to the second round of the elections that year as a candidate for president.

After the 1989 elections and the forming of the Collor government, a coalition of businessmen, economists and politicians focused on market reforms, fiscal adjustment and the internationalization of the economy gained strength in the country, leading national capitalism to a new phase. Neoliberal experiments under way in Britain and in the United States and the related ideas of epistemic economist communities in American universities and the multilateral agencies that formulated the Washington Consensus served as guides for the changes being wrought in Brazil. Even though the shift in the economy was triggered by the Presidency it was always endorsed by the Congress via constitutional amendments or common law. In this sense, it is understood that the liberalization and internationalization process in the country was conducted by the State, grounded upon a political coalition.

On the international level one must take into account the series of crises throughout the 1990s in various parts of the world that infected the Brazilian economy and rendering it vulnerable, given that it was overly dependent on international financial capital flows and the guidance of agencies such as the International Monetary Fund (IMF) and the World Bank. In many circumstances, the external crises that shook that period (such as the Mexican crisis of 1994, the Asian crisis of 1997 and the Russian crisis of 1998) explain, through the profound impact they had on the domestic economy, the accelerated changes voted on by a Congress prodded by the Executive to adopt measures that represented the local counterparts to IMF loans.[2]

[2] Notable examples are the Fiscal Package 51, from the end of 1997, which responded to the threat from the Asian Crisis, and the pension reform (Constitutional Amendment No 20 of December 15, 1998), passed amidst the turmoil generated by the juxtaposition of the external crisis of 1998 with the crisis of the Real currency in the second half of the same year, which was solved by a $40 billion loan from the IMF (Weber, 2004).

3.3 – The repositioning of the Brazilian State

Several State-owned companies were privatized in this period, including the national phone company (which worked well, with phone services vastly expanding) and the national mining company (which, conversely, was controversial for including the mineral reserves as a bonus and leading to severely reduced environmental and safety standards that eventually brought about the Mariana disaster in 2015, when an iron ore tailings dam suffered a catastrophic failure, causing several deaths and the annihilation of several cities, rendering extinct the Doce River and resulting in widespread ocean contamination). The Brazilian government did not diminish its presence in the economy as a result of the 1990s liberalizing reforms, but rather repositioned itself in the post-privatization environment, making use of both new and old institutions, the legal system, and regulatory controls among other instruments. The period's reforms did not lead, therefore, to a transfer of State companies to the private sector through privatization: the companies that resulted from privatization had a high level of complexity in their equity and corporate structure, as did the rules that then governed them. Domestic and foreign investment funds, private banks, State company pension funds[3] and BNDES Participações (BNDESPAR, the participations branch of the National Development Bank) all engaged in new forms of investment that became part of the equity of the owners of these companies. In turn, large public works were no longer under the exclusive purview of the State. They began to be planned by heavyweight company consortia – a mix of large building contractors, heavy industries, banks, pension and investment funds and State-owned companies. These consortia operated under new, complex legal rules, based in part on those regulating public-private partnerships (PPP) and special-purpose companies (Lazarini and Furtado, 2000, p. 38; Lazarini, 2011). It was not therefore a matter of a clear-cut transfer of ownership from the public to the private sector. The privatization process took place within a phase of capitalism during which manifold financial funds (both public and private) were present in the owners' equity system of urban and rural companies. The companies that arose after privatization were immersed in the financialization process, in which State-firm pension funds and BNDESPAR participated as well.

3 Such as the pension fund of the employees of Bank do Brasil (Previ) and the Petrobras Foundation for Social Security (Petros).

3.4 – The changes in Brazilian economic policy with a view to the internationalization of the economy

In addition to the interdependence between the domestic and international agendas having repercussions upon State action (Putnam, 1993; Hobson, 2002), greater involvement of the Presidency and a few strategic ministries in external economic policies has been noted in recent decades. The Brazilian executive has become more active in encouraging trade negotiations with a view to boosting foreign trade, the action of Brazilian companies in other countries, and the arrival of foreign companies in the country. For this purpose, the creation of rules and institutions to stimulate Brazilian companies to operate abroad were encouraged.

Due to the strengthening of the Brazilian president's role in the formulation of foreign economic policy, the implementation of what Susan Strange has pointed to as a characteristic of the globalization era – presidential diplomacy – was observed. Brazilian presidents have engaged intensely in international economic issues in tandem with the Ministry of Foreign Affairs (Ministério das Relações Exteriores, MRE). State-firm diplomacy was also strengthened: within the World Trade Organization (WTO), the Brazilian State defends the interests of Brazilian industries and / or companies, and Brazilian diplomats serve on the organization's dispute panels together with company and industry representatives involved in trade clashes (Strange, 2002; Thorstensen, 2011; Ferreira, 2004).

3.5 – The strengthening of State capability and the creation of new decision-making arenas

State capability is understood in the present study as a State's capacity to act in pursuit of its agenda in coordination with the sectors of society and of the market affected by it, in other words, the agenda's stakeholders. This idea is contained in the concept of an governmental bureaucracy with 'embedded autonomy', as elaborated by Peter Evans (2004), which sees the contemporary State as being active in three dimensions: (*i*) creating and maintaining a specialized bureaucracy, characterized by transparency and accountability; (*ii*) associating with the economic sectors in order to 'listen to the market' through channels that enable dialogue; and (*iii*) fostering open communication with society through social movements, non-governmental organizations (NGOs) and other social actors. Evans argues that the governmental bureaucracy maintains a relative autonomy vis-à-vis support and

veto groups, but does not act in an insulated manner completely shut off from political pressures and economic interests (Evans, 2004, 2008; Skocpol, 1985; Souza, 2012).

The notion of State capability involves the capacity for action by the Executive and its bureaucracy, legislative action by Congress, the performance of agencies that pursue internationalization policies, the establishment of regulatory frameworks and regulatory institutions and the creation of dialogue arenas with employers and employee / business community and labour interests. The National Council for Industrial Development (CNDI) in the Lula administration, the industry-sector and business chambers, the productivity forums and the councils are examples of dialogue arenas. The concept of State capability also includes spaces for intra-bureaucratic political coordination, such as the office of the Chief of Staff during the Fernando Henrique Cardoso administration and possibly also the Foreign Trade Chamber (Camex).

When analysing the policies for Brazilian inclusion in the international economy after 1990 and the agencies involved, it is important to keep in mind that the Brazilian state's various arenas are unstable. They are endowed with more or less power according to the compositional arrangement of the ruling political parties – an arrangement that is coordinated by the president. Thus, the construction of bureaucratic capability in the government is not seen by the author as linear, but rather as moving towards constant improvement. The post-1990 enhancement of Brazilian state capability can be best explained as development of the type known as 'muddling through', that is, incremental yet nonlinear.[4] Thus, we can see in this study that the MRE, the Ministry of Science and Technology (Ministério da Ciência e Tecnologia, MCT), and the Ministry of Development, Industry and Trade (Ministério do Desenvolvimento, Indústria e Comércio, MDIC) accrue over time new roles in and new agencies to carry out the formulation and implementation of insertion policies for integration into the international economy, such as industrial and foreign trade policies and technological and innovation policies.

4 The reference is to the work by Charles Lindblom's *The Science of 'Muddling Through'* (1959), in which the author critiques the rationalist view of the formulation of public policy (with vision of a programmed, linear policy). For Lindblom, the trajectory of a public policy is always incremental, confused and uncertain (thus it 'muddles through').

4. THE RETURN OF THE DEBATE ON DEVELOPMENT IN BRAZIL IN THE 2000S

Brazil's economic growth in the twenty-first century brought to light the recurrent reflection on the concept of *development*. In the present return of this concept to the country's political and academic discourse, the economistic definition, based on the Gross Domestic Product (GDP), has been rejected, with the debate commingling the idea with notions of social inclusion and environmental sustainability. Amartya Sen (2000) redefined, within the framework of a new critical liberalism, development as the expansion of the individual's capabilities. It will not suffice to provide a minimum income to citizens excluded from the consumer market; education, housing, health and employment are what enable an individual to attain a situation of liberty within society. Liberty ultimately means the absence of constraints of all kinds, including dictatorships, which for Sen is conjoined with the idea of development within a liberal democracy. The author does not envision participative or deliberative democracy, but rather an expanded, inclusive democracy. Development provides the individual with a place, voice and opportunities. Other authors have added to the idea of development that of economic growth with environmental conservation or sustainability. Governments of the early twenty-first century agree that the logic of monetary and fiscal discipline should guide any developmental strategy.

The new concept of development in democratic capitalist societies, therefore, includes in addition to economic growth, four other variables: equity and social inclusion, environmental sustainability, the logic of a monetary discipline, and the presence of an democratic, active state, engaged in promoting all of these dimensions of development and invested with the capacity to plan, implement, manage, resolve conflicts, regulate economic interests, stimulate the economy and distribute wealth.

There is, however, one aspect of the concept of development that has been poorly explored: that of growth with international insertion. The new era of economic growth depends on the building of a domestic agenda that is integrated with an international one. It is the interdependence between these that enables growth and development policies. Thus, the author suggests it is necessary to aggregate to the notion of development a political strategy for the active and

regulated inclusion of the national economy in the international economic context. Understanding that development today depends on a State's capability to act simultaneously on the domestic and international levels is paramount. Brazil's learning curve, resulting from the long foreign-debt crisis and the hyperinflation of the 1980s–1994, suggests that external processes such as financial crises will elicit responses and reorient strategies, but *not* determine national trajectories. The latter depend on domestic choices and the State's and society's capacity to implement them (Gourevitch, 1993; Boyer, 2005).

5. DEFINING INTERNATIONALIZATION: PROCESS AND POLICY

Internationalization may be defined as the gradual process of a country's integration into the world economy. This process can take on a more passive, dependent character or may be conducted by a State in coalition with domestic economic interests partnering with international interests. The concept of a foreign policy pursing 'active' international integration, defined as the prevailing strategy of the Lula administration since its inaugural speech in 2003,[5] shows a medium-term vision in which the State is directly involved in policies that stimulate a form of internationalization serving both domestic interests and those of partners.

Until recently, internationalization was defined by the volume of foreign direct investment (FDI) brought into the country by foreign multinationals. It has also been defined though the percentage of the country's exports in the GDP. These indicators show whether a country is relatively more open or closed to the international market. Foreign (financial) investments in the Brazilian stock exchange and Brazilian investments abroad are recent operations that showcase the interdependence between the domestic and international arenas. Only after 2000 did the Central Bank of Brazil (Banco Central do Brasil, BCB) begin tracking the capital flows leaving the domestic market by being wired abroad. Brazilian

5 'During my administration Brazil's diplomatic action . . . will, above all, be an instrument for national development. Through foreign trade, the training in advanced technologies, the search for productive investments, Brazil's external relationship shall contribute to the improvement of the living conditions of Brazilian men and women (. . . .) Trade negotiations are of vital importance today (. . . .) Brazil will fight protectionism . . . and will strive to obtain fairer rules, more adequate for our status as a developing country (. . . .) We shall also ensure that trade negotiations, which nowadays go far beyond mere tariff reductions and comprise a broad normative spectrum, do not create unacceptable restrictions for the sovereign right of the Brazilian people to decide on their development model' (Brazil, 2003, p. 9).

multinationals operating overseas also represent a very contemporary dimension of the national economy. These facts show how the concept of internationalization in Brazil has already changed.

Even though the internationalization of the Brazilian economy encompasses a broad set of policies that involves trade in goods, the sale of services by Brazilian companies in other countries, investments, external debt, relations with multinationals that come to operate in Brazil, and Brazilian multinationals moving into foreign markets, the scope of this chapter on the internationalization process will be limited to the government policies supporting the expansion of foreign trade as well as Brazilian multinationals over the last two decades. Considering the context of Brazilian policy, where the State monitors and interferes in the decisions of major players among both domestic and foreign economic groups, particular attention will be afforded to government policies on behalf of these two sectors. The next section presents a brief analysis of the process trajectory and the policies that have led to Brazil's greater insertion in the international economy.

6. A BRIEF HISTORY OF THE BRAZILIAN INTERNATIONALIZATION PROCESS

6.1 – Brazilian internationalization up to the 1980s

It was during the military government (1964–1985) that a foreign trade policy started to be formed: the objectives were maintaining a protectionist stance against imports while attempting to construct offensive strategies for exports. Exchange rate policy – the currency mini-devaluations of 1968 – combined with the creation of government agencies encouraging exports and the diversification of the export basket, with the introduction of shoes, soybeans, and orange juice amongst other items, evidencing the political will to boost the country's export performance. The main agencies in this period were the Foreign Trade Portfolio, of the Bank of Brazil (Carteira de Comércio Exterior do Banco do Brasil, Cacex), the Customs Policy Commission (Comissão de Política Aduaneira, CPA) and the Industrial Development Council (Conselho de Desenvolvimento Industrial, CDI). In 1972, the Special Exports Program (Befiex) was created, establishing tax benefits for exporters, the president of which was a representative of the CDI. The Secretary of Planning and Coordination of the Presidency and a representative of

the Treasury Department comprised the direction of the program. Befiex aimed to foster the exports of manufactured goods, but ultimately ended up helping foreign companies, which at the time were better positioned to produce manufactures for export.

Given the liquidity of the international banking system at the time, relying on external funding and in so doing amassing debts with American and European banks, was the predominant method the military government pursued to obtain funds for large infrastructure projects (hydroelectric dams, urban transport, roads such as the Transamazonian, and the capitalization of state-owned companies). The accumulation of debt with foreign banks was also the form used by the private sector to obtain financial assets in the 1970s. The Geisel administration (1975–1979), under impact from the oil crisis, encouraged Brazilian companies to set up shop in other countries, and thus major companies began to operate abroad with support from the Brazilian government, private banks, insurance companies, and heavy construction contractors. Petrobras's international branch, Braspetro, expanded to ten countries in the 1970s (Angola, Colombia, Egypt, Iran, Algeria, Libya, Madagascar, the Philippines, Guatemala, and Italy). In Iraq, the company discovered a huge oilfield (Majnoon), which had to be sold soon afterwards due to the Iran-Iraq War, such that operating in that country became unviable (Chacel, 2007). At that time, heavy construction contractors started operating in Africa and the Middle East and banks and insurance companies in Europe.

6.2 – The 1980s crisis and regressive internationalization

With the outbreak of the debt crisis in Latin America in the early 1980s, the flow of bank credit that had fueled development policies during the military regime was cut off. The international movement of capital was reversed, and a large volume of capital exited Brazil in the form of public debt payments to foreign banks, highlighting the extreme vulnerability of the country in this decade (Leopoldi and Lima, 2009). Exacerbating the external vulnerability, hyperinflation struck the country, escalating after 1981, and a massive industrial recession ensued, brought about mainly by the State's withdrawal from its former role as driver of large-scale construction by commissioning the new industrial cycle.

The successful exports policy of the last military government (General Figueiredo, with Minister Delfim Netto) generated revenue for payment of the

foreign public debt and demonstrated that, at the time, the State was able to respond to deep imbalance in the balance of payments in a rapid and centralized manner. However, it must be noted that, at the time, the country was ruled by decree and the aggressive export policies were passed arbitrarily without paying attention to the discontent of economic groups connected to agriculture.

In face of the foreign debt shock, resorting to exports was the way out to keep up with foreign debt payments in the early 1980s. Exporting was not, therefore, a government policy aimed at internationalizing the economy and strengthening Brazilian companies. This type of passive international insertion, revealing Brazilian vulnerability, marked this period negatively.

The Brazilian political scenario changed in the mid-1980s with the return to democracy. The Figueiredo administration's strategy of 'exporting at all and any cost' ran out, in face of the multiple problems that the new political regime under consolidation faced. The foreign debt problem persisted throughout the second half of the decade across several negotiation strategies, including the brief 1987 moratorium (Leopoldi and Lima, 2009). In 1989, the Brady Plan suggested a solution for heavily indebted countries: debt securitization in the bond market. Capital markets were strengthened after the plan, and now no longer the banking market, but rather the bond market (the *bradies*) moved the globalized financial market, albeit still centered upon the US-Britain axis (Sgard, 2008). Capital flows returned from there to Latin America (Lacerda, 1999, p. 29). Between 1990 and 1992, the BCB issued a series of measures to open up the economy to financial capital.[6]

One step in the Brazilian redemocratization process comprised the change in rules with the drafting of a new constitution that was promulgated in 1988. In it, democracy and social rights were prioritized, and there was no sign that the country would strive for international integration or a liberalized economy. The constituents maintained the State monopoly over the subsoil's vast resources,

6 Resolution 1946 of July 29, 1992 and Circular 2242 of October 7, 1992 authorized the movement of capital (Circular Letter 5 - CC5), enabling financial institutions based abroad to open accounts in Brazil and begin operating the purchase and sale of foreign exchange in the country. Jerome Sgard attributes the clearance of capital accounts across several countries at that time to the changes in the financial and securities market brought about by the Brady Plan (Sgard, 2008; Gonçalves, 1999).

including State-owned company production of hydrocarbons, mineral resources and freshwater, including the country's extensive rivers and aquifers, which could be exploited through licenses or grants. The monopoly also extended to the prospecting, production and refining of oil and gas and to reinsurance services.

The nationalism present in the Federal Constitution of 1988 (CF/1988) was gradually emptied through constitutional amendments throughout the 1990s, which redefined the concept of the Brazilian company, equating it to the multinationals. Reforms in the CF/1988 ended the monopoly over the exploration and refining of oil and also over reinsurance. The State ownership of the subsoil, however, was maintained, at least nominally, as the privatized national mining company carried the mineral reserves as a giveaway.

In the next section, the agencies and government policies involved in the process of the internationalization of the Brazilian economy will be reviewed, with an emphasis on the bodies that focus on industrial policies, which since 1990 has been linked to foreign trade policy as twin policy areas. In the twenty-first century, the National Bank for Economic and Social Development (BNDES) has stood out as the foremost pilot agency in the support of the formation of Brazilian multinationals as an international placement strategy.

7. ECONOMIC INTERNATIONALIZATION POLICIES AS A COMPONENT OF POST-1990 DEVELOPMENT POLICY: FOREIGN TRADE, INVESTMENT AND INTERNATIONALIZATION OF BRAZILIAN COMPANIES

During the Sarney administration (1985–1990), BNDES began preparing the project of opening up the national economy, at the time called a process of 'competitive integration' of the Brazilian economy with the world markets (Lucas, 1992).[7] The Collor administration combined the trade and financial opening-up

[7] Luiz Paulo Vellozo Lucas speaks of the change in culture within BNDES during the Sarney government and about the resistance to the idea that the bank would support the 'competitive integration' policy, led by Julio Mourão and configured in the BNDES 1987–1990 Strategic Plan. The objective of the plan was 'to contribute to Brazil's competitive integration into the world economy' (Lucas, 1992, p. 193). Lucas attributes the name of the strategy to Antonio Barros de Castro, BNDES Consultant during the Sarney period.

policy (with the opening of capital accounts), and privatization of state-owned companies, including steel mills and petrochemical companies, with the implementation of the 'competitive industrialization' model. Luiz Paulo Vellozo Lucas at the time held the post of director of the Department of Industry and Trade of the Ministry of the Economy. The Collor administration had shut down the Ministry of Industry and Trade,[8] and Lucas, coming from the BNDES, was the highest authority in terms industrial policy in the government. He has recounted the efforts made by his department to facilitate the Industrial and Foreign Trade Policy (Política Industrial e de Comércio Exterior, Pice), of June of 1990, and the Industrial Competitiveness Program (Programa de Competitividade Industrial, PIC) of February 1991, amid a time of intense institutional change with the emptying of the CDI, Cacex and the CPA. At this time the Sector [Industry] Policy Executive Groups (Grupos Executivos de Política Setorial, GEPS) were created, which were responsible for liaising the bureaucracy with the business community. Side by side with these groups worked the Business Competitiveness Commission (Comissão Empresarial de Competitividade, CEC), which Lucas (1992, p. 203) defined as the "joint staff" of industrial policy. Thus, during the Collor administration a new relationship between the government and the business community started to be forged involving executive groups, the CEC, and the sectoral (industry-specific) chambers.

Assuming the presidency after Collor's impeachment in 1992, Itamar Franco brought back the Ministry of Industry, Trade and Tourism (Ministério da Indústria, do Comércio e do Turismo, MICT), which had been shuttered by Collor,[9] but retained the institutions created in the previous administration for industrial policy. The 25 'sectoral' (industry-specific) chambers, then linked to the Treasury Department, were transferred to the new MICT, as well as the CEC (Lage, 1993). But the focus of the 1993–1994 period was monetary stabilization and bringing hyperinflation under control. All the government's efforts were directed towards

8 Restructuring during the Collor administration brought together the Ministries of Finance, Planning, and Commerce into one, the Ministry of Economy, Finance and Planning. The PICE worked under this superministry through its Department of Industry and Commerce.

9 Law 8490 of November 19, 1992, created MICT, encompassing industrial and foreign trade policies, tourism, and support for micro-, small- and medium-sized enterprises, coffee, sugar and alcohol.

the elaboration and execution of the Real Plan and the completion of the external debt negotiations in Washington. In 1994 presidential elections also occurred. The new industrial policy remained in the background, but the trade liberalization policy had inaugurated a new paradigm that was here to stay.

7.1 – Changes in government institutions as part of the economic internationalization strategy

7.1.1– MDIC, Camex, the Brazilian Trade and Investment Promotion Agency (Apex), and MRE

The Collor administration dramatically broke with the import substitution model when president Collor shut down in 1990 the agencies that symbolized protectionism in foreign trade: the Cacex and CPA.[10] This was the first step in the bureaucratic restructuring of foreign trade to enable the new trade liberalization policy, which was combined with financial deregulation. As a result of these major changes, in several areas of the bureaucracy there were situations of institutional vacuum.

The same business community that had supported the coalition that led to Collor's victory in the 1989 elections and had thus managed to secure an advantageous space in the industrial policy, was facing two challenges: high inflation and imports that competed with the local industry manufactures. There were attempts to restructure the manufacturing industries threatened by imports (shoes, textiles, industrial machinery and toys) and BNDES became simultaneously the agency that regulated the privatization of State companies and that supporting the restructuring of the industries impacted by the opening policy (Lucas, 1992; Suzigan and Furtado, 2006, 2010).

[10] The then director of the Department of Industry and Commerce of the Ministry of Economy of the Collor government, Luiz Padlo Vellozo Lucas, reported on the institutional changes that the former president had instituted in the bureaucratic implementation of the 'competitive integration' policy, bringing together industrial policy and economic internationalization: 'The National Economy Secretariat (SNE) was formed by a union of almost all federal agencies engaged with the real side of the economy. Prices, imports and exports, and industrial policy were treated as parts of the same problem. The Executive Groups for Sector Policy (Geps) would liaison with the other economic policy instruments and with entrepreneurs. The Ministry of Industry and Commerce . . . became a department (DIC). Cacex and CPA became offices under a department (Decex). . . . Of note are trade opening, deregulation, quality assurance, and technological capabilities. Everything was negotiated within the Geps' (Lucas, 1992, p. 198).

In the mid-1990s, the Brazilian government was able to solve the two major macroeconomic problems that had jeopardized all other policies: currency stability was attained through the Real Plan, overcoming hyperinflation; and the long renegotiation of the foreign debt was finally concluded under the aegis of the Brady Plan. By this time, foreign capital had already started to flow into the country with the privatizations of the Collor and Itamar administrations, as did foreign investments into the stock market, which had been opened up (for the first time in the country's history) to volatile financial capital.

The MICT, reconstituted by Itamar Franco, gave way in 1999 during the Fernando Henrique Cardoso administration to the MDIC,[11] established along with the Foreign Trade Secretariat (Secretaria de Comércio Exterior, Secex). This ministry was in charge of industrial policy, policies for foreign trade in goods and services, regulation and implementation of foreign trade policies, the application of trade defense mechanisms and conducting international trade negotiations. In the ministerial reshuffling, the Treasury continued to oversee fiscal, customs, and tariff policies that affected foreign trade policy.

In the second half of the 1990s, the volume of trade negotiations covering industrial, agribusiness, services, and foreign trade policy rose. These negotiations overstepped the scope of the MRE, involving a number of ministries and agencies. Moreover, the formation of the Southern Common Market (Mercado Comum do Sul, MERCOSUR) and of the WTO, the European Union and the North American Free Trade Agreement (NAFTA), as well as US efforts to create a Free Trade Area of the Americas (FTAA), engaged several governmental and the business community. Corporative-minded business associations strengthened their foreign affairs and foreign trade departments. In 1993, the Brazilian Business Action workgroup (Ação Empresarial Brasileira) was created in order to participate in the discussions on constitutional reform scheduled for that year. Another business 'summit' entity was formed in 1996, the Brazilian Business Coalition (Coalizão Empresarial Brasileira), which spanned the manufacturing, agriculture and services

[11] In May 1998, Law 9649 ratified the MICT, with the same name. The following year, Provisional Measure 1795, dated 1/1/1999, changed the name of the ministry to the Ministry of Development, Industry and Trade. Soon afterward, with Law 10683 of 5/28/1999, the term 'Foreign' was added to the name: Ministry of Development, Industry and Foreign Trade. Available at: <http://www.mdic.gov.br//sitio/interna/interna.php?area=1&menu=1662>.

industries and was mobilized around the discussions on the FTAA (Oliveira, 2003; Mancuso and Oliveira, 2006).

From the very start of his administration in 1995 Fernando Henrique Cardoso tried to address the dispersed nature of bureaucratic measures that hampered the country's trade activities. He created a Chamber of Foreign Trade (Câmara de Comércio Exterior, Camex) that was directly connected to the Presidency for the coordination of the various efforts.[12] The idea of coordinating a series of policies, the formulation and implementation of which were scattered across various institutions, came to replace centralized action by Cacex (eliminated in 1990) with regard to foreign trade, from the era of industrial protectionism.

Camex was a forum for both discussion and coordination of foreign trade policy, bringing together the governmental bureaucracy, business representatives, and a Council of Ministers. In terms of institutional architecture, the government had created a 'summit' organization, above the ministries and connected directly to the Presidency, endowing the foreign trade sector with an importance it had never had in the country's political administration. But the scant level of bureaucratic experience in coordinating supraministerial agencies eventually led to performance problems.

In 1998, Camex, which had been dubbed the Chamber of Foreign Commerce, was put under the purview of the ministry, which hosted Camex's Executive Secretariat, with the Minister of Development as its president. However, this was an ambiguous situation, because Camex was at the same time subordinated to the Ministry of Industry, Foreign Trade and Services, and a board of ministers (Veiga and Iglesias, 2002).

Camex underwent two more restructuring processes. First, in 2001 an ampler mandate gave it wider powers to formulate, decide and coordinate foreign trade policy, and consequently it started to engage in trade negotiations alongside the Treasury Department and the Nacional Monetary Council.[13] Second, on June 10,

[12] Decree 1386 of February 6, 1995, created Camex, which was one of Fernando Henrique Cardoso's first measures to overcome the fragmentation of the decision-making bodies for foreign trade policy. This body comprised the Chief of Staff; the Foreign Relations; Revenue; Planning and Budget; Industry, Trade and Tourism; Agriculture, Supply and Land Reform; and the president of the Central Bank.

[13] As authorized by Decrees 3756 of 2/21/2001 and 3981 of 10/24/2001.

2003, the Lula administration with Decree 4.732 empowered Camex with an even broader mandate, comprising the duties of

- defining foreign trade policy guidelines for Brazil's insertion in the international economy;
- coordinating the organs and agencies that regulate or operate foreign trade;
- establishing guidelines for trade negotiations (bilateral, regional, multilateral);
- authority to set guidelines for export funding, and the coverage of foreign trade operation risks;
- coordinating trade promotion abroad and shipping and international transport policy; and
- setting export taxes and import tariff rates.[14]

Among the various industry representatives participating in Camex by 2003 was the Advisory Board of the Private Sector (Conselho Consultivo do Setor Privado, Conex), composed of twenty board members, among whom were executives in the manufacturing and the import-export industries and labour leaders. Conex's role was advisory, commissioning studies and drafting proposals for foreign trade policy.

Table 1 lists the main government agencies involved in foreign trade policy covered in this section. Camex's role is to coordinate the work of various ministries on behalf of trade policy, which also involves actions with funding institutions. However, an ambiguous situation is present, as the body is based in the MDIC, chaired by the Minister of Development – yet it has a mission of interministerial coordination.

14 See <http://www.camex.gov.br/conteudo/exibe/area/1/menu/67/A%20CAMEX>.

Table 1. Foreign trade policy entities (1990 onwards)

Agencies and ministries	Action
Camex	Inter-ministerial coordination of foreign trade policies Problem: is it an inter-ministerial organ, or an organ under MDIC?
BNDES, Bank of Brasil, regional banks, SBCE	Funding and credit guarantees for exports
MRE, MDIC, Mapa	Trade negotiations
Apex, MRE, MDIC	Commercial promotion of exports

Source: Veiga and Iglesias (2002, p. 89).

Note: SBCE: Brazilian Export Credit Insurance Company (Seguradora Brasileira de Crédito à Exportação); and Mapa: Ministry of Agriculture, Livestock and Supply (Ministério da Agricultura, Pecuária e Abastecimento).

The MRE has been since the dawn of the Republic in charge of foreign trade policy, and was considered a central part of Brazil's international relations structure. Exporters and importers would go to the MRE to voice their concerns. When signing on to the General Agreement on Tariffs and Trade (GATT), in the late 1940s, the topic of international trade reached Congress, responsible for ratifying the agreement. There, leaders of the manufacturing industry defending protectionism waged a political and ideological battle with the MRE to protect local products from free international competition, as was proposed in the GATT. In the 1950s, the president of the National Industrial Confederation (Confederação Nacional da Indústria, CNI), Euvaldo Lodi, fought numerous verbal battles with the ministry, attacking the commercial liberalism defended by its diplomats as hurting the Brazilian manufacturing industry. MRE diplomats were accused of being 'lace-cuffed men' due to their aristocratic demeanor and aloofness from the country's industrial reality (Leopoldi, 2000, p. 138). In light of this criticism, which was conveyed directly to President Getulio Vargas (in his second term), industrialists were admitted into the Itamaraty Trade Agreements Advisory Committee (Itamaraty being the MRE's nickname). Later, with the creation of the Foreign Trade Portfolio of the Bank of Brazil (Carteira de Exportação e Importação do Banco do Brasil, Cexim*)* in 1941, eventually replaced in 1953 by Cacex (which has since centralized foreign trade policy), the MRE began to share trade policy management with the bank's bureaucracy.

With the significant shift in Brazil's foreign trade paradigm in the 1990s and the creation of the MDIC by the end of the decade, MRE's role gradually changed. Itamaraty's traditional bureaucratic insulation gave way to a more accessible bureaucracy, open to dialogue with business and civil society stakeholders and with other government agencies. Since then, the ministry has strengthened commercial ties abroad, striving to coordinate actions with the Ministry, as well as other ministries involved in Brazilian companies' overseas activities. In particular, the MRE operates in close partnership with Apex, as discussed below. Note that the expansion of the Ministry of Foreign Relations's scope of operation in the 1990s was not an exclusively Brazilian trend, but one common in international economic relations after the 1980s, which Susan Strange (2002) refers to as 'State-firm diplomacy'.

Apex, created to support the internationalization of Brazilian companies, actually outperformed its initial mandate. Established in 1997[15] amidst the sweeping changes in foreign trade policy made by the Fernando Henrique Cardoso administration, Apex was a sector of the Brazilian Service in Support of Micro and Small Companies (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas, Sebrae), to promote exports by hiring companies. Apex relied on the involvement of the MRE, the Chief of Staff, and three representatives from the private sector appointed by Camex, connected to the President. The agency was mandated with promoting small and medium companies' participation in the government's exporting effort and enabling them to operate abroad. Up until that time, the Brazilian export trade was highly concentrated in a very few large companies, mostly multinationals. As late as 1998, for example, a mere 84 companies shipped 50% of the country's exports. The administration wanted to modify this over-concentrated export profile, and relied on the mobilization and engagement of small and medium companies to bring about this change. Apex's efforts made a difference: one decade after its creation, micro, small and medium-sized companies exported, as Torres reports (2009), 6% of the total national exports in 2008 with a value of US$198 billion. In 2003, during the Lula administration, Apex was made

[15] Apex was created by Decree 2398, of November 21, 1997, and was headed between 1997 and 2003 by Dorothea Werneck.

an autonomous agency dubbed Apex-Brasil.[16] It was transferred from Sebrae to the MDIC, but operated as an autonomous service, not unlike Sebrae itself. On the new entity's advisory board were representatives of MDIC, MRE, Camex, BNDES, CNI, Brazil's Foreign Trade Association (AEB), and Sebrae.

Apex today defines itself as a foreign trade and investment intelligence agency. It studies international markets, analyses the global environment, and releases reports targeted to entrepreneur-clients who intend to export. Apex supports and provides consulting for companies exporting goods and services, and mediates local and international companies. It searches for countries where the products of Brazilian companies are not currently available, and organizes international trade fairs, both domestic and abroad, bringing together companies and prospective clients. Between 2006 and 2010 Apex organized no less than 4000 events. It also convenes bilateral forums with participants from exporting companies, supported by representatives from the MDIC and the MRE.

As Apex's role as promoter of exports by small and medium enterprises was consolidated, an additional assignment was added: prospecting for and attracting foreign direct investment (FDI) to the country, and the scope of action was extended to serving large companies as well. Currently Apex supports exporting companies across eighty industries/trade sectors through eight specific Trade Sector Projects. The first is Food and Beverages: rice, candies and sweets; factory-made cookies, pasta, breads and cakes; cachaça (rum-like drink); specialty coffees (this was among the pioneer sectors); beef, chicken and pork; fruit; honey and honey products; ethnic food products; dairy; organic products; and wine. The second is Agribusiness: sugarcane ethanol, zebu cattle genetic material, pet products, animal rendering (such as meat, bone, and blood meal) and multisector. The third is Homes and Construction: architecture, furniture accessories and components, ceramics and finishing, lighting, retail supplies, plaster, furniture, ornamental stones, glass and plastics/packaging. The fourth is Creative Economy: contemporary art, film, design, advertising films (commercials), franchises, books, music, TV and digital media. The fifth is Machinery and Equipment: auto parts;

16 Name established by Law 10668, of May 14, 2003.

aerospace; heating; refrigeration, ventilation and air conditioning; electrical and electronics; foundry/casting; graphics industry (packaging, editorial, promotional and stationery); mechanical industry; defense products; workplace safety and protection equipment; general machinery and equipment; general machinery, equipment and services for ethanol; machinery for leather and footwear manufacture; equipment and ingredients for bakery, confectionery and ice cream industrial kitchens and gastronomy; and multi-sector. The sixth is Fashion: leather goods, footwear and accessories; leather; footwear components; design and fashion; gems and jewelry; textiles and apparel; and multi-sector. The seventh is Technology: innovative enterprises, video games, software and related IT services. Finally, the last is Health: medical, dental and hospital equipment; personal hygiene; perfume and cosmetics; pharmaceutical chemicals and drugs; food and beverages; agribusiness; homes and construction; creative economy; machinery and equipment; fashion; technology; and health.

Apex also liaises with these industries' business associations. In general, these associations bring together small and medium companies, but among them are also heavyweight large-business associations, such as the Sugar Cane Industry Union (União da Indústria de Cana de Açúcar, Unica), the Brazilian Association of Industrial Machinery and Equipment (Associação Brasileira de Indústria de Máquinas e Equipamentos, Abimaq) and the National Oil industry Organization (Organização Nacional da Indústria de Petróleo, Onip).

7.1.2 – BNDES and the Presidency

Since its inception in 1952 BNDES, originally called the National Economic Development Bank (BNDE), nowadays the National Economic *and Social* Development Bank, has played a central role in Brazil's development policy. However, prior to the 1990s the bank focused essentially on domestic loans. At the beginning of the Fernando Henrique Cardoso administration, among the measures to facilitate the country's export efforts was the expansion of BNDES's mandate to provide export credit. Brazilian exporters had long wanted such a bank, but they did not realize that BNDES could perform this function. This was an important change, because until then the BNDES had focused only on the domestic market.

In the mid-1990s the bank underwent restructuring to become the pillar of the Brazilian export support system. As an export bank, BNDES had a funding line for

supplier's credit and another for buyer's credit, and worked in partnership with the Bank of Brazil, which already operated agencies abroad. Deepening its external role, BNDES started in 2002 to finance Brazilian companies seeking to operate abroad and also to fund purchases and mergers abroad by national companies through the Export Financing Program (Programa de Financiamento das Exportações de Bens e Serviços, Proex). An exports credit insurance company was also created in the wake of Fernando Henrique Cardoso's foreign trade policy. Coface, a private credit insurance company, was set up with participation by the Bank of Brazil. Other funding sources to enable companies to innovate and internationalize were created in this period by the Bank of Brazil and the Funding Authority of Studies and Projects (Financiadora de Estudos e Projetos, Finep), an organism under the Ministry of Science and Technology.

Another change that was part of the country's internationalization policy was the strengthening of the role of the President, who became directly engaged in diplomacy, going on international tours with several ministers and businessmen to participate in bilateral business forums (e.g. the Brazil-Peru Forum in November 2013) and multilateral forums (the I Mercosur Forum in November 2012), the type of actions that Strange (2002) calls State-firm diplomacy. As additional examples, one may recall the strong action taken by Brazilian diplomats at the WTO in defense of the country's companies and industries, notably Embraer versus Canadian Bombardier and the Brazilian cotton contention (Thorstensen, 2011; Ferreira, 2004). Mayors of large cities and state governors, like the president, engage in diplomatic action on behalf of companies and industries; this type of activity is called paradiplomacy.

7.2 – Government policies since the 1990s that helped prepare the shift towards internationalization

The following is a list of foreign trade policies, investments and other kinds of efforts that support foreign multinationals and Brazilian companies now operating abroad (as exporters, producers, trading companies, etc.). They were mentioned earlier during the discussion on government agencies involved with internationalization policies.

7.2.1 – Planning

Any review of the government policies for national company internationalization will, first of all, reveal a return of *planning* as a guiding activity of State action and policy formulation. After overcoming hyperinflation and negotiating the foreign debt, the government could begin to implement macroeconomic planning as provided for in article 165 of the 1988 Constitution. At this point the country transited from using planning as a strategy to beat hyperinflation (Cruzado Plan, Real Plan) to medium-term policy planning through multi-year plans (PPA, Plural-Annual Plan).

The PPA is a four-year plan that begins in the second year of one presidential term and ends in the first year of the next administration, taking into account the four years of the mandate. Prepared by the Office of the President of the Republic and approved by Congress, it is passed as law. It differs from the centralized government plans of the military regime. It consists of strategic goals for various industries, relies on the interplay among interministerial bureaucracies, and engages other federated entities such as states and cities. Since 1991, when the PPA began, there have been six plans,[17] with the Brazil without Extreme Poverty spanning 2012 to 2015. The PPAs always includes guidelines for boosting foreign trade and attracting foreign investment to the country.

7.2.2 – Policies have focused on attracting foreign companies and investments in industries privatized in the 1990s and the stock exchange

Two waves or cycles of foreign investment after 1990 are often highlighted. In the first cycle, FDI was attracted by privatization, accompanied by mergers and acquisition movements, which lent more weight to foreign capital in the economy and increased corporate concentration in larger companies. During this cycle the investment of foreign capital in the stock market also began, as part of the financial opening of the early 1990s, in order to stimulate the stock and bond markets.

[17] The list of PPAs comprises Brazil in Action / Brasil em Ação (1996–1999); Forward, Brazil / Avança Brasil (2000–2003); Brazil for All / Brasil para Todos (2004–2007); Development with Social Inclusion and Quality Education / Desenvolvimento com Inclusão Social e Educação de Qualidade (2008–2011); and Brazil without Extreme Poverty / Brasil sem Miséria (2012–2015). No names were found for the plans prior to 1996. Available at: <www.planejamento.gov.br>. Accessed May 2015.

The Collor and Fernando Henrique administrations offered several incentives for FDI specifically for the companies participating in the purchase of State-owned telecommunications and electricity distribution companies during the privatization process. There was also a decentralized movement to attract foreign companies (especially in the automotive industry) to other areas of the country, which spurred disputes between governors and mayors in the so-called "fiscal war" (a typically Brazilian fiscal incentive reverse auction, offering tax cuts to attract companies). At that time, several automotive companies came to the country and, after a market rearrangement, the incentives for the entry of new companies was withdrawn while additional incentives were established for those companies that had already set up shop in Brazil through the 'Automotive Agreement' to stimulate and protect the industry. Another industry that attracted foreign companies was the manufacture of generic (non-brand) pharmaceutical drugs.

While national banks and insurance companies had benefitted from the market reserve for local companies since Vargas (1930–1945), deregulation occurred in the wake of the banking crisis that struck after monetary stabilization was attained. In response to the crisis that hit both private and State banks, the Cardoso administration concocted two plans: the Incentive Program for the Restructuring and Strengthening of the National Financial System (Programa de Estímulo à Reestruturação e ao Fortalecimento do Sistema Financeiro Nacional, Proer) for private banks, and the Incentive Program for the Reduction of the State Public Sector in Banking Activity (Programa de Incentivo à Redução do Setor Público Estadual na Atividade Bancária, Proes) for State banks. During the bank sanitation process, several banks that had become insolvent after the Real Plan were sold to foreign banks. In the insurance sector, the existent monopoly on reinsurance was broken up (through a constitutional amendment) and the denationalization of companies in this sector was significant, starting with the largest Brazilian insurance company, SulAmérica, which entered into a merger with ING insurance.

The paradigm shift involved measures to foster FDI in industrial manufacture and financial investments in the stock market. This was a common trend across several countries in South America that were also implementing economic reforms at the time. Throughout the 1990s, an annual average of $31.8 billion in foreign funds entered the region. The proportion of foreign capital in South America's

GDP rose from 10.3% in 1991 to 22.1% in 1999 (Belloni and Wainer, 2014). This change strengthened the role of foreign multinationals at the top of the corporate hierarchy in the region.

The second cycle of FDI entry took place in the middle of the following decade, starting in 2007 and 2008 due to the subprime crisis in the central countries and consolidating in 2009. In Brazil, this movement was driven by Chinese direct investments. Belloni and Wainer (2014), based on data from United Nations Conference on Trade and Development (UNCTAD), report an inflow of US$120 billion to South America in 2011. Of this amount, 54.7% came to Brazil (Belloni and Wainer, 2014).

Two official visits by President Lula and one by President Dilma Roussef to China bolstered capital movements between the two countries. The Brazil-China Business Council (Conselho Empresarial Brasil-China, CEBC), founded in 2004 and which carries out studies on Chinese investment in Brazil and on Brazilian investment in China in the twenty-first century, has highlighted this second cycle in which China became Brazil's largest investor and trade partner. Over a mere three years (2009–2012) the volume of Brazilian trade with China increased by 104%. The volume of Chinese FDI in Brazil also grew, in 2010 reaching US$13.1 billion (CEBC, 2013). This wave of investment focused on the automotive, electronics, and machinery and equipment industries. China, which had attained a placement in the world economy initially as an export platform for Asian countries, seeks to make of Brazil an export platform of manufactured goods for Latin America through its local companies. In addition, China has agreements with the Brazilian government on projects in electrical energy, oil and gas and telecommunications services. Three Chinese banks are also being brought to Brazil to operate with these Chinese companies.

7.2.3 – Export incentive policies

There were several policies that sought, starting in the 1990s, to stimulate exports. This chapter has emphasized the importance of the restructuring or creation of government agencies and changes in the regulatory framework in enabling these policies. Foreign exchange, fiscal and credit policies (especially through BNDES) complemented the government's export efforts. However, exporting industry

leaders hold that several of the latter have yet to be fully implemented and that, in spite of the presence of specialized agencies in foreign trade, they fail to act in a coordinated manner.[18]

7.2.4 – Policies in support of the industrial restructuring of companies within the new paradigm (production for export)

Here BNDES's role as a pilot agency also stands out for the bank's development of projects for the manufacturing industries locally affected by international competition and striving to strengthen export competitiveness. Since the 1990s, when the manufacturing industry felt threatened by trade liberalization, BNDES has supported the restructuring of industries and also the various industrial policies.

7.2.5 – Policies to support the start of operations abroad by large and medium-sized companies

These include policies regarding credit, trade promotion, consulting and strategic intelligence, fiscal incentives, insurance for investment abroad and trade missions to several countries. As we have seen, several agencies are involved in these policies: the MDIC, MRE, Apex, BNDES and the Bank of Brazil. Support ranges from export incentives to supplier's credits for selling abroad and the acquiring of companies or opening branches in other countries. BNDES has become the major driver for the internationalization of Brazilian companies, both for exporters and those seeking to open branches abroad. While during the Fernando Henrique Cardoso administration it started to function as an export bank, in the Lula administration it expanded its operations to the funding of Brazilian companies purchasing companies outside Brazil and realizing mergers and acquisitions at home and abroad.

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18 In an interview on the GloboNews TV show *Espaço Aberto*, on January 6, 2012, the president of the AEB (Brazilian Foreign Trade Association / Associação de Comércio Exterior do Brasil), José Augusto de Castro, complained about the a lack of foreign trade policy. He stated that Camex only worked with seven ministries, when in reality there were seventeen that deal with this policy. On the association's webpage are posted press articles highlighting the need for long-term policies for the competitiveness of Brazilian products and the urgency of greater dialogue between the MDIC and exporters. The vice president of AEB, Roberto Gianetti da Fonseca, has also pointed to the 'anti-export bias of our complex and anachronistic tax structure' ('*Uma grande distância*', 2012).

7.2.6 – Regulatory policies

Examples of regulatory policies include the Competition Protection Act (establishing control of competition), the Seaport Modernization Act, the Concessions Law (regulating the use of resources over which the State has a monopoly, i.e. water, minerals, hydrocarbons) and the Corporate Anti-Corruption Law. These policies included the creation of regulatory agencies for oil and gas, electricity, phone and telecommunications, and healthcare and pharmaceutical drugs.

7.2.7 – Foreign policy involving state-state and state-firm diplomacy in conflicting issues within Latin America

It has been noted that the MRE has assumed a more aggressive stance in trade negotiations (Ricupero and Barreto, 2007). The ministry has started to participate actively in negotiations in WTO trade disputes and controversies (Thorstensen, 2011; Ferreira, 2004)[19]. Also, President Lula often traveled with his ministers to attend events (bilateral or multilateral forums) to uphold the government's commitment to partnerships and promote Brazilian companies abroad. The delegations accompanying the president often included businessmen interested in starting a business or advertising their current business in the country or region being visited. In the early years of this century, Presidents Lula and Dilma led commercial missions to Argentina, China, several African countries, and Russia, among others.

7.2.8 – Policies that involve the creation of channels of dialogue and consultation between the governmental bureaucracy and the business community for the discussion of industrial and foreign trade policy

With the New Republic, several channels of interaction were created between the government and the business community, such as councils, industrial and agriculture sectoral chambers and competitiveness forums, all connected to ministries. In the councils created under Lula – the Council for Economic and Social Development (CDES), National Council for Economic and Social Development (CNDI) and the National Foreign Trade Council – the president's

19 At the WTO, governments alone engage in commercial litigation on behalf of their country's companies or industries. Only the ministries of foreign relations of the respective countries participate in the controversy panels – hence a good partnership between companies and the government is vital for the flow of information regarding the lawsuit.

presence and of his or her ministers at meetings between the government and big business or representatives of business entities, has stood out; the president directly participated in the discussions on export and industrial policies.

8. THE INTERNATIONALIZATION OF THE BRAZILIAN ECONOMY AFTER 1990: THE NEW BUSINESS ENVIRONMENT

In the course of the 1990s, the export trade paradigm was not the only thing to change. Brazilian capitalism was modified in profound ways through the economic reforms and the impacts of domestic events (inflation, external debt and redemocratization), which led to a re-composition of the ruling coalition. International events also contributed to the transformation, for example the various financial crises, as well as the pressures and constraints imposed by institutions associated with the Washington Consensus and the WTO on the direction of the country's economic policy. Domestic and international events and the reorientation of the various government administrations' policies after 1990 brought significant changes to the Brazilian business environment.

There is ample evidence that the country's private sector has undergone gradual change over the last two decades, as has the Brazilian State itself. Signs of such changes became evident in the hierarchical structure of the business world. They were illustrated, on the one hand, by the strengthening of micro and small businesses (proactively and strongly mobilized through campaigns and trade associations), and on the other, by the placement at the top of the hierarchy of large national groups and foreign multinationals. The emergence of Brazilian economic groups operating abroad and multinationals coming to Brazil from the 'Global South' is a new element in the Brazilian business environment.[20] João Bosco Lodi, a business consultant in the 1990s, described the changing business environment at the turn of the twenty-first century: 'The great era of the national entrepreneur was 1945–1985. Now the protagonists are pension funds, international investment funds, and the global companies that survived the big mergers of 1996–1998. . . .

[20] Several studies have sought to explain the companies' internationalization process, prioritizing the analysis of investments by foreign and Brazilian multinationals, notably Casanova (2009), Fleury and Fleury (2012), Mathews (2006), Almeida (2009), Almeida (2007) and Laplane, Coutinho and Hiratuka (2003).

[Today] who survive are those who operate worldwide, are aggregated with multinationals, are well capitalized, and who operate with low overhead' (Lodi, 1999, p. 80). Below these changes in the business environment and the recent Brazilian capitalist structure will be discussed.

8.1 – Variety of multinational companies

The foreign multinationals in traditional industries (such as automotive, pharmaceutical, food, agricultural input, cleaning and hygiene products) have reflected in their Brazilian subsidiaries the intense changes that have taken place in the large corporations in developed countries. They also begin to face competition from newly arrived multinationals, stimulated by the policy of opening up to imports and foreign capital during the Collor administration. The combination of an economic recession with competition in the early 1990s led to agreements between these traditional multinationals and the Brazilian government, for example for the automotive manufacture rules enacted in 1995. The auto parts industry, which, as per requirements defined in negotiations during the Juscelino Kubitschek administration (1956–1961), had to be entirely national, was completely denationalized in this period, leading to the disappearance of major companies such as Cofap and Metaleve.

At this time new foreign multinationals in banking, insurance, electric distribution operators, upstream oil and gas, telecommunications, and computing established presences in Brazil. These companies operate in industries that were affected by the reforms, either having been privatized or seeing the end of monopolies (upstream oil and reinsurance services).

The services sector, hitherto protected for Brazilian companies, was progressively deregulated and denationalized; this was the case of banks and insurance companies, supermarkets, book publishers, the press, colleges, hospitals, health plans, etc. Many of the new multinationals were based in countries (e.g. Norway and Spain) that traditionally had had no presence in the country. Of special note was the arrival of Chinese multinationals to Brazil during the twenty-first century, as discussed above.

Brazilian multinationals that had already started operating abroad in the 1970s expanded their scope and assets across Latin America, Portuguese-speaking Africa, Portugal, the United States, and China, among other countries and regions. For this expansion they relied on support from BNDES and the ministries and agencies involved with internationalization.[21] Major Brazilian economic groups started buying companies, exporting, providing post-sales customer service and manufacturing abroad. Both public and private Brazilian multinationals were operating in upstream and downstream oil, mining, steelmaking, food and beer, transportation, civil aviation, cement, orange juice, shoes, fashion and textiles. These include large economic groups and medium-sized companies. Services providers included private banks and large construction contractors, and information technology companies began to operate in Africa, particularly in Angola.

The remarkable transformation of Brazilian multinationals is evidenced by surveys of the largest national companies operating abroad. UNCTAD's World Investment Report, which appeared in 1995, identified the largest internationalized Brazilian companies as Petrobras, Sadia, Brahma, Villares, Embraer, Usiminas Aracruz, Ceval Alimentos and Hering (Lacerda, 1999, p. 32–33). Many of these companies were subsequently purchased by large groups, both national and international, which concentrated the industry even further (as was the case of Sadia, Brahma, Aracruz and Ceval Alimentos). Groups like Villares steelworks disappeared from the landscape in the 1990s.

Just over a decade later, Lourdes Casanova (2009, p. 165) identified, based on *América Economía* magazine, the following Brazilian companies with the greatest globalization index among the hundred largest Latin American companies: Odebrecht, Andrade Gutierrez, Camargo Corrêa, Vale, Gerdau, Embraer, Petrobras, Sadia, Perdigão, Grupo JBS Friboi, Marcopolo, Braskem, Sabó, Weg, Grupo Votorantim, Natura Cosméticos, TAM, Gol and Itaú. The list reveals the

[21] This policy of support for the large national groups seems to have come from the Fernando Henrique Cardoso administration, which commissioned sociologist Luciano Martins, an advisor to the president, to survey the largest Brazilian economic groups. In 1995, during Cardoso's first term, BNDES carried out a study identifying the large groups in the country that seemed ripe for internationalization (BNDES, 1995).

changes that resulted mainly from the impact of the 2007–2008 subprime crisis upon the Brazilian business environment. Sadia and Perdigão were absorbed into the BR Foods Group, and TAM merged with Chile's LAN to expand its reach in Latin America. Itaú Bank was strengthened domestically by acquiring Unibanco.

Lourdes Casanova (2009) addressed the question of the proportion of Brazilian companies operating abroad within the Latin American multinationals, reporting that of the fifty companies with the highest globalization index in Latin America, nineteen (38%) were Brazilian, as shown in Table 2. However, among all multinationals headquartered in the Southern Hemisphere, Brazilian companies comprise a mere 3%, whereas Chinese companies comprise 40%.

Table 2. Fifty largest multinationals in Latin America by country (2008)

Brazil	19
México	12
Chile	8
Argentina	5
Peru	2
Colombia	1
Guatemala	1
Venezuela	1
Bolivia	1[1]
Total	50

Source: Casanova (2009, p. 168).

Note: [1] The single Bolivian company later moved to the United States.

The expansion of Brazilian companies across Latin America has been intense: Petrobras, (oil and gas) is present in Argentina, Uruguay, Chile, Paraguay, Bolivia, Peru, Colombia and Venezuela. Vale (mining) has branches in Argentina, Chile, Paraguay and Peru. Odebrecht (construction) develops projects in Venezuela, Argentina, Colombia, Ecuador and Peru. BNDES is often behind these companies, providing credit to establish a presence and operate in these countries (Belloni and Wainer, 2014).

8.2 – The strengthening of major public companies abroad

Another characteristic feature of the State's repositioning in the new scenario has been the strengthening of large public companies abroad. This effort was an element of the foreign policy orientation that had among its goals Latin American integration and the strengthening of relations with Africa and China. This was the case of the State-owned multinationals Petrobras and Eletrobras (electric distribution), present in various parts of the world.

8.3 – Mergers and acquisitions

Several Brazilian companies (public and private) joined together or were absorbed during the wave of mergers and acquisitions, which led to the denationalization of industries including those of auto parts, telecommunications, electric distribution, banking, insurance, metallurgy, steel, mining, food, beverages, chemicals, transport equipment and pharmaceuticals (Siffert Filho and Silva, 1999). This was the case with mergers between Brazilian companies: Unibanco and Itau (banks) and Sadia with Perdigão (poultry and sausages and processed meats), forming BR Foods; and Brazilian companies with foreign companies: SulAmerica with ING (insurance) and Pão de Açúcar with Casino (supermarkets). As a result, there has been significant corporate denationalization and concentration due to the purchase of Brazilian by foreign companies. More recently, this trend has impacted publishers, supermarkets, hospitals and colleges. The result is increasing concentration in large companies and the partial or full denationalization of Brazilian companies.

8.4 – Growth and empowerment of small and medium-sized companies

This sector had already participated in the ruling political coalition during the military regime, obtaining a few protectionist policies, and actively participated in the political transition, enshrining in the 1988 Constitution a commitment to small and medium companies. The sector has proven capable of acting collectively to secure favorable tax policies, with its major achievements being the Statute for the Small ands Medium Businesses, the Simplified Tax System and the 'Simple' ultra-low tax regimen (Guimaraes, 2011). Brazilian entrepreneurs, furthermore, rely on Sebrae for support and training, which has become a key player in foreign

trade policy after partnering with Apex, which has made it possible for small companies to export by offering training, courses, and competency building.

8.5 – The hierarchy of companies in Brazil

With the strengthening of the large economic groups and mobilization of small and medium-sized companies, the country saw the consolidation of the hierarchy that has been remarked upon by Castro (2012), Schneider (2009) and Doctor (2010). Given the increasing concentration at the top of the Brazilian economy and the expansion of its base formed by small and micro companies, it is the case that the historical trend of the Brazilian business world being a pyramid still persists – with the tip in fact becoming ever sharper.

8.6 – Public financial sector

Even though the companies in the financial sector underwent a wave of denationalization with the arrival of foreign banks and insurance companies in the 1990s, the public financial sector remained strong and was expanded. It currently consists of the Bank of Brazil, BNDES and Caixa Economica Federal. BNDES furthermore became the main pillar of the export policy, offering support to both foreign multinationals participating in privatizations and large projects and to Brazilian multinationals expanding abroad. The National Housing Bank (BNH) was closed during the 'New Republic' period and absorbed in 1986 into the Caixa Economica Federal, after not resisting the effects of inflation on performance. Public banks implement most of the government's business policies (credit, investment, insurance, exports support, support for mergers and acquisitions, funding for major public construction works and involved companies) and thus represent the clearest instance of State participation in the Brazilian economy.

8.7 – Legal framework

The major changes in the business world after the 1990s were accompanied by a significant expansion of the legal framework. These regulated investments, taxes, and allowed the formation of large-scale projects, especially in infrastructure, in the form of PPPs (public-private partnerships) and special-purpose societies (Lazarini, 2011). These partnerships constructed large hydroelectric dams, urban public works, and roads, as well as maintaining the last. The regulatory framework

for oilfield auctions and, more recently, the Production Sharing Agreement model or PSA regime for the deepwater pre-salt exploration, shows how there has been a proliferation of new legal and regulatory frameworks to guide state-firm and firm-firm relationships. Many new laws have made operations among companies, not to mention their impact on consumers, the environment and society, far safer. Some examples are the Competition Protection Act, which led to the Administrative Council for Economic Defense (Cade) of the Ministry of Justice, to prevent cartelism; the Bankruptcy Act; the Industrial Property Law (which is, however, still very weak in Brazil: the most valuable patent ever deposited in the country, a caller ID system, has never succeeded in accruing a single cent in royalties, even after years of lawsuits); the Goodwill Law, which provided fiscal incentives for nationally manufactured electronics and other forms of innovation, later repealed in 2015 under austerity measures; the Innovation Act; the Statute for Micro and Small Companies; the Patent Act; and the Law of Generic Drugs, which has been very successful and has had a significant impact on public health.

8.8 – The ownership structure of private Brazilian companies

The ownership structure of private business in the country has undergone significant change along this period. Domestic and foreign private banks, foreign financial investors, large State company pension funds (especially Previ, the Bank of Brazil's pension fund) and BNDESPAR are the most ubiquitous new shareholders of privatized companies and also those currently being restructured. This issue is connected to the changes in the format of financing sources available for large private or State companies that seek funding, whether abroad or in the domestic capital market. Through ownership participation in companies, pension funds and commercial banks have become part of the companies' management and boards of directors. With the end of the large family-owned businesses, the ownership structure of large and medium-sized companies has undergone a major transformation.

8.9 – Changes in the activities of business associations

These changes have been felt by the business associations, which have been restructuring themselves. A large number of small and medium-sized company associations were organized as a result of sector mobilization for domestic and

export-support policies. The traditional corporatist-minded organizations of the manufacturing industry, with their long associative tradition, have galvanized their international relations and foreign trade departments to step up the production or commissioning of studies and projects of interest to their member companies. With the strengthening of Congress's capability with redemocratization, they began to accompany the progress of bills and laws. Business entities also emerged from bilateral trade relations, such as think tanks and similar analytical associations: the China-Brazil Business Council, the Brazil-China Chamber of Commerce & Industry (in Sao Paulo, Espírito Santo and Rio de Janeiro), Argentine-Brazilian Chamber of Commerce (in Sao Paulo and Rio de Janeiro), Brazil-Argentina Chamber (in Buenos Aires), amongst others.

With the increasing volume of trade negotiations and new demands from the WTO, cross-industry business entities began to form. These were a novelty among business organizations, which formerly had taken the form of single-industry associations for the most part. The creation of Brazilian Business Action (Ação Empresarial Brasileira) in 1993, driven mainly by debates around the constitutional reform that happened that year, was an example of the new 'summit'-minded business activity. It was followed in 1996 by the formation of the Brazilian Business Coalition (Coalizão Empresarial Brasileira) to discuss the role of Brazilian companies in the FTAA (Oliveira, 2003; Mancuso and Oliveira, 2006).

8.10 – Alliances and coalitions of companies with the government

Several forms of alliances and coalitions in support of company internationalization and international integration policies[22] after the paradigm shift in Brazilian policy in 1990 can be identified. Since then, the country's integration into the international economy has deepened; one form of alliance, that between small and medium-sized enterprises (SME) and the government, has its roots in the 1980s. The SMEs benefitted from a series of commitments to support them in the Constitution of 1988, the inclusion of which was the result of mobilization by indus-

22 Peter Gourevitch (1993) understands as 'political coalitions' as the arrangements involving economic industries and sectors around common ideas, interests and policies. These coalitions sediment paradigms of State action and *impart legitimacy* to governments. For him, crisis situations (such as that which Brazil experienced in the 1980s) change the paradigms, undo the winning coalitions and replace them with new projects, actors and ideas.

try associations at the beginning of the redemocratization. Through their campaigning, these entrepreneurs managed to get legislation enacted that put in place a favorable tax policy for the sector and a statute (a special legal regimen) for small and medium-sized companies. Today the "Simple" regimen provides the lowest tax rates and is crucial for the survival of many small companies. The paradigm shift further benefitted this sector, which found in exporting and in government support for operating abroad a path to expand into other markets. As mentioned above, Sebrae and Apex are spaces for entrepreneurs to acquire strategic intelligence and training and build skills and capabilities. Many government projects have shown that the alliance has strengthened the sector.

Another form of political alliance was to be found in the large Brazilian economic groups that work with the government to develop domestic policies for their industry (tax relief, employment) as well as operating with financial support from the government to export or operate abroad. Governmental entities such as the CDES (Lula administration), the CNDI (Lula administration) and Camex (both Fernando Henrique Cardoso and Lula administrations) were platforms wherein the coalitions among large Brazilian business groups and the government were forged.

Due to the fact that the ownership structure of large industrial companies has changed to include as shareholders banks, investment funds, pension funds and even BNDESPAR, one may ask whether an entirely new phenomenon has come into being, namely, a coalition of interests in the market (the company) that would carry over, in a second moment, to the political sphere (electoral support, support for government programs). The coalitions reviewed here comprise alliances of business sectors with political parties, economists, consultants, think tanks and media outlets.

9. CONCLUSIONS

The author hopes that this chapter has advanced the understanding of the paradigm shift that has occurred in Brazil starting in the 1990s, and how it was reflected in government policies and in State institutions. The transformation of the prevailing paradigm into one of competitive integration, as started under Collor and continued by Itamar Franco, Fernando Henrique Cardoso, and Lula – who

dubbed this new approach 'proactive international integration' – also entailed a change in the very concept of *development*. Since then, the notion of development has been enlarged to encompass the perspective of international integration as fundamental to economic growth. If globalization on one hand empowers national States to deal with new problems, as Linda Weiss (2006) argues, on the other it also helps to formulate a new project of the future.

One may now properly consider the observation by Jerome Sgard that economic liberalization policies lead to better State-building. The movement towards liberalization is often associated to a retraction of the State and to it playing a smaller role, but what was seen in the Brazilian case was rather a paradigm shift towards development with international integration, combined with liberalization policies, which brought about a significant transformation in State institutions and in the relationship between government agencies and society, including business groups. Entities such as BNDES, Apex and the National Institute of Metrology, Quality and Technology (Inmetro) – which spearheads the advancement of Brazilian interests at the WTO – are the strategic agencies for the country's insertion in the international economy, going beyond the pursuit of domestic policy objectives. Certainly, the changes that the State has undergone with regard to institutions and in forms of management over the last two decades have rendered it capable of managing both domestic and international policy through the 'islands of excellence'.

The argument that, instead of retracting, the State after 1990 repositioned itself in the economy can be better understood if one considers the two following concepts:

1. The State leads transformation processes in the Brazilian economy, gradually integrating it with the international economy. Regulatory, funding and planning actions; strong public banks; and the creation of agencies supporting export activity and the internationalization of Brazilian companies are evidence of this repositioning.
2. While on the one hand, the State favors the privatization of public companies in important industry sectors of the economy, on the other the State has returned to the market though share acquisitions in these companies through Previ, Petros and BNDESPAR.

Over the two decades reviewed in this chapter it should be recalled that, in parallel with making efforts to change the paradigm of Brazilian economic policy, Brazilian governments faced significant foreign economic policy challenges: Mercosur, the negotiations for the FTAA, the Uruguay Round, the establishment of the WTO, and the emergence of blocs such as the European Union and NAFTA. Leading the way when it came to foreign economic policy, the Ministry of Foreign Relations has played a central role and actively engaged the business community, one significant result being the formation of a cross-industry organization, the Brazilian Business Coalition. The ministry has always been a governmental institution of excellence, and continues to be as diplomacy plays the leading role in Brazilian foreign relations. But the paradigm shift that has made the institution less insulated has made it more porous to the interests of economic groups and social movements. Greater intrabureaucratic collaboration was another change in the MRE that helped build better State capability.

One may thus conclude that the policies underlying the international integration of Brazil into the capitalist world order have led to some positive results. Within Latin America, Brazil stands out today for its institutions of excellence (Itamaraty, BNDES), the sustainability of its macroeconomic orientation, and the large Brazilian companies operating abroad. However, the country's ability to export, pursue external investment, and encourage its companies to expand abroad faces new challenges: fitting into a Sinocentric world and operating within a context where bilateral relations predominate.

CHART A.1
Institutions for industrial, technological and company internationalization support policy during the Fernando Henrique Cardoso and Lula administrations

Institution	Agency	Action
MDIC	BNDES	Provide funding in the form of export credits, investments and support to large and medium-sized enterprises to operate abroad. Main export credit agency and development bank.
	INPI	Management of intellectual property, technology transfers, trademarks and patents.
	Inmetro	WTO's focal point in Brazil. Technical and legal standards for foreign trade, guidance of businesses regarding certification.
	Apex	Founded in the Fernando Henrique Cardoso administration, it is an exports promotion agency geared to providing guidance, consulting and strategic intelligence for company internationalization.
Ministry of Science and Technology	Finep	Funding for innovation and scientific and technological research and providing venture capital.
	CNPq	Promotion of scientific and technological research, training of human resources in science.
	FNDCT / sectoral funds	Promotion of R & D activities. Transversal actions (Fernando Henrique Cardoso administration).
Ministry of Education	CAPES	Postgraduate grants, incentives for scientific production.
Ministry of Finance		Incentives related to tax exemptions, customs tariffs.
CNDI		Created in the Lula administration (2004). Advisory body attached to the Presidency to formulate and monitor the application of industrial policy guidelines. Composition: thirteen ministers and the president of BNDES.
Ministry of Justice	Cade	Cade was created in the Itamar administration (1994) along with the Competition Protection Law. This body oversees the protection of fair competition and prevents cartels.
Ministry of Foreign Affairs		Promotes trade, provides guidance on rules and regulations regarding multilateral trade agreements, represents companies at the WTO and in negotiations of regional trade agreements, and promotes economic integration.
Sebrae		Micro- and small-business support agency, focused on local development, and also the internationalization of companies in cooperation with Apex.

Source: Suzigan, W.; Furtado, J. Instituições e políticas industriais e tecnológicas: reflexões a partir da experiência brasileira. *Estudos Econômicos*, São Paulo, v. 40, n. 1, 2010. p. 23.

Legend: MDIC – *Ministério do Desenvolvimento, Indústria e Comércio*
Ministry of Development, Industry and Commerce

BNDES – *Banco Nacional de Desenvolvimento Econômico e Social*
National Bank for Economic and Social Development

INPI – *Instituto Nacional da Propriedade Industrial*
National Institute of Industrial Property

Inmetro – *Instituto Nacional de Metrologia, Qualidade e Tecnologia*
National Institute of Industrial Property

WTO – World Trade Organization

Apex – *Agência Brasileira de Promoção de Exportações e Investimentos*
Brazilian Agency for the Promotion of Exports and Investments

Finep – *Financiadora de Estudos e Projetos*
Funding Authority of Studies and Projects

CNPq – *Conselho Nacional de Desenvolvimento Científico e Tecnológico*
National Council for Scientific and Technological Development

FNDCT – *Fundo Nacional de Desenvolvimento Científico e Tecnológico*
National Fund for Scientific and Technological Development

R & D – Research and Development

CAPES – *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*
Coordination of Improvement of Higher Level Personnel

CNDI – *Conselho Nacional de Desenvolvimento Industrial*
National Council of Industrial Development

Cade – *Conselho Administrativo de Defesa Econômica*
Administrative Council for Economic Defense

Sebrae – *Serviço Brasileiro de Apoio às Micro e Pequenas Empresas*
Brazilian Service for Support of Micro and Small Companies

TABLE A.1

Brazilian trade balance during the Fernando Henrique Cardoso and Lula administrations
(in US$ million – FOB - *Free On Board*)

Year	Exports value	Imports value	Trade balance
1995	5.931	7.296	-1.364
1996	6.877	6.874	3
1997	6.830	6.761	68
1998	7.632	8.584	-951
1999	6.216	6.833	-617
2000	7.578	7.615	-36
2001	8.628	9.025	-396
2002	7.638	7.200	438
2003	9.820	7.541	2.278
2004	11.542	7.978	3.564
2005	15.229	10.242	4.987
2006	18.061	12.423	5.638
2007	21.113	15.689	5.423
2008	26.076	24.306	1.770
2009	19.368	18.137	1.231
2010	23.502	23.293	208
2011	31.946	30.357	1.589
2012	34.168	33.773	394
2013	31.516	36.835	-5.318

Source: MDIC. Available at: <www.desenvolvimento.gov.br>.

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CHAPTER 10

POLITICAL INSTITUTIONS, STATE CAPACITIES AND INTERNATIONAL COOPERATION: SOUTH AFRICA, BRAZIL AND CHINA[1]

Fátima Anastasia • Luciana Las Casas Oliveira

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1. INTRODUCTION

This chapter examines state capacities related to bilateral international cooperation between Brazil and China and between Brazil and South Africa. It assumes that political institutions affect the behaviour of actors, the dynamics of interaction between them and the results of the game (Tsebelis, 1990; Hall and Taylor, 1996; Shepsle and Wengast, 1995) and therefore asks: how do different political institutions inform the construction of different state capacities regarding bilateral international cooperation?

The research method is the comparative one, and the cut is transversal. The institutional arrangements of the three countries will be analysed comparatively, considering their most recent political reforms. In the case of Brazil, this is the coalition presidentialism since the 1988 Federal Constitution (CF / 1988); in the Chinese case, the reforms implemented since the death of Mao Zedong in 1976; and in the case of South Africa, the end of apartheid and redemocratization in 1994.

In order to analyse the impact of political institutions on state capacities, countries that form, with Brazil, different pairs of bilateral cooperation (Leeds, 1999) have been chosen: China (autocracy) and South Africa (democracy). It is proposed to identify similarities and differences in the capacities of the states studied

related to bilateral international cooperation, depending on the variations in their political institutions. Two areas of public policy will be examined: international cooperation in foreign trade and human rights. The choice of these themes is justified considering that they are differently impacted by the political institutions of the nations under consideration and require different state capacities for their implementation.

The first section of the text presents the analytical model; the second addresses the institutional arrangements of the three countries. The third section examines state capabilities for bilateral international cooperation. In conclusion, the main analytical findings of the study are presented.

2. STATE CAPACITY AND ITS DETERMINANTS

The study of State capacity requires, initially, the definition of the concept of State. According to Weber (1991), the state is the apparatus that holds the monopoly of the legitimate use of physical force in a given territory – a genius definition that can be generalized, encompassing phenomena aimed at achieving a variety of objectives. (Weber, 1991).

For Evans (1993), State capacity is the State's capacity to act. Then, following the concepts of these authors, state capacity will be defined here as the State's capacity to act in order to organize the means required for the attainment of its proposed ends. These ends are in line with the needs of the political institutions of each country. Thus, depending on the type of political institution, different sets of objectives will be formulated and consequently different state capacities will be required. As the objectives (ends) vary, so will the capacities (means). In this way, *state capacity for action varies in type and degree, depending on the nature of domestic political institutions*.

The political institutions of the nations studied can be classified as inclusive or extractive[2] (Acemoglu and Robinson, 2012). Inclusive political institutions have a high degree of pluralism combined with a high degree of centrality of the State.

[2] In contrast, according to Acemoglu and Robinson (2012: 146), extractive institutions prevent the majority of the population from taking part in political and economic decisions, limit the development of capacities and the access to educational and economic opportunities.

According to the authors, the centrality of the State refers to the configuration of it as the central actor in determining the nation's course, being able to perform the assigned roles, ensure public order, deliver goods and services and stimulate and regulate economic activity.

Depending on the objectives pursued by a particular State, its central position will be mobilized in different ways. The centrality of the State, therefore, is a necessary condition for the operation of both inclusive and extractive institutions, and the variations observed, for the purpose of distinguishing between the political institutions of the countries studied, reflect their degree of pluralism.

The concept of veto players (Tsebelis, 1995) will be mobilized to analyse the networks of actors and institutions organized for international cooperation between Brazil and China and between Brazil and South Africa in the areas of human rights and foreign trade. According to Tsebelis (1995), policy change depends on the number of actors with veto power, on the congruence between them, and on their (internal) coherence. Thus, stability or policy change is associated to a lesser extent with the number of actors with veto power and to a greater extent with the congruence between them: 'The policy stability of a political system depends on three characteristics of its veto players: their number, their congruence (the difference in their political positions) and their cohesion (the similarity of policy positions of the constituent units of each veto players)' (p. 301). It is argued here that an increase in congruence – a desirable attribute for the production of consensus on public policies, in the presence of a large number of veto players (polyarchies) – is encouraged under more-developed state capacities, especially in the legal, relational and political dimensions (Cingolani, 2013).

An expanded State is not necessarily more capable of ensuring the prosperity and well-being of its citizens. As Fábio Wanderley Reis (1988) affirms, the most important thing is not the size of the State, but its adequate construction, which refers to the recommendation of *State restraint*, where it threatens the freedoms and rights of citizens, and its expansion, where it is required for the promotion of well-being: 'In particular, research should be careful in distinguishing what we called the "capacity to do" and "the capacity to refrain from", that separates power deploying from power checking sources of capacity' (Cingolani, 2013, p. 42). Thus, in the context of inclusive political institutions, state capacities are associated with

the state's capacity to restrain and expand itself, in line with the building of a state aimed at promoting freedom and prosperity. It is assumed that the presence of similar capacities (in type and in grade) at the domestic level contributes to the development of cooperation between States at the international level.

2.1 – Operationalization

The concept of pluralism will be operationalized through the mobilization of the concept of polyarchy (Dahl, 1989) and of the models of democracy (Lijphart, 2003). Thus, the eight requirements of Dahl's polyarchy and the ten characteristics listed by Lijphart to distinguish the consensus model from the majority will be taken as indicators of (*i*) the presence or absence of a democratic regime (and hence of political pluralism); and (*ii*) in case of polyarchy, whether consensual or majority.

Cingolani (2013, p. 27) describes the different dimensions covered by the concept of state capacities: 'In general, state capacity refers to one or a combination of the following dimensions of state power: a) coercive/ military; b) fiscal; c) administrative / implementation; d) transformative or industrializing; e) relational/territorial coverage; f) legal; g) political'. The identification of different types of State capacity is important for the decisions related to the delimitation of the object and contributes to the production of findings by directing the analyst's gaze to certain actors, agencies and phenomena. In view of the issue addressed in this article – bilateral international cooperation – four types of state capacities are particularly relevant and listed below:

1. Legal – the consideration of the *legal capacity* points to the existence of a stable legal system that guarantees the exercise of the rights and the fulfillment of the contracts, with emphasis on the limitation of the intervention of the State (Cingolani, 2013, p. 32).[3]
2. Relational – this refers to the State's ability to internalize and express social interactions in its actions. For the purposes of this article, we are particularly interested in 'the power of the state's "radiating institutions", how the state affects and is limited by civil society' (Cingolani, 2013, p. 31).

3 "The legal dimension of state capacity has its roots in the "limited government" strand of the literature, in which special attention is given to the limitation of state's intervention' (Cingolani, 2013, p. 32).

Political – this refers to the agenda power of elected representatives in the definition of public policies: 'It often refers to the level of power accumulation by elected leaders in order to enforce their policy priorities across the different institutional players (party, Congress, etc.) (Weaver and Rockman 1993; Tsebelis 1995; Gates et. al. 2006). This literature looks at veto points and executive checks, often sharing insights with the legal capacities literature' (Cingolani, 2013, p. 32).

3. Political – this refers to the agenda power of elected representatives in the definition of public policies: 'It often refers to the level of power accumulation by elected leaders in order to enforce their policy priorities across the different institutional players (party, Congress, etc.) (Weaver and Rockman 1993; Tsebelis 1995; Gates et. al. 2006). This literature looks at veto points and executive checks, often sharing insights with the legal capacities literature' (Cingolani, 2013, p. 32).

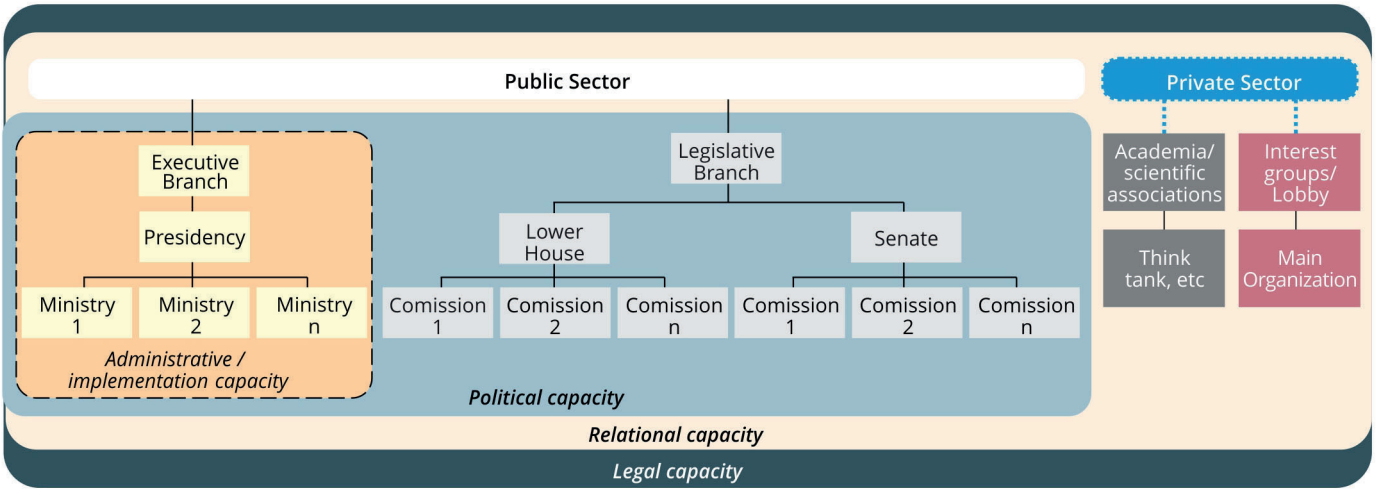
The aim here is to capture the capacity for horizontal accountability, which refers to the existence and effective operation of a checks and balances system between institutional powers; and

4. Administrative / implementation: these refer to the existence of a professional bureaucracy and to the impersonal implementation of public policies, based on the Weberian conception of the modern state (Cingolani, 2013, p. 28).

The distinction among these dimensions are useful for the argument on screen, in connection with the typology proposed by Faria (2012, p. 176), in relation to intra-governmental coordination (within the executive), intergovernmental relations (between the federal executive and subnational governments)[4] and inter-sectoral cooperation (public and private sectors). Adding to this typology the interactions between the constituted powers (checks and balances), the following correspondences are observed in the analytical screen: legal capacities constitute the analytical frame that subsumes all the others; the consideration of relational skills refers to the analysis of patterns of interaction between the public and

4 Intergovernmental relations will not be analysed in this chapter.

Figure 1. Analytical matrix



Source: The authors.

private sectors; the consideration of political capacities refers to the analysis of the relations between the executive and legislative powers; and, finally, consideration of administrative / implementation capacities refers to the analysis of intra-governmental coordination. As stated above, it is assumed that the presence of similar capacities (in type and in grade) at the domestic level contributes to the development of cooperation between States at the international level.

2.2 – State capacities and their effects on international cooperation

International cooperation refers to mutually agreed-upon interactions between two or more actors in the international environment (Oye, 1986; Axelrod and Keohane, 1985; Keohane and Nye, 1989). The relationship can take various forms, ranging from the simple exchange of information to processes as complex as the creation of regimes, institutions and international organizations; and can generate groupings such as the BRICS and IBSA and reach regional integration,[5] as in the case of the European Union. International cooperation does not, however, always equate to harmony: 'Harmony requires complete identity of interests, but cooperation can only take place in situations that contain a mixture of conflicting and complementary interests. . . . Cooperation occurs when actors adjust their behaviour to the actual or anticipated preferences of others. Cooperation, thus defined, is not necessarily good from a moral point of view' (Axelrod and Keohane, 1985, p. 226).

In this chapter, cooperation will be taken as a political phenomenon that occurs in the international environment. It is not, therefore, a technical analysis of the phenomenon. In this way, international cooperation includes, but is not limited to, development cooperation. Furthermore, international cooperation does not occur independently of the domestic environment. Although the direction of causality cannot be asserted, 'domestic politics and international relations are always intertwined in some way' (Putnam, 2010, p. 147).

In analysing the influence of domestic political institutions on bilateral international cooperation, Leeds (1999) argues that dyads composed of two

5 BRICS: Brazil, Russia, India, China and South Africa; IBSA: India, Brazil, South Africa.

democracies tend to cooperate more than those formed by two autocracies. Mixed dyads (a democracy and an autocracy) are those that present the greatest difficulties in establishing and maintaining international cooperation. Cooperation between two democratic countries tends to be more credible and less flexible than that between two authoritarian ones (Leeds, 1999, p. 980).

It is proposed here that the propensity to cooperate, especially within mixed dyads, is also sensitive to the nature of the agenda. The political regime, therefore, influences the configuration of cooperation, whether in relation to the agendas addressed or in the degree of institutionalization possible in given dyad relative to the determined agenda (Oliveira, 2012).

The choice of agendas analysed here, foreign trade and human rights, is justified by the different sensitivities they present in relation to the institutional arrangements of the countries studied. Thus, more cooperation between Brazil and China is expected, for example, in foreign trade than in matters pertaining to human rights.

Within the framework of domestic political arrangements, it is intended to identify

- the main actors, agencies, and decision-makers related to international cooperation in the agendas analysed;
- their places in the institutional arrangement;
- the different types of state capacities; and
- patterns of interaction between actors with different capacities.

Within the framework of bilateral cooperation, following Leeds (1999), the dyads of Brazil and South Africa and of Brazil and China will be investigated, with the aim of identifying and analysing

- the correspondences / differences between domestic institutional arrangements for international cooperation;
- the correspondences / differences between the state capacities for cooperation of the countries that make up the dyads; and
- difficulties / obstructions due to asymmetries between the two above mentioned situations between the countries.

3. POLITICAL INSTITUTIONS

3.1 The institutional arrangement of South Africa[6]

Acemoglu and Robinson (2012) agree with Lewis's (1954) description of South Africa as a dual economy, divided between a traditional, underdeveloped and poor sector, and a modern, urban, and developed one. However, the authors do not agree (p. 269) that the development problem could be solved by extending modernization to the traditional sector: 'In South Africa black Africans were indeed "trapped" in the traditional economy, in the Homelands. But this was not the problem of development that growth would make good. The Homelands are what enabled the development of the white economy'.

Thus, the critical conjuncture[7] of 1994 is the phenomenon that explains the transition of Southern African political institutions from extractive to inclusive. The Constitution ratified in 1996 was guided mainly by the principles of non-racism and non-sexism, universal suffrage, citizenship and freedom of expression, and political association (South Africa, 1996). The country's Constitution guarantees everyone the right to freedom of expression, including freedom of the press and media, for artistic and academic productions, freedom of expression, political association, organizing political parties, voting in all legislative positions in dispute, to stand for election and to take up public office, if elected (South Africa, 1996).

The South African Parliament is composed of two houses: the National Assembly and the National Council of Provinces. The latter represents the interests of subnational units and the former those of the citizens. The Legislative system is constituted by means of general and periodic elections, contested in the context of a multiparty system, with there being six relevant parties: the African National Congress (ANC), the Christian Democratic Party, the People's Congress, the

6 Déborah do Monte participated in the preparation of this section.

7 A critical conjuncture is a double-edged sword that can cause a sudden change in the trajectory of a nation. On the one hand, it can pave the way for breaking the cycle of extractive institutions and allowing the more inclusive ones to emerge, as in England. Or it may intensify the emergence of extractive institutions, as it was the case of the Second Easement in Eastern Europe (Acemoglu and Robinson, 2012, p. 116, our translation).

Democratic Alliance, The Freedom Front Plus and the Independent Democrats (Sadie, 2006, p. 212).[8]

The president is elected by the National Assembly (South Africa, 1996). Under the Presidency of the Republic, two agencies dealing with relevant themes and policies are worth mentioning: the National Planning Commission, which is responsible for developing the National Development Plan, and the Department of Planning, Monitoring and Evaluation.

The ANC, the ruling government party for just over twenty years, is responsible for establishing the general political guidelines for the country. Although remnants of apartheid politics remain in the socioeconomic structure of South Africa, the country presents the eight conditions necessary to be considered a polyarchy (Oliveira, 2012, pp. 127–131).

South African society is plural and diversified, which can be exemplified by the existence of eleven official languages. Considering the variables that distinguish the majority and consensual models, in the executive-parties dimension, South Africa presents the Executive Power organized in a one-party cabinet and merger between the Powers, with Executive predominance, traits that approach the majoritarian model. The party system is, in turn, multiparty, and there is proportional representation (South Africa, 1996; Lijphart, 1998), characteristics of the consensual model.

In the federal-unitary axis, the Legislative Power is bicameral incongruous; the approval of constitutional amendments requires a qualified majority; and constitutionality control is independent, being exercised by the Constitutional Court (South Africa, 1996; Lijphart, 1998)[9] These characteristics are in line with consensualism.[10]

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8 In addition to these, the following parties are worth mentioning: Inkatha Freedom Party, Pan-African Congress, Party of the Christian Democratic Union and United Democratic Movement (Sadie, 2006, p. 212).

9 '(1) The judicial authority of the Republic is vested in the courts. (2) The courts are independent and subject only to the Constitution and the law, which they must apply impartially and without fear, favour or prejudice' (South Africa, 1996, chap. 8 and 165, I and II).

10 'A consensual democracy can be defined by four basic principles: (1) government by 'grand coalition'; (2) autonomy of the group through federalism and territorial and / or non-territorial decentralization;

Despite the existence of strong majority features, such as the Executive Branch with a one-party cabinet, long occupied by the ANC, and the formally unitary political-administrative organization, South African democracy cannot be classified as purely majoritarian: 'Finally, regardless of how one interprets the ANC's exact nature, an ANC majority cabinet will not transform the South African system to the pure type of majoritarian democracy found in the United Kingdom: there will still be proportional representation, a relatively decentralized government – described, correctly, as a "limited federalism" by Connors, a written constitution that can be amended only by extraordinary majorities, and a constitutional court' (Lijphart, 1998, pp. 148–149).

In spite of the strong influence of the United Kingdom, South African political institutions have an important consensual bias, a model more suited to plural and heterogeneous countries, for the purpose of expanding deliberative possibilities and the participation of minorities (Lijphart, 2003).

3.2 – The institutional arrangement of Brazil

The *coalition presidentialism* practiced in Brazil presents itself as an instigating institutional arrangement that has elicited different interpretations by analysts in relation to the attribute of regime stability. On the one hand, some analysts, especially Brazilian authors, affirm that presidentialism, multipartism, and proportional representation – institutional features present in the Constitution of 1946 and reiterated in the Constitution of 1988 (CF/1988) – form an explosive combination that jeopardizes the stability of the democratic order due to presence of many veto points and the difficulties of organizing a majority base of support for the president in Congress (Mainwaring, 1993; Mainwaring and Shugart 1993). On the other hand, Figueiredo and Limongi (1999, 2008), while affirming that CF/1988 did reproduce some features of the 1946 Constitution leading to the distribution of agenda and veto powers between the Executive and Legislative (in agreement with the above-mentioned authors), but they contend it innovated by introducing instruments that concentrate these powers in the hands of the President, such as

(3) proportionality, especially with regard to political representation; and (4) minority veto power on issues of vital and fundamental importance to minorities. The Interim Constitution of 1994 embodied all these basic principles and must therefore be regarded as a perfectly consensual constitution rather than just a quasi-consensual document' (Lijphart, 1998, p. 146)

the prerogative to issue provisional measures and to request urgency for matters of its own, exclusive initiative in budgetary matters, in addition to the power to veto totally and / or partially the matters approved by the Legislative Power.

Therefore, despite the existence of several characteristics that approximate Brazilian polyarchy to the consensual model of democracy – Executive Power organized in large coalitions, multi-party system, proportional representation electoral system, checks and balances, symmetrical and incongruent bicameralism, federalism, and strong constitution and constitutional control by an independent court – there is a preponderance of the Executive Power, which concentrates important agenda and veto powers and, according to Figueiredo and Limongi (1999), constitutes the principal legislator, de jure and de facto. This feature brings Brazilian democracy closer to the majoritarian model of Lijphart (2003).

The critical conjuncture inaugurated in Brazil with the workers' strikes of 1978, 1979 and 1980, while the country was still under military authoritarianism, triggered a broad political movement that culminated in the creation of inclusive political institutions in the country and led to the creation of more-inclusive economic institutions (Acemoglu and Robinson, 2012).

Despite the difficulties faced by the country, especially in the second decade of the twenty-first century, with the reduction of economic growth rates and the rise of inflation rates, it is expected that under inclusive political institutions the allocative consequences of these phenomena will be less perverse and better equated than would be observed under extractive institutions. The economic crisis deepened under the second government of Dilma Roussef and as a result of the 'Journeys of June 2013' a political crisis developed as well.

The combined effects of the two crises affected the relations between the powers with the outcome being, since the end of Dilma's administration, the resumption of legislative powers by the National Congress and the resulting weakening of the Executive Branch's ability to assert its agenda and veto powers. This was the context of the president's impeachment in 2016, the resulting changes in the composition of the governing coalition under the Temer administration (2016 / 2019) and the competition between the government and the opposition.

Under Temer's administration, the change of command of the Ministry of Foreign Affairs, and the elimination of the Special Adviser on International Affairs of the Presidency of the Republic caused significant changes in the orientation of Brazilian foreign policy, especially regarding south / south and north / south relations and also regarding the treatment of the so-called Bolivarian countries, such as Venezuela and Bolivia. Nevertheless, bilateral cooperation between Brazil and China and between Brazil and South Africa in relation to the themes of foreign policy and human rights was unaffected

3.3 – The institutional arrangement of China

This section will be based mainly on Lawrence and Martin (2013), who identify the five most relevant political institutions in China: (*i*) the Communist Party of China (CPC), (*ii*) the State Council, (*iii*) the National People's Congress (NPC), (*iv*) the People's Liberation Army and (*v*) the Chinese People's Political Consultative Conference (CPPCC).

The CPC is the main decision-making body of the country. It gained power in 1949, when the People's Republic of China was founded, and currently has about 80 million members (about 6% of China's population). According to the CPC Constitution, 'The basic principles of democratic centralism as practiced by the Party are as follows: (1) Individual Party members are subordinate to the Party organization, the minority is subordinate to the majority, the lower Party organizations are subordinate to the higher Party organizations, and all the constituent organizations and members of the Party are subordinate to the National Congress and the Central committee of the Party' (China, 1982).

The Chinese armed forces and the CPPCC are subordinate to the party and not to the State. The unicameral NPC, composed of about three thousand congressmen, meets only ten days a year and has the authority to approve the new political leaders of the country, which occurs every five years. The NPC, although it apparently has many powers and attributions, is also controlled by the Party. 'Like the State Council, the NPC has a Communist Party organization embedded within it' (Lawrence and Martin, 2013: 31).

Although there are eight smaller parties in China, the country in fact has a one-party system, since all of the others are subordinate to the CPC. According to Lawrence and Martin (2013, p. 37), the existence of these parties is used by the CPC to assert that the Chinese party system is 'multiparty cooperation'.

The CPC Constitution states that the Politburo Standing Committee (PSC) and the Politburo are elected by the central committee 'In practice, incumbent top officials provide a list of nominees to the Central Committee, which ratifies it' (Lawrence and Martin, 2013: 23). The members of the Central Committee (205 permanent and 171 alternate) are elected on the occasion of the National Party Congress, which takes place every five years and brings together 2,000 delegates (Lawrence and Martin, 2013, p. 28).

Below the CPC and closely tied to it is the Executive Power (The State System), which is charged with implementing the policies formulated by the Party:

> The locus of power in the State system is the State Council, China's cabinet. It is headed by a Premier (zongli), also sometimes referred to in English as Prime Minister, who serves concurrently on the Party's Politburo Standing Committee. Because the State system manages the economy on a day-to-day basis, the Premier is effectively China's most senior economic official, although he has other portfolios, too. On official organization charts, all ministries report to the State Council and ultimately to the Premier. In practice a number of ministries, including the Ministry of National Defense, the Ministry of State Security, the Ministry of Public Security, and the Ministry of Culture, report directly to the Communist Party entities that oversee their work. (Lawrence and Martin, 2013, p. 33)

In this chapter, Chinese political institutions will be classified as extractive, following Acemoglu and Robison (2012), and the political regime as non-polyarchical (Oliveira, 2012), in which not even the minimalist definition of democracy – free, periodic and, competitive elections – is observed. The country has a one-party system, violating the definition by Przeworski (1995) that democracy is a regime in which parties can lose elections, which has not occurred in China since 1949. Angang (2012) states that Chinese leaders are democratically elected. However, the elections for the leaders take place (*i*) within the decision-making bodies of the Communist Party, in violation of the requirements of competitiveness and the possibility of alternating power, which are so dear to polyarchies, or (*ii*) under the CNP which, in practice, is also controlled by the party.

According to Acemoglu and Robinson (2012), it is possible to achieve economic growth even in the presence of extractive institutions, and sometimes this growth can be impressive, as has been the case in China in recent decades: 'China has thus achieved economic growth not thanks to its extractive political institutions, but despite them: its successful growth experience over the last three decades is due to a radical shift away from extractive economic institutions and toward significantly more inclusive economic institutions, which was made more difficult, not easier, by the presence of highly authoritarian, extractive political institutions' (Acemoglu and Robinson, 2012, pp. 442–443).

Brødsgaard (2012) draws attention to the still-incipient nature of research on party-government relations in China, despite the increase in the number of studies in recent years. According to this author, the most recent literature has deepened what is known about these relations and produced new knowledge about the procedures for the constitution of decision-making bodies in China, especially regarding the mechanisms of recruitment and selection of leaders, showing how 'the Party appoints and manages government leaders through the nomenklatura system'[11] (Brødsgaard, 2012, p. 3). These advances are relevant because they allow us to examine the method of choice, as well as understand on whose behalf decisions are made and for what purpose.

It can be concluded from an examination of the characteristics of the institutional arrangements of the three countries that Brazil and South Africa have inclusive political institutions and are polyarchies. Both have strong features of the consensual model of democracy (Lijphart, 2003), tempered, however, by features reflective of the majoritarian model. In the case of South Africa, it is worth emphasizing the one-party cabinet (with all posts filled by members of the

[11] 'Nomenklatura can be defined as "a list containing those leading officials directly appointed by the Party as well as those officials about whom recommendations for appointment, release or transfer may be made by other bodies, but which require the Party's approval". This means that the nomenklatura list in fact comprises two lists. One of these is handled solely by the Central Organizational Department (COD) at the Party centre; the other involves management by other state and Party organs. The Party centre mainly focuses on the former list, but also has the authority to exercise veto power over the latter. Moreover, the nomenklatura system includes lists of personnel recommended for future appointment. Through this elaborate system the Party controls the selection and appointment of leaders to the most important positions in Chinese society. At the central level, the COD manages a list of top positions in government and Party organs at central and provincial level as well as the heads of the most prestigious institutes of higher learning' (Brødsgaard, 2012, p. 11).

the ANC), as well as the formally unitary political-administrative organization. Majoritarianism in Brazil is related to the preponderance of the Executive Power, which possesses wide powers of agenda and veto and overrides the system of checks and balances provided by CF / 1988.

Chinese political institutions are extractive and the country's political regime is autocratic. According to Sartori (1965, p. 168), 'in an autocracy power is concentrated, uncontrollable and unlimited'; these characteristics are present in China, where there are direct elections only at the local level, there are no political parties opposed to the government and power is controlled by the CPC, which aggregates about 6% of the country's population.[12]

4. STATE CAPACITIES AND INTERNATIONAL COOPERATION

This section deals with bilateral international cooperation between Brazil and South Africa and between Brazil and China. The objective is to describe and analyse comparatively the domestic agencies of international cooperation in the areas of human rights and foreign trade. In order to do so, the networks that represent the complex interaction between agencies in these areas will be constructed and analysed.[13] Doing so will enable the identification of similarities and differences related to state capacities for bilateral cooperation between Brazil and the two partners in the two agendas. As mentioned earlier, the legal, political, relational and administrative / implementation capacities will be analysed in relation to the interactions between the public and private sectors, between the executive and legislative branches and intragovernmental coordination.

As is well known, international cooperation is a component of a country's foreign policy. According to Lima (2000), foreign policy is a public policy that produces distributive effects among domestic actors and therefore constitutes an arena of competition / cooperation between different interests. It is worth

[12] There are approximately 80 million members out of a population of about 1.35 billion in 2012, according to the World Bank.

[13] The information provided in this section has been extracted from sites and official documents of the institutions, organizations and agencies mentioned and / or obtained through interviews conducted in the countries under study in August / September 2013.

mentioning, however, that unlike the other public policies, which are sectorally designed and executed, foreign policy is devoid of content, a priori, and is oriented for the outside of the country.[14]

Per the hypothesis put forth in the first section of this chapter, we expect to find a more complex network of agencies and public and private actors participating in the decisions and implementation of bilateral cooperation in democratic countries (South Africa and Brazil) than in China and, consequently, greater similarities between the networks organized by Brazil and South Africa than those organized by Brazil and China.

The agencies and institutions investigated will be classified in two sectors – public and private – and five categories: executive branch, legislative branch, academia, scientific / technological associations and lobby / interest groups. In the executive branch, the following will be investigated: (*i*) the body that formulates the country's foreign policy, (*ii*) the executing agency for international cooperation, and (*iii*) the ministry or analogue that deals with the agenda and other agencies / institutions of the executive branch that play a relevant role. In the legislative branch, agencies and institutions related to international cooperation, especially the standing committees concerned with the topic, will be highlighted. It is worth noting that it is not the objective of this work to carry out an exhaustive survey of the ministerial portfolio or the commission system of legislative houses. Regarding the academy, scientific / technological associations and lobby / interest groups, the main agencies and institutions in the three countries in each group attending to each agenda will be described and analysed. Following the description of the agencies / institutions in each country responsible for international cooperation, the analysis of their patterns of interaction will be presented.

4.1 – Brazil

In Brazil, the administrations of Fernando Henrique Cardoso and Luiz Inácio Lula da Silva witnessed the growth of presidential diplomacy (Danese, 1999; Cason and Power, 2009). The rationale for Itamaraty's insulation, which

14 Christopher Mendonça pointed out, in conversation with the authors, the devoided nature of specific foreign policy content, in contrast to other public policies, which are generally sector oriented. Our thanks to him.

has been in place for several decades, has gradually lost its force, not only because of this new actor, the President of the Republic, but also due to the following factors: (*i*) the increasing penetration of the theme throughout the ministerial portfolio, each one presenting a department / sector / advisory focused on the treatment of international affairs; (*ii*) the growing assertiveness of the Legislative in foreign policy issues (Anastasia, Almeida and Mendonça, 2012); and (*iii*) the growing influence of interest groups on foreign policy consideration, given their distributive character at the domestic level (Lima, 2000; Faria 2008, 2012).

In the General Secretariat of the Presidency of the Republic, the International Advisory (eliminated in 2016) had the function of accompanying, subsidizing and proposing agenda items to the minister, as well as maintaining permanent dialogue with social organizations on issues of the world agenda (Secretaria Geral, 2013). The Ministry of Foreign Affairs (MRE),[15] however, continues to occupy a central place in the formulation and implementation of Brazilian foreign policy, not in an insulated way, but within the network of interactions between agencies / actors that deal with the subject. It is incumbent upon the MRE, among others, to 'assist the President of the Republic in formulating Brazil's foreign policy' (Decree 7,304, September 22, 2010, article 1). Among the components of the MRE, it is worth mentioning the Brazilian Cooperation Agency (ABC),[16], the duties of which are to negotiate concerning, coordinate, implement, and provide follow-up for Brazilian technical cooperation programs and projects between Brazil and other countries and international organizations.

In the scope of the Legislative Power, the entities addressing foreign policy are the Committee of Foreign Affairs and National Defense of the Senate (CRE / SF)[17] and the Committee of Foreign Relations and National Defense of the House (CREDN / CD),[18] which coordinate resources and consultants for the development of activities related to Brazilian foreign policy and, with the direct contribution of MRE staff, serve as key links that facilitate the interactions between the two

15 Ministério de Relações Exteriores.

16 Agência de Cooperação Brasileira.

17 Comissão de Relações Exteriores e Defesa Nacional do Senado Federal.

18 Comissão de Relações Exteriores e Defesa Nacional da Câmara dos Deputados.

powers and enable the flow of information, demands and negotiations between them. Internal to the House (CD) is another mechanism of cooperation between powers,[19] the Indication, which is 'the proposition by which [a] Congressman suggests to another Power the adoption of measures, the accomplishment of administrative or management act, or the sending of a project on the matter of its initiative exclusively' (Internal Regulations of the Chamber, article 113, 2014). For its part, the Senate (SF)[20] has the Information Requirements mechanism (Internal Rules of the Senate, article 8, item II, 2014), in order to obtain 'clarification of any matter submitted to the Senate's assessment or related to its supervisory jurisdiction. . . . The requested information shall be requested from the competent authority, interrupting the processing of the matter to be clarified' (Senate Rules of Procedure, article 216, 2014). The SF also has the prerogative of presidential convocation, authorization of absence of the country, and the provision of opinions. In the case of the CD, the link is the same, however, in terms of the realizing of reports. Other instruments of interaction between the CD and MRE are the proposing of legislation and the monitoring of administrative actions. The CREDN / CD and CRE / SF together with the MRE and the Presidency of the Republic make up the invariant structure of the international cooperation apparatus that addresses the agendas of foreign trade and human rights.

4.1.1 – Foreign Trade

The foreign trade agenda is under responsibility of the Ministry of Development, Industry and Foreign Trade (MDIC),[21] more specifically, the Secretariat of Foreign Trade (Secex),[22] which regulates, supervises, guides, plans, controls and evaluates foreign trade activities. In addition to implementing foreign trade programs and activities, enforcing trade defense mechanisms and participating in international trade negotiations, among other tasks, it is the responsibility of MDIC to 'assist the

19 Câmara dos Deputados.

20 Senado Federal.

21 Ministério do Desenvolvimento, Indústria e Comércio Exterior.

22 Secex contains the following departments: Department of Foreign Trade Operations (Decex), Department of International Negotiations (Deint), Department of Commercial Defense (Decom), Department of Planning and Development of Foreign Trade (Depla) and the Department of Standards and Competitiveness in Foreign Trade (Denoc).

Minister of State in matters of international cooperation and technical assistance, coordinating and developing activities to assist the institutional performance of the Ministry *in articulation with the Ministry of Foreign Affairs* and other institutions of public administration' (Decree No. 7,096, February 4, 2010, article 3, section VII, emphasis added). This inter-ministerial articulation is a link that translates the capacity for intragovernmental coordination.

In addition to the MDIC, the Foreign Trade Chamber (Camex), which is part of the Governing Council of the Presidency of the Republic, is responsible for formulating, adopting, implementing and coordinating foreign trade policies. Its function is 'to define guidelines, as well as to coordinate and guide actions of government bodies that have competencies in the area of foreign trade' (Camex, 2013). The chamber is composed of the Minister of State for Development, Industry and Foreign Trade (who serves as president); the Presidential Chief of Staff; the Minister of Foreign Affairs; the Minister of Finance; the Minister of Agriculture, Livestock and Supply; the Minister of Planning, Budget and Management and the Minister of Agrarian Development. Camex's role as the coordinating agency is crucial, in view of the multiplicity of interests and the scope of the subject in question. Camex also acts as an important link that promotes intragovernmental coordination in the sphere of foreign trade. In the scope of the Legislative Power, in the SF it is incumbent on the Economic Affairs Committee (Comissão de Assuntos Econômicos, CAE) to study and issue an opinion on the economic and financial aspects of any matter, including in relation to foreign trade. In the CD, the CDEIC deliberates on, among other matters, those related to international economic relations and foreign trade, import and export policies in general and trade agreements.

In the private sector, in the category of interest groups, the National Confederation of Industry (CNI) and the National Confederation of Agriculture (CAN) stand out. Regarding inter-sectoral articulation, CNI has a Legislative Affairs Council (CAL), which guides the political action of the confederation with the National Congress. Similarly, the Council of International Integration (Cointer) 'analyzes Brazilian foreign trade policy and international negotiations and guides the CNI's relationship with government agencies responsible for its implementation' (CNI, 2013).

In the Legislative, the Cointer 'exerts influence in the foreign trade legislation and in the search for the integration of the Brazilian industry with the world market' (CNI, 2013). These important inter-sectoral links in the industry have their analogue in the agricultural sphere, which is materialized in the Department of Relations with the Government of the CNA. It should be noted, for example, that in February 2014, the CNA and MRE agreed on the creation of a working group of ministry officials responsible for economic, trade promotion and negotiations between Brazil, Asia and the European Union (EU) that included CNA technicians and consultants as well.

In the think tank category, the Brazilian Center for International Relations (Cebri) – an institution that is 'independent, multidisciplinary and nonpartisan, formed with the objective of promoting studies and debates on priority themes of Brazilian foreign policy and international relations in general' (Cebri, 2013) – has emerged as a leading organizer of high-level meetings, international conferences and seminars. These events have translated into links responsible for inter-sectoral interaction in Brazil's international cooperation network in relation to the foreign trade agenda.

4.1.2 – Human rights

The main agencies and institutions involved in international cooperation in Brazil in relation to the human rights agenda are the Ministry for Human Rights (MDH),[23] the Commission on Human Rights and Participative Legislation of the Senate (CDH / SF), the Commission on Human Rights and Minorities (CDHM), the Brazilian Center for International Relations and Amnesty International.

The MDH, the agency responsible for the inter-ministerial and inter-sectoral articulation of policies to promote and protect human rights in the country, is an important link for intragovernmental coordination in the international cooperation network. The ministry has several councils: the Council for the Defense of Human Rights; the National Council for the Rights of Children and Adolescents; the National Council on the Rights of the Elderly; the National Council to Combat Discrimination and Promotion of Lesbian, Gay, Bisexual, Transvestite and Transsexual Rights; the National Council for the Rights of

[23] Ministério dos Direitos Humanos.

Persons with Disabilities; and the National Committee for Human Rights Education. Regarding inter-sectoral interaction, coordinated by the MDH: 'The social participation in the construction of the public policies of Human Rights of the Federal Government is ensured through the performance of councils, commissions, and committees related to the various themes of action of the Secretariat of Human Rights of the Presidency of the Republic' (SDH/PR, 2003).

The CDH / SF is responsible for giving its opinion on legislative suggestions submitted by associations and entities, as well as on the guarantee and promotion of human rights; and ensuring the 'monitoring, evaluation, and monitoring of government policies relating to human rights, women's rights, the rights of social or ethnic minorities, the rights of aliens, the protection and integration of persons with disabilities, and the protection of children and youth and the elderly' (Internal Regulation of the Senate, article 102-E, section VII, 2014).

Within the CD, the Commission on Human Rights and Minorities (CDHM) receives, evaluates and investigates complaints related to threats to or violations of human rights, supervises and monitors governmental programs for the protection of human rights and collaborates with national and international nongovernmental entities that address such concerns.

In addition to the councils, the interest groups coordinate with the Executive and Legislative through lobbying groups, in particular Amnesty International. With a staff that is both formal and informal and comprises over 3 million people in more than 150 countries, Amnesty has a branch in Brazil and acts in concert with other organizations and institutions.

In the academy / scientific associations category in relation to the human rights agenda, Cebri has gained in relevance by promoting national and international events that have brought together various sectors. These actions influence the governmental decision-making process and have translated into notable links for inter-sectoral articulation.

Another entity that facilitates interaction between powers is the CNDH, an organ of the Ministry of Justice, which has as its advisors the Minister of Justice, the Minister of Foreign Affairs, the Attorney General, the President of the Federal Council of the Brazilian Bar Association (OAB), the President of the Brazilian

Press Association (ABI), the President of the National Conference of Brazilian Bishops (CNBB), a representative of the SF and a representative of the CD.

4.2 – South Africa

The democratization of South Africa in 1994 inaugurated a new phase in the country's foreign policy, marked by the following principles: (*i*) respect for human rights, (*ii*) democracy as a fundamental element for the solution of the problems of humanity, (*iii*) justice and international law as the principal norms of relations between nations and (*iv*) international peace as a goal to be sought by nations and the resolution of conflicts by peaceful means and international agreements (Penna Filho *apud* Oliveira, 2012).

Shoayb Casoo[24] reported in an interview with the authors in 2013 that the South African government has created a cluster, the International Cooperation, Trade and Security (ICTS), to coordinate the different agencies concerned with international relations. This cluster is made up of several departments – international relations and cooperation, trade, industry, finance, science and technology and defense, among others – and belongs to a group with four other clusters that are responsible for industrial policy, trade, social development and public administration. The cluster also hosts two multilateral agencies, one more general, which is in charge of matters related to the United Nations (UN) and other international organizations, and a more specialized one, African Multilaterals, which deals with the multilateral agenda within the African continent. Furthermore, Shoayb Casoo, in the interview mentioned above, stated that 'now we [have] established the South African developing partnership agencies, Sadpa, which I am in charge of putting up, which deals with outgoing aid, or outgoing developing cooperation'.

The members of the cluster meet in different forums within the Executive Branch and their decisions are submitted to the Legislative Branch which, in South Africa, in addition to its legislative capacities, has the power of executive oversight

24 At the time of the interview, Shoayb Casoo was director and had joined the Office of the Director General of the Department of International Relations of the Republic of South Africa (DIRCO) in to manage the creation of the South African Development Partnership Agency (SADPA). Its responsibilities included, among others, the development of the Policy and Operations Framework for SADPA and of systems and tools for cooperation programs and development projects.

and advice.[25] Within the framework of the National Assembly, the lower house, the Portfolio Committees process legislation and supervise the conduct of the respective departments. The International Relations and Cooperation Committee, with eleven members from seven different parties, is responsible for the country's international relations actions. In the upper house, the Select Committee on Trade and International Relations oversees the actions of the Executive in order to ensure that policies are implemented and laws enforced. In addition, it has the prerogative to discuss and make changes to proposals related to South Africa's international and commercial issues, as well as to organize public hearings and call on anyone to testify or produce documents.

Referring to the interaction between powers in relation to the topics at hand, Shoayb Casoo stated in the interview mentioned above,

> So obviously the issues of international cooperation, well, we report to them from time to time. And then we approve the budgets, they do and oversight of budgets, they check the annual report, they check the strategic plan, those kind[s] of things, so they are part of the legislative. . . . And it is a body that we take it seriously, and it is a body that, when they call us to account and to keep the briefings, we always try and go, and sometimes they call a minister, or the deputy ministers, sometimes they call senior officials, even someone like me who is dealing with "SADPA" get called from time to time to go and brief them. . . . So it's an accountability kind of governance, good governance kind of approach.

Casso also pointed out the role of the private sector in the conduct of international cooperation:

> There are many private sector or NGOs, think tanks involved in different aspects. I will give you some examples. . . . I don't know all of them. There is this body called ACCORD, they deal with peace and security issues. [The] Institute of Security Studies deals with security research, such as peacekeeping, peacemaking, those kind[s] of things. There is a South African Institute of International Affairs. . . . They deal with more broad foreign policy issues. Then you have IGD, Institute of Global Dialogue, they deal with also . . . there are many think tanks that deal with this. And then the universities, all have International Relations departments that are active in some way, because they organize debates, they organize public foruns, etc. So they are the main bodies (Shoayb Casoo, interview, 2013).

25 According to Shoayb Casoo, 'It is surveillance, but it has a guiding role. He can advise the ministers, who advise the departments on what to do'.

The South African Institute of International Affairs (Saiia) was elected in 2010 by the Global Think Tank Survey of the University of Pennsylvania, the best think tank in sub-Saharan Africa. In addition to the inter-sectoral articulation through debates, forums, inputs and research, Saiia and other private sector actors participate in the construction of the agenda of international cooperation, including through institutionalized mechanisms that exist within DIRCO.[26]

The Council for International Relations (CFIR), a government body that meets every six months, has basically a policy coordination role. The South African Council on International Relations (Sacoir), composed of twenty-five well-known members, selected from government departments, civil society, academia, companies and workers, was recently created under the authority of DIRCO and is an audacious intra-governmental, inter-sectoral and inter-power articulation mechanism.

4.2.1 – Foreign Trade

The main agencies and institutions involved in international cooperation in South African in relation to the foreign trade agenda are DIRCO and under it SADPA, the Department of Trade and Industry (DTI), the Portfolio Committee on International Relations and Cooperation and the Portfolio Committee on Trade and Industry (within the National Assembly), the Select Committee on Trade and International Relations (under the National Council of Provinces) and BUSA and Agri-South Africa (AgriSA) in the category of interest groups/lobbies.

Working in coordination with DIRCO, DTI, the main agency responsible for foreign trade in South Africa, is organized into four divisions: the Industrial Development Division (IDD), International Trade and Economic Development (ITED), the Consumer and Corporate Regulation Division (CCRD) and the Empowerment and Enterprise Development Division (EEDD).

ITED is the division that responds to international trade concerns and is directly charged with realizing one of the five strategic objectives of the DTI: 'to build mutually beneficial regional and global relations in order to favor trade,

26 Shoayb Casoo, interview, 2013.

industrial policy and economic development objectives of the country' (Apex-Brazil, 2011, p. 16). ITED is responsible for the intergovernmental coordination of the relevant agencies, which are the National Economic Development and Labour Council (NEDLAC), the International Trade Administration Commission (ITAC) and the Industrial Development Corporation (IDC), as well as with public and private actors (Apex-Brasil, 2011, p. 16).

NEDLAC, a council composed of government agencies and interest groups concerned with social and economic issues, aims to incorporate these actors into the decision-making process regarding economic policy. It is a member of the Business Unity South Africa (BUSA), which integrates the Black Business Council (BBC) and Business South Africa (BSA) (Apex-Brazil, 2011). BUSA, in turn, is a confederation of business organizations, including chambers of commerce and industry, professional associations, business associations and industry organizations. NEDLAC is a significant link in the network in South Africa supporting international cooperation for foreign trade.

Another prominent interest group, AgriSA, is a federation of agricultural organizations that seeks to promote the development, profitability, stability and sustainability of commercial agriculture in South Africa through their joint participation and input at the national and international levels.

With respect to development cooperation, in addition to DIRCO, the Department of the National Treasury also plays a relevant role. The Ministry of Finance is at the heart of South Africa's economic and fiscal development policy, and its responsibilities include, among other things, developing and managing South Africa's national, regional and international economic policy.

With regard to the foreign trade agenda, in the scope of the Legislative Power the proposal of legislation and the prerogative of supervision in the National Council of Provinces are under the responsibility of the Select Committee on Trade and International Relations, while the Portfolio Committee on Trade and Industry 'process[es[legislation and conduct[s] oversight over the Department mentioned in the title of the committee' (South Africa Parliament, 2012).

4.2.2 – Human Rights

The subject of human rights in South Africa immediately recalls the figure of Nelson Mandela. In the past, when the country was marked by racial division, institutions – especially those linked to human rights – had no credibility. With democratization, much emphasis was placed on building independent and credible institutions, such as the Commission on Human Rights, the Commission on Gender Equality and the Commission for the Promotion and Protection of Cultural, Religious and Linguistic Rights, among others. The Constitution states that 'these institutions are independent, subject only to the Constitution and the Law, they must be impartial and must exercise their powers and carry out their functions without fear, favor or prejudice' (South Africa, Section 181(2), 2013). It goes on to state that 'these institutions are accountable to the National Assembly, and must report on their activities and the performance of their functions to the Assembly at least once a year' (South Africa, Section 181(5), 2013).

Among the various institutions dealing with this issue is the South African Human Rights Commission, which was created in 1995 with the prerogative to investigate and report on the observance of human rights, adopt measures and ensure adequate reparation when human rights are violated, conduct research and educate. Every year, the commission must demand from the relevant bodies the provision of information on the measures taken to guarantee human rights as stipulated in the Bill of Rights in the areas of housing, health, food, water, social security, education and environment. Members of the commission are appointed by Parliament for seven-year terms.

As in Brazil, Amnesty International is an important institution in South Africa. The international cooperation network for human rights in South Africa has a unique local feature, the Commission on Human Rights, which is the primary institution for intergovernmental, inter-sectoral and inter-power articulation, a capacity that is constitutionally guaranteed to it.

4.3 – China

Among the agencies responsible for international cooperation within the Executive Branch are the following: the Ministry of Foreign Affairs of the People's Republic of China (MFA), the Ministry of Commerce (MOFCOM), the Office of

the State Council for Foreign Affairs (Overseas Chinese Affairs Office of the State Council), and the Ministry of Science and Technology (MOST).

The main tasks of the MFA are to (*i*) examine issues relating to diplomatic work in areas such as politics, economy, culture and security; (*ii*) advise the CPC Central Committee and the State Council on the adoption of diplomatic strategies, principles and policies; (*iii*) coordinate actions with other relevant government departments, in accordance with diplomatic planning in general; and (*iv*) inform and give suggestions to the Central Committee of the CPC and the State Council on the main issues, including foreign trade, economic cooperation and assistance, culture, military aid, the arms trade, Chinese citizens abroad, education, science and technology and public diplomacy.

The Overseas Chinese Affairs Office of the State Council is an administrative agency tasked with advising the prime minister on international affairs. Among its chief responsibilities are the supervising of the application of guidelines, policies and regulations regarding actions related to Chinese affairs abroad to provide information to the CPC Central Committee and to the State Council and the 'carry[ing] out necessary controls and coordination of matters foreign officials conducted by competent departments and social organizations'[27].

Within the legislative branch, there are nine special committees, committees, of which the most relevant to the current discussion are the Foreign Affairs Committee and the Foreign and Overseas Chinese Affairs Committee.[28]

4.3.1 – Foreign Trade

MOFCOM is responsible for developing guidelines and policies in the areas of foreign trade, foreign direct investment, bilateral and multilateral negotiations and

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27 Chinese Government's Official Web Portal. .http://english.www.gov.cn/state_council/2014/10/01/content_281474991090995.htm

28 'The National People's Congress establishes the Ethics Committee; Law Commission; Committee on Internal and Judicial Affairs; Financial and Economic Commission; Commission for Education, Science, Culture and Health; Committee on Foreign Affairs; Committee on Foreign Affairs; Committee on the Environment and Protection of Resources; and the Committee on Agriculture and Rural Affairs. These special committees, under the direction of the National Congress and its Standing Committee, examine, discuss, and elaborate proposals for relevant laws and carry out routine legislative and oversight tasks' (China, 2012a).

development cooperation. Within the scope of the ministry, the specific topics are handled by the following bodies: (*i*) the Department of Treaty and Law, responsible for drafting laws and regulations concerning the compatibility of domestic legislation with international agreements / treaties, as well as the review of trade negotiation documents; (*ii*) the Department of Foreign Trade, generally responsible for foreign trade matters, whether the planning and formulation of policies or the management of imports and exports; (*iii*) the Department of Trade in Services and Commercial Services, responsible for commerce related to services, from the formulation of rules and regulations to the holding of international exhibitions; (*iv*) the Department of Foreign Investment Administration, in charge of external investments; and (*v*) the Department of International Trade and Economic Affairs, which formulates and implements policies on multilateral and regional trade. There are also agencies responsible for geographically delimited relations, such as the Department of Asian Affairs, the Department of Western Asian and African Affairs, the Department of European Affairs and the Department of Taiwan, Hong Kong and Macao. MOST is responsible for, inter alia, the development of policies for cooperation and exchange in science and technology and for overseeing national and local public agencies in their international interactions.

The All-China Federation of Industry and Commerce (ACFIC) is an organization that is not contained within the public administration, although it is under the leadership of the Communist Party, which constitutes, according to the definition found in the federation's website, a 'channel for the CPC and the government to liaise with the personages of the non-public sector, an aide to the government in administering and serving the non-public economy' (ACFIC, 2013). Among its functions, the following stand out: it 'guide[s] the political thoughts of the personages of the non-public economic sector; facilitate[s] the participation of the personages of the non-public economic sector in the country's political life and social affairs; [and] assist[s] the government in administering and serving the non-public economy' (ACFIC, 2013).

In the private agricultural sector, CAICC stands out in terms of international cooperation regarding foreign trade. Subordinated to ACFIC and made up of leading companies in the sector and agribusiness entrepreneurs, CAICC acts as

interlocutor between the Chinese government and companies, exercising intra-sectoral articulation. The body represents the interests of the various non-state agricultural enterprises in China, ensuring the promotion of the sustainable development of the agricultural industry (China, 2012b, p. 1). Thus CAICC is perhaps the institution that most closely matches the format of an interest group.

In the category of academy / scientific associations, Tsinghua University, one of the most renowned universities in China, contributes research, studies, seminars, etc. in various areas of knowledge, including foreign trade. There is, however, no autonomy from the institution in relation to the CPC, since the party appoints people from its staff to work in the institution.

Thus, the international cooperation agencies concerned with foreign trade are linked to and / or subordinate to the CPC, the main actor in Chinese politics responsible for intergovernmental and inter-sectoral coordination in China. The conformation of the network of Chinese agencies of international cooperation is quite peculiar and evidences the hierarchical relation with the CPC.

4.3.2 – Human Rights

According to the non-governmental organization International Human Rights Watch, economic growth and advances in urbanization in China over the past few decades have not been accompanied by progress in the defense of human rights. On the contrary, there has been a recent increase in the number of security apparatuses that repress the population in relation to the freedoms of association and expression. China has no specific structure in the legislative and executive branches to address the issue of human rights, and its constitution makes only a brief reference to the term 'human rights' in spelling out the State's duties: 'The state respects and guarantees human rights' (China, 1982, chapter 2, article 33).

In 2009, the Chinese government announced the first human rights work plan, called the National Human Rights Action Plan (NHRAP), which was divided into five categories: (*i*) the guaranteeing of political and civil rights; (*ii*) the guaranteeing of the rights and interests of ethical minorities, women, children, the elderly and the incapacitated; (*iii*) human rights education; (*iv*) promotion of international cooperation; and (*v*) exchanges in the field of human rights (China, 2012b). The creation of the NHRAP symbolized, according to Human Rights

Watch, an important step towards the defense of human rights in China, but there are numerous limitations to the implementation of the plan's proposals: 'Deficiencies in the action plan and government failures to adequately implement some of its commitments have rendered it largely a series of unfulfilled promises' (China, 2012b, p. 3).

In the academy / scientific associations category, Tsinghua University plays an important role in relation to the agenda of human rights through its Center for Studies in the Rule of Law and Human Rights, which is part of the Tsinghua Law School. Another NGO, Human Rights in China (HRIC), founded in 1989, aims to protect human rights in the People's Republic of China. Its actions seek to promote the rule of law and the growth of civil society in China; strengthen institutional protection of human rights through case studies; put international pressure for social change in China; and promote compliance by the Chinese government with international human rights obligations (HRIC, 2013).

International human rights institutions and agencies do not form a network as such. The lack of actors and links reveals the low institutionalization of the country's human rights agenda and the deficiency of in state capacity to address the issue.

5. CONCLUSION

In this chapter, the aim was to identify the state capacities of Brazil, South Africa and China, with regard to bilateral international cooperation. Next, an examination will be made of the dyads formed between Brazil and each of the other two countries, considering the variations in their political institutions. As already indicated, it is assumed that the presence of similar capacities (in type and in grade) at the domestic level contributes to the development of cooperation among States at the international level. In addition, it is postulated, based on Tsebelis (1995), that more robust state capacities in the legal, relational and political dimensions increase the chances of producing congruence among veto-power actors.

Firstly, the differences between the networks of these countries in the foreign trade and human rights agendas arising from the different institutional arrangements should be highlighted. Considering that the three countries present

a high degree of centrality of the State, the variations in their political institutions are here examined by reference to the variations in their degrees of pluralism, indicated by the mobilization of the concept of polyarchy by Robert Dahl, taken as a proxy of pluralism.[29] According to the eight requirements of Dalhsian polyarchy, one can say that China is an autocracy and Brazil and South Africa are polyarchies.

As mentioned before, within inclusive institutions it is expected to find state capacities associated with the restraining and expansion of the State, in line with the construction of a State committed to the promotion of freedom and prosperity. The analysis below will point out the different types of state capacities in the three countries and the contrast between China's high administrative / implementation capacity and the deficit in its legal, relational, and political ones. In South Africa and Brazil, in addition to the greater complexity of actor networks and agencies built with a view to the operationalization of international cooperation in relation to the two themes – foreign trade and human rights – there are also greater development of legal, relational, and political capacities vis-à-vis those in China.

In the Chinese case, the centrality and preponderance of the Communist Party stand out, as does the hierarchical structure that informs its interactions with the other actors, evidencing a deficit in the legal state capacity that has repercussions on the relational and political ones. The most developed state capacity is that of administrative / implementation, always under the control of the CPC.

The exercise of political capacity is hampered by the fact that the legislative branch does not constitute a continuous decision-making context, meeting only ten days a year. Even the Standing Committee of the Legislative Branch is only convened every other month. Of the nine special committees responsible for the creation of legislation, two are related to international cooperation. As far as foreign trade is concerned, however, the main responsibility lies with the Financial and Economic Committee and there is no committee devoted solely to human rights.

29 It is proposed here that the mobilization of a robust concept of democracy – that of Robert Dahl's polyarchy – authorizes the assertion that under such a political regime the conditions of the pluralism axis, according to the definition of inclusive institutions of Acemoglu and Robinson (2012), are satisfied, although they are not necessary, since representative democracies constitute a broader subset of inclusive institutions.

The foreign trade and human rights networks of South Africa and Brazil have more sophisticated configurations, with a greater number of actors and institutionalized mechanisms of mutual controls being present. Regarding legal capacities, both countries have state-restraining instruments that serve as parameters for cooperative / competitive interactions between the public and private sectors (relational capacity), between the executive and legislative branches (political capacity) and intra-governmental (administrative / implementation capacity). These tools contribute to increasing congruence among veto players and lowering transaction costs between them. Relational capacity is well developed in both countries, with the presence of important interlocutors in the private sector that communicate with government agencies, be they scientific associations, think tanks or interest groups.

It is worth emphasizing the importance of think tanks in China, which are articulated within the CPC and within the agencies of the executive branch, acting as consultants in the formulation of the different public policies. There is, however, a lack of organized groups in both areas, especially human rights.

In relation to the foreign trade agenda, it is worth noting the similarities between the networks of the countries making up the first dyad (Brazil / South Africa) and the differences within the second dyad, formed by Brazil and China. The first dyad presents correspondences related to the agencies responsible for the agenda within the executive and legislative branches. One significant difference lies in the centrality of the Department of National Treasury in South Africa.

The Legislative Power, bicameral in both countries, has permanent committees in the two legislative houses related to the theme, as presented below.

1) In Brazil: CREDN/CD and CRE/SF; CDEIC/CD and CDEIC/SF.

2) In South Africa: within the National Assembly, the Portfolio Committee on International Relations and Cooperation and the Portfolio Committee on Trade and Industry; and under the National Council of Provinces, the Select Committee on Trade and International Relations.

It is worth mentioning that in Brazil, in each legislative house, there is a permanent commission responsible for two themes: foreign relations and national

defense, while in the ministerial portfolio there are two separate bodies, one for each thematic area: the MRE and the Ministry of Defense. Regarding foreign trade, more correspondence is observed, especially between the MDIC and CDEIC / CD. In South Africa, there is a closer correspondence between ministerial portfolios and the standing committees of the legislative branch, providing more than adequate conditions for the exercise of horizontal accountability (Strøm, 2000).

In terms of the human rights agenda, the contrasts between Brazil and South Africa, on the one hand, and China, on the other, are even more significant. In addition to the above-mentioned absence of committees within the legislative branch, the lack of bodies related to the subject in the ministerial portfolio, in the executive branch should be noted. It is, therefore, a non-agenda within the Chinese public sector. In contrast, South Africa confers a great centrality upon the theme, having a Human Rights Commission that is accountable to the legislative branch and responsible for conducting the country's agenda and for interactions with private sector groups and associations dedicated to the topic.

In Brazil, the public agencies that are in constant contact with the domestic and international groups and associations related to the topic are the MDH and the human rights commissions organized in both legislative houses (DHM / CD and CDH / SF).

These different conformations of state capacities for international cooperation provide differentiated possibilities for interaction between the countries. In terms of both agendas, Brazil and South Africa have a greater margin of cooperation than do Brazil and China. It is worth remembering that international cooperation is understood here as an eminently political phenomenon that refers to the mutually agreed-upon interactions between two or more actors in the international context. From this perspective, an expressive trade balance, for example, does not necessarily mean international cooperation. The trade between Brazil and China is certainly greater than that between Brazil and South Africa. This predominantly business-oriented movement, however, does not reflect state's capacity for articulation and coordination in the trade agenda. Thus, it can be reiterated that political institutions, that is, state capacities organized to promote international cooperation, do affect the behaviour of the actors, the dynamics of the interaction between them and the results of the game.

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CHAPTER 11

PREDOMINANT STATE ACTORS AND DEVELOPMENT COALITIONS: BRAZIL AND ARGENTINA IN COMPARATIVE PERSPECTIVE[1]

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[1] This chapter is a version of Gaitán and Boschi (2015). The authors would like to thank Carlos Pinho for his revision of the original text and analytical suggestions.

1. INTRODUCTION

Over the last forty years, development studies have been characterized two major economic transitions. The 1990s marked the decline of the developmental project, followed by the emergence and consolidation of orthodox thinking supported by epistemic communities, governments, financial sectors, a portion of academia and the conservative press. Neoliberalism has tried to sell itself as an ecumenical solution in an attempt to establish a single model of efficient capitalism, proposing that all countries should open their markets, liberalizing and deregulating their economies, in order to achieve high growth rates. The rise to power of Labour coalitions – led by the Workers' Party (Partido dos Trabalhadores, PT) in Brazil, and the Front for Victory (Frente para a Vitória, FPV) in Argentina – meant the rejection of neoliberalism and the search for new development models. This change in the ideological atmosphere opened up new windows of opportunity for rethinking development issues.

This chapter will review the role of government coalitions in the pursuit of a socioeconomic development project. Several questions guide the proposal: What are the roles of political and economic elites and organized labour in the formulation, implementation, oversight and evaluation of development-oriented policies? What prevailing actors become relevant in these countries? What interests motivate the different stakeholders to support or reject the ruling coalition's

policies? On what bases should the coalitions for development in Brazil and in Argentina be evaluated?

Argentina and Brazil represent two national development movements with moderately diversified productive structures and differences in the institutional trajectories underlying those countries' economic dynamics. The central hypothesis here is that the development process has a direct relationship with the institutional dimension, in particular the role of the State, the ruling government coalitions, the several public institutions (especially those that tend to coordinate interests among public and private sectors) and the profile of the strategic actors involved in the formulation and implementation of development policies. From the liaisons established among the State, institutions and other strategic actors, the different modes or patterns of development are configured.

This comprises a qualitative research study focusing on to what extent the formation of coalitions in support of developmental platforms configure an efficient form of formulating and implementing sustainable public policies in the medium and long run in order to create a national development agenda. To this end, the first step is to determine and understand who may be included in the category of *strategic elites*. Of particular interest is identifying the forms of liasioning among the actors, the form in which these coalitions are constituted, their motivations to support or reject public policies and the forms of expression – in terms of concrete public policies – of an existent development platform. The role of strategic actors, who are defined simply as those who have the ability to influence the cycle of elaboration and execution of public policies, acquires vital importance for understanding the modalities of productive development carried out in a region, especially in countries led by pro-interventionist coalitions.

This review has a policy-oriented character.[2] The ultimate goal is to reach conclusions with the purpose of expanding State capability for national development. According to Skocpol (1985, p. 9), State capability is defined as a 'State's ability to implement objectives, particularly in the face of opposition from powerful social groups'. With this concept of State capability in mind, the performance levels of actors will be reviewed to appraise the possibility of forming a development

[2] *Policy-oriented* refers to research oriented towards subsidizing or influencing policies.

agenda. In the last analysis, the objective is to understand why 'some States face greater or lesser difficulties when pursuing various objectives' (Souza, 2012, p. 2). The concept of State capability is herein understood dynamically, considering that countries structure their development processes through the acquisition of 'attributes of statehood' (Oszlak, 1978). By understanding development as a process, we focus on the inflection points that enable institutional change. To an extent, this study comprises path analyses of recent trajectories, in particular the transition period between the neoliberal and the currently emerging model / developmental model.

2. THE STATE, THE ELITES AND DEVELOPMENT COALITIONS

Since the early formation of structuralist thought and the consolidation of national experiences that advocate industrialization and the protection of the domestic market, the State has occupied, both in heterodox academic analyses and in political practice, a role as a strategic actor in generating institutional conditions for development, with the purpose of overcoming tendencies considered inherent to their peripheral status. In practice, this meant that the State should lead the way, not only in regulating the market, but also in the sphere of the production of goods and services. However, the decline of the import substitution model and different external factors enfeebled the State's power to intervene.[3]

In the 1980s, with the purpose of generating alternative theories to the predominant Eurocentric view on public policy paradigms, a number of authors tried to 'bring the State back'. In this regard, several studies on developmental states tried to showcase the success stories of the Southeast Asian economies as examples of a virtuous combination of the ability to follow independent paths with strong State intervention (Amsden, 2001; Evans, 1996; Wade, 1990). The state's role was also recognized, albeit belatedly, by the major multilateral credit agencies (World Bank, 1997).

The moderate decline of neoliberalism and the electoral victory of 'progressive' coalitions – in the 2000s and first half of the 2010s, as the regions has

3 Two factors in particular were the consolidation of neoconservative thinking and the financial crisis with a strong impact in Latin America following the increase in interest rates in the United States in 1979.

swung back to neo liberalism, in Argentina by election, in Brazil by a controversial impeachment process based on a fiscal maneuver that was legalized the subsequent week – made it possible for the State to recover as a key actor for generating development dynamics. Thus, in order to address the working mechanisms of a State's apparatus it is necessary to, in the first place, analyse it as a set of structures, actors and procedures in the context of the present capitalist mode of production. Defined in this manner, the State field is revealed as an arena for conflict, defined by interest groups in capital and labour and other collective actors within and surrounding the State apparatus (Boschi, 2011). Moreover, the manner in which goals, strategies and the means to achieve growth and development are defined are worth noting (Boschi and Gaitán, 2012). The subprime crisis confirmed the need to highlight the oft-mentioned tension in the relations between politics and socioeconomic development. In this sense, Gourevitch (1986) argues that the cyclical crises of capitalism generate changes in economic policies, and that the nature of State action depends on election outcomes and the possibility of consolidating a predominant model. Crises thus bring about a greater likelihood of generating trajectory changes. Consequently, one seeks understanding how to establish a coalition that will ensure positive change.

The importance of the elites has been a focus in social sciences reviews since the mid-twentieth century (Bottomore, 1964; Mill, 1956; Amsden, DiCaprio and Robinson, 2012). The literature tends to understand the strategic elites as those social groups that occupy privileged positions in different fields (economic, political, intellectual, labour), rendering them fundamental within the developmental dynamics in their various forms.[4] First, the elites occupy a key position in the process of production and definition of public policies. Second, they have a privileged position in the formation and redefinition of political and government institutions at large. In addition, they can stimulate productivity and competitiveness within a productive system, either directly through investments (such as by economic elites or the State itself) or by influencing the rules of what is permitted and what is prohibited.

4 The literature identifies different types of elites: political, economic and intellectual (Amsden, DiCaprio and Robinson, 2012). There is, however, no unanimity regarding the sources of power of these elites (Evans, 1997).

The literature emphasizes the relations between the strategic elites and development in several manners. Hancké, Rhodes and Thatcher (2007) highlight the role of class and interest coalitions in order to understand the different dynamics of the varied political economies with distinct institutional matrices. Leftwich and Hogg (2007, 2011) hold that 'Successful development depends largely on political processes which involve diverse leaders and elites, representing different groups, interests and organizations, tackling a series of collective action problems in locally appropriate and feasible ways'.[5] This means that development represents a problem that is political in nature. Ultimately, the trajectory of any country is influenced by the actions of human beings, particularly those who play a strategic role.

Different studies have highlighted the relation between the formation of coalitions and the ensuing socioeconomic processes (Skocpol, 1984; Moore, 1976).[6] A school of literature holds that, in contexts in which the elites were able to cooperate and overcome rent-seeking,[7] there was greater economic prosperity (Schneider and Maxfield, 1997). These studies on the *Developmental State* (Wade, 1990; Amsden, 2001; Evans, 1996) consider development the product of the virtuous partnership between a State with autonomy and capacity to establish connections with market actors, yet avoiding the pitfalls that lead to its 'capture' by private vested interests. The different historical experiences in which developmentalist elites were responsible for successful strategies include Sweden (Ruin, 1991; Blomstron and Kokko, 2003), Finland (Kokko and Haavisto, 1990),[8]

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5 http://etheses.bham.ac.uk/3398/1/KalebeNyamongo12PhD.pdf. Accessed: 13 Nov. 2015.

6 In his classic study, Skocpol analyses how state structures, international forces, and classes combine in order to configure different socio-revolutionary transformations. Moore establishes relations between the different coalitions and the political regime (democracy / authoritarianism) in the processes of transition from agrarian to industrial societies, arguing that this passage depended on how the relations between masters and peasants were structured. Democracy arises in contexts of harmony between modern bourgeoisie and small agrarian producers, who manage to subordinate large landowners (England, France, United States). Authoritarian regimes arise in contexts of coalitions led by large landowners (Italy, Germany).

7 *Rent-seeking* means, literally, the search for income. It involves seeking to increase one's share of the existing wealth without creating new wealth (Wikipedia). Frequently, it represents an attempt to derive economic income from the public sector for private purposes through illegal activities or without added value.

8 Finland, a country specializing in raw materials, succeeded in making the transition to a highly industrialized economy in which high-value exports with advanced technological content rose from 6.0% in 1980 to 20.8% in 2006 (Kokko and Haavisto, 1990; Zurbriggen, 2012).

Japan (Johnson, 1982), South Korea (Amsdem, 2001) and Taiwan during the postwar period / period after World War II (Wade, 1990). Regarding the Nordic countries, different studies show the welfare state as a tacit alliance between workers and capitalists in pursuit of a series of objectives and ensuring systemic competitiveness, innovation, income distribution and social welfare (Esping Andersen 1990; Ianoni, 2014), as well as the capacity to overcome the dilemmas deriving from the economic opening (Zurbriggen, 2012).

Development models refer to the effective capability of implementing national projects. This entails not only a clash of ideas, but also the practical ability to formulate and implement effective policies. In a classic article, Hall (1989) states that, in order to mature into policies, economic ideas must first prove feasible in three aspects: economically, i.e. having the ability to solve practical problems; politically, expressing a certain skill on the part of political elites to execute its proposals, including the formation of alliances or coalitions; and finally, administratively, constituting the understanding by public decision-makers of the actual conditions for the implementation of the policies derived from such ideas. Likewise, Erber (2011, p. 53) highlights the importance of 'development conventions', defined as 'a collective cognitive device, made up by codified and tacit knowledge, which allows prioritizing problems and solutions, and facilitates coordination between social actors'.

The relation between the sphere of ideas and certain policy decisions does not follow any predetermined logic. Rather, these are entirely independent and may or may not converge in the same direction, thus defining a more coherent, consistent path, which will eventually reflect a successful vision. Moreover, not always are these views or decisions guided by clarity as regards their probable results; put another way, a development project does not always comprise a fully coordinated set of actions. Thus, it can be said that successful development dynamics are conditioned by the capacity of strategic leaders to internalize an option and forge a coalition for implementation in a more or less formalized manner. This coalition should be capable of reaching broad agreements that promote economic growth and establish public policy objectives for development, as part of a broad agenda, in specific fields.

The capacity of a political system to face conflictive situations is a central issue. Considering that there are multiple alternatives and actors involved in the formulation and implementation of public policies, it is necessary that a State apparatus internalize a developmental orientation in its everyday operation. This is important when taking into account that there will be alternative projects that may attempt to obstruct the government's measures. These development policies will receive both support and opposition, as derives from the effects of their institutionalization. The dilemma is complex: it is not only a matter of establishing a government coalition involving strategic actors around a more or less defined core of development policies, but also one of managing to block alternative projects.

The consolidation of successful development strategies in countries with oscillating trajectories hinges on institutional change (Streeck and Thelen, 2005). The importance of the formation of a 'dominant social bloc' to achieve the requisite change in order to support a public policy platform must be highlighted. In this sense, for Amable and Palombarini (2009) institutional change processes are defined by the different demands that are called into question during the regulation of social conflicts. In the Brazilian case, Diniz and Boschi (2011) show that this change is not always readily apparent. A coalition that is, overall, generally identified with a development platform may still have internal contradictions that prevent the formulation of clearly developmental policies. In fact, while acknowledging that concentrated capitalism (and especially,peripheral capitalism) will generate centralized decisions being made in restricted power cores, it is necessary to go beyond a Manichean, simplistic concept that places the different results under the dichotomy between 'good' and 'bad' elites (the latter usually being identified as "rent-seeking") and attempt to understand how one may render them functional enough for the formation of coalitions for development.

Developmental coalitions are defined herein as convergent actions by several different actors around a given dynamic for growth (Tanaka, 2012). The category of predominant actors includes the business community, organized labour and the public bureaucracy. The present review, however, focuses on the first two: business (in particular the agribusiness, industrial and financial sectors) and labour. The liaising arena of a development coalition is the political field, which shapes the interests of the different groups. The present methodology consists of taking a

stylized dataset, assessing the turning points of the economic models and reviewing the positions (statements, actions, omissions) of the strategic elites.

3. POST-NEOLIBERALISM AND DEVELOPMENTAL ALTERNATIVES

The construction of a neodevelopmental agenda involves particularities specific to each country that derive from their relative effectiveness in forming a national project and identifying the constituent elements of this agenda (Boschi and Gaitán, 2010). The Nestor Kirchner (2003–2007) and Luiz Inacio Lula da Silva (2003–2010) administrations represented attempts to overcome the neoliberal path and reinstate a pro-development ideology. Both models attempted to strengthen the domestic market and consolidate macroeconomic discipline, combining fiscal and commercial surplus (far more radically in Brazil). In this sense, several strategies were executed to boost domestic and foreign trade.

The differing legacies (degree of neoliberal reform prior to the policies, institutional settings, differences in the way that neoliberalism was overcome in each national experience) impacted the possibilities of forming coalitions for development. In Argentina, the abandonment of convertibility (with the US dollar) was chaotic and unplanned, generating a systemic crisis that included a crisis of legitimacy. The recession that had begun in 1998 was exacerbated by the devaluation of the neighboring Brazilian real in January 1999, which affected the manufacturing industry (Fernández Bugna and Porta, 2008). The gross domestic product (GDP) plunged 8.8% in 2001 and 10.9% in 2002. Industrial production dropped to below 20% of the installed capability, and the financial sector went bankrupt wholesale, causing an exodus of capital and foreign exchange leaving the country – a drain of over US$12 billion. Between 2001 and 2002, real wages dropped 20%, unemployment skyrocketed from 14.3% to 21.5% of the economically active population (EAP) and the percentage of people living below the poverty line escalated from 38.3% in 2001 to 57.5% just a year later. The GDP per capita in 2001 was equal to that attained in 1974 (Kosacoff, 2007).

The 2001 crisis reflected a struggle between different factions of the bourgeoisie (Azpiazu and Schorr, 2010), particularly among the sectors favorable to the adoption of the dollar as a national currency, and those who preferred currency

devaluation instead. In the first group companies with assets in dollars predominated, interested in defending the value of these assets. In the second group, which resorted to an appeal to the revitalization of a national development project, were the manufacturers of exportable goods, cognizant of benefiting from devaluation. The crisis scenario enabled a greater degree of freedom than usual for the promotion of alternative policies. The adoption of a dollar rate at a level dubbed 'competitive exchange rate' (Frenkel, 2008), along with fiscal and trade surpluses, were the main pillars of the economic program pursued by the transition government led by the acting president, Senator Eduardo Duhalde (January 2002–May 2003).

Néstor Kirchner administration retained the macroeconomic pillars established by his predecessor Duhalde (based on a competitive exchange rate, and trade and financial surpluses), and also tackled the renegotiation of the national foreign debt, deep in default. The Kirchner administration's (2003–2007) coalition was structured upon a hegemonic fraction of the Justicialista Party, and was consolidated with the recruitment of other partisan sectors and by successive election victories.[9] The post-convertibility period was a cycle marked by a significant expansion of industrial manufacture. In fact, between 2002 and 2011, the GDP grew by 96%, at an average 7% per year. After the crisis, between 2003 and 2007, no less than 20,000 businesses opened and 400,000 industrial jobs were created (Kulfas, 2010).

Benefiting from the high dollar policy, the industrial sector grew during the early years of the Kirchner administration. From 2002 to 2006, after currency depreciation, the manufacturing industry grew 32.8% and its GNP participation nudged up from 16.3% to 17.9%, representing a turning point in the acute deindustrialization process of the 1990s, especially from 1998 to 2001. The 'reindustrialization' was, however, far from uniform: some industries have still not recovered the level of production attained in the 1990s, including textiles, machinery, electrical and transport equipment, motor vehicles, furniture and metal products; among those which did recover or even exceed the level of production of the neoliberal period are food and beverages, chemicals, rubber products, commodity metals, and wood, paper and leather products (Fernandez Bugna and Port, 2008).

9 Kirchner won the 2003 elections with only 22.3% of the valid votes. In successive elections, however, he consolidated power and was eventually succeeded by his own wife, Cristina Fernández, in 2007, who won more than 50% of the valid votes.

In spite of the recovery, in a long-term perspective two aspects should be highlighted: denationalization and concentration. The alienation of national assets to foreign groups accelerated over the 1990s and continues unabated today. Currently, approximately 70% of the 500 largest companies in the country are controlled by foreign capital, accounting for 80% of total sales (Indec, 2014). This situation exacerbates the fragmentation of business representation based on sector specialization (agricultural or the manufacturing industry, for example) and particularly on company size (small and medium company vs large corporation) or, more directly, according to the relationship established with the State and the government. The trend towards organizing outside traditional associations has tended to grow.

Fragmentation and concentration are characteristics of the Argentine business community as a whole. In spite of representing only 4% of the GDP, the primary sector and particularly agribusiness is of fundamental importance when planning development policies, given its ability to bring in foreign revenue. In 2013, grain exports reached US$23 billion, approximately 25% of the revenue generated by foreign trade. This sector, above all, demands trade liberalization and the elimination of taxes on foreign trade, as its activity is driven by external demand.

The relationship between agribusiness and the government has undergone several different stages. Benefiting from the 2002 devaluation, agricultural producers increased exports significantly. Soybean and oilseed legume derivatives (including oils) represented approximately 25% of the exports agenda; corn increased in participation from 4.1% in 2003 to 7.8% in 2013. The combination of an undervalued exchange rate and an increased demand for primary products (due to China's robust growth, among other reasons) led the sector into a phase marked by accelerated growth, seizing the opportunities enabled by the different measures passed during the Duhalde and Kirchner administrations, in spite of the reestablishment the taxation on foreign trade.[10]

The agribusiness sector underwent a process of estate concentration, concomitantly with the expansion of the agricultural frontier. The number of

[10] Duhalde restored the duties on foreign trade: 10% for primary products, 5% for manufactured products and 20% for crude oil.

production units declined from 421,221 in 1998 to 333,533 in 2002 to 251,082 in 2008, the latest year for which data were available. Despite the greater concentration, there was a convergence of interests among the different fractions within the agricultural business community, historically divided between large producers, grouped under the Sociedad Rural Argentina (SRA) and the Confederación de Asociaciones Rurales de Buenos Aires y la Pampa (Carbap), and small and medium producers, affiliated to the Federación Agraria Argentina (FAA) and the Confederación Intercooperativa Agropecuaria (Coninagro).

The increase in regulation of the various activities of the agriculture and husbandry sector had the decisive impact of generating several of the joint producer initiatives. In 2005, the government imposed restrictions on dairy production; in 2006, the export of beef was banned completely, along with increased regulation and control over the wheat market was introduced; in 2009, export duties were raised three times in succession: in January, on grain, flour and soy oil; in February, on milk; and in November, mandatory reserve-forming withholding of soy rose from 27.5% to 35%, of corn, 25%, and of soy oil from 24% to 32% (*El gobierno*, 2007). These measures spurred the unification of the various agricultural associations, alienating the middle-sized producers from the support base (*Suba a las intenciones*, 2007). Finally, with the adoption of a flexible retention scheme the different associations ended up converging to create an informal forum, the Mesa de Enlace.

The increased trade of agricultural products in the world market led the government to adopt, through Resolución 125, a scheme that increased export duties according to international commodity rates, thus pursuing two goals: on the one hand, an increase in revenue; on the other, preventing a spillover from international prices into the domestic market. The measure ended with a 127-day farmer strike, President Fernández's decision to send a bill to the Senate, the rejection of the initiative in Congress, and the ultimate suspension of the measure (*Cronología*, 2012). For the government, this represented a defeat, taking into account the support of the middle industries / class (not only rural but mostly, in fact urban) for the farmers' demands.

The financial sector does not tend to be viewed as an active element of the government's support base, in part due to its habitual advocacy for economic

liberalization. The banking sector, however, clearly benefitted with the economic growth, attaining an average expansion of 6.9% per year. The sector's profitability grew from 1.1% in 2003 to 8.5% in 2009, a result above the average growth of 6.1% over the 1990s; return on equity (ROE) rose from negative rates between 2000 and 2004 to 19.3% in 2009 (Cerbino, 2015). In spite of the accrued gain, domestic credit remained low, nudging up from 23.3% in 2003 to a mere 33.2% in 2013.[11] Part of a bank's profit comes from the difference between paying negative interest rates and charging high positive interest to customers, in a context of high inflation (Kucher, 2013); another, no less significant portion comes from investment in public debt titles (*Los títulos*, 2011).

In spite of the sector not being considered, as a whole, active participants of the government support coalition, one may speak of a fragmentation within the banking universe, divided among those with national capital (associated to the Asociación de Bancos de Capital Argentino, Adeba), cooperative and public banks (organized in the Asociación de Bancos Públicos y Privados de la Argentina, Adapra) and, finally, foreign capital banks (affiliated to the Asociación de Bancos de la Argentina, ABA). The national banks showed greater support for government measures, while those with foreign capital, while without an openly pro-government stance, also abided by, explicitly or tacitly, the tighter regulation (Sevares, 2010).

Organized labour and (initially) the unemployed workers movement[12] represented an element of active support for the Kirchner administration coalition. This support came from many different sources, in spite of the central ideological identification being with the largest trade union confederation, the Confederación General del Trabajo (CGT) and with the Peronist movement. First, labour was afforded a central position in the official rhetoric, and Decree 1,095 of 2004 reactivated the Council for Employment, Productivity and the Minimum Wage for Living and Mobility (Consejo del Empleo, la Productividad y el Salario Mínimo, Vital y Movil). In addition, a series of measures to protect workers and

[11] For more information, see the World Bank, available at: <http://data.worldbank.org/indicator/FS.AST.DOMS.GD.ZS>. Accessed: 15 Apr. 2015.

[12] The movement of unemployed workers (popularly called *piqueteros*) emerged during the 1990s in a context of increased unemployment and greater demands for the right to work (Maneiro, 2012).

overcome the deregulation approved during the neoliberal regime were adopted: the National Labour Regularization Plan in 2003; Law 26,428 of 2008, which stipulated that, in case of doubt, the employee's rights should prevail; Law 26,390 of 2008, for the Integral Protection for Children, which regulated child labour; Law 26,088 of 2006, which stipulated that employers may not make changes in the form of work that will adversely affect the worker; and Law 25,877 of 2004, which established that job probationary periods count as service time with respect to labour and welfare rights (Moraes, 2013).

Secondly, there was an expansion in formal employment. Even though the economically active population increased from 15.9 to 18.9 million people over the 2002–2013 period[13] unemployment dropped: it went from 20.5% in 2003 to 7.3% in 2008. The reduction was constant: the rate was 13.6% in 2004, 10.2% in 2006, 7.9% in 2008, 7.7% in 2010, 7.2% in 2011 and 2012 and 7.1% in 2013. Between 2002 and 2012 the number of private sector jobs grew by 80%, representing a total of 2.8 million jobs (Kirchner, 2006). Labour informality dropped 15%, from 49% to 34% (Argentina, 2010). The creation of formal jobs strengthened the coalition government, given that unemployment was the main mechanism of trade union disaffiliation in the 1990s.

Third, to go along with the improvement in employment there was a significant increase in the minimum wage, from Arg$ 300[14] in 2005 to Arg$4,400 in 2014. The increase was gradual and constant, measured in pesos: Arg$450 in 2004, Arg$630 in 2005, Arg$800 in 2006, Arg$980 in 2007, Arg$1,240 in 2008, Arg$1,440 in 2009, Arg$1,740 in 2010, Arg$2,300 in 2011, Arg$2,670 in 2012 and Arg$3,300 in 2013. It should be noted that over the 1993–2001 period, the minimum wage had remained frozen at Arg$200.

The recovery in employment, increase in wages and salaries, and the implementation of broad-coverage social programs were instrumental for the economic expansion over the period, largely based on increased consumption. In fact, while very moderate between 2003 (1.5%) and 2004 (2.7%), private

13 For more information, see the World Bank, available at: <http://datos.bancomundial.org/indicador/SL.TLF.TOTL.IN>.

14 Argentine peso (Arg$).

consumption started to pick up between 2005 and 2007 (at an average rate above 6%) and particularly after the crisis (8.5% in 2009, 7.2% in 2010 and 8.8% in 2011), though it slipped in the next two years (6.5% in 2012 and 7.4% in 2013). Household consumption reached 62.0% of private spending in 2012. Consumption growth strengthened the expansion of the manufacturing industry, which was defined by the government coalition as the core of a 'productive model for social inclusion'. The positioning of the different economic sectors varied over time, as the government's economic policies shifted, in particular with the increase in inflation[15] combined with the loss of competitiveness of the national currency and external constraints (Rubinzal, 2013).

Damill and Frenkel (2013) call 2003–2007 the 'virtuous five-year period' (lustro virtuoso), characterized by increases in economic activity levels, job occupations and wages and salaries; a competitive exchange rate; and a successful policy for curbing uncontrolled monetary printing to the extent that the Central Bank managed to achieve the double task of controlling inflation and maintaining a competitive exchange rate (Frenkel and Rapetti, 2006; Damill and Frenkel, 2013). After 2007 the virtuous cycle was threatened by accelerating inflation (Salama, 2012), so the government decided to intervene informally in the National Institute for Statistics and Censuses (Indec), casting doubt on the veracity of the indices published thereafter.[16]

In a high-inflation context, the competitiveness gains derived from depreciation started to trickle out. The average multilateral exchange rate from 2010 to 2011 was 25% lower than from 2004 to 2006 and the bilateral exchange rate vis-à-vis the dollar was 45% lower. The repressed inflation in a country with a history of high inflation fed expectations of currency depreciation among economic agents that would be benefitted by the measure, in particular agricultural producers and the manufacturing industry.

15 The annual inflation rate for the 2006–2013 period was 6.1% in 2004, 12.3% in 2005, 9.8% in 2006, 18.4% in 2007, 19.0% in 2008, 16.9% in 2009, 26.3% in 2010, 21.9% in 2011, 27.1% in 2012 and 31.0% in 2013.

16 The apparent manipulation of the Consumer Price Index led opposition congressmen to create a Congress Index. In February 2013 the International Monetary Fund (IMF) published a motion of censorship against Argentina.

In a context of high inflation and currency appreciation, the subprime crisis represented a turning point that led to further government economic intervention. The international crisis was combined, in the Argentine case, with a conflict with agricultural producers and the government's defeat in the legislative elections of 2009.[17] Paradoxically, the government acted decisively and skillfully, revealing resilience and political initiative: a 'Ministry of Production' was created that adopted several emergency measures, including public credit for consumption and production, subsidies to protect employment,[18] an income transfer program,[19] a public construction works program and initiatives for the repatriation of capital (*El senado*, 2008). In general, these measures were met with approval by the business community. After a plunge in 2009, the economy began to recover, growing around 9% over the 2010–2011 period.

Other measures were even bolder and represented an increase in economic regulation by the State. At the end of her first term, Cristina Fernández nationalized the private pension funds of the Administradoras de Fondos de Jubilaciones y Pensiones (AFJP),[20] increased regulation on the purchases of foreign currency (*Cronología*, 2014), braved conflicts arising from the use of foreign reserves to pay debts (Verón, 2010) and strengthened control over imports (*Busca*, 2012) with resolution 3252 of the Administración Federal de Ingresos Públicos, (AFIP, Federal Administration for Public Revenues), implementing the Advance Declaration Scheme, which restricted imports (this was subsequently revoked, however).

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17 The FPV, with a list of candidates headed by former President Kirchner, lost the elections in the province of Buenos Aires to another faction of the Peronist movement.

18 The Productive Recovery Program (Programa de Recuperación Productiva, Repro) was created by Resolution No. 481/2002 of the Ministry of Labour in a context of emergency-level unemployment, and was reinstituted by the Cristina Fernández administration in 2009 with the purpose of mitigating the impact of the international crisis on employment. Repro subsidizes part of the salary paid by private companies for a period of up to 12 months. The subsidy was set at Arg$600 per worker in September, and in 2013, resolution 693 of 2013 increased the value to Arg$1,500. In order to benefit from the program, companies were required to not lay off employees in that crisis situation.

19 The Universal Child Allowance (Asignación Universal por Hijo, AUH) is a conditional, child- and adolescent-oriented program equivalent to the German Kindergeld program and the Brazilian Bolsa Familia program. It was implemented in November 2009 as a modification to Law 24,714 and extended in 2011 to pregnant women.

20 Decree 441/2010, which established the nationalization of AFJP funds, led the State to acquire a portion of the equity of several private companies.

The heightened levels of State intervention eventually divided the organized business community (*Cónclave*, 2013; *Pymes*, 2014): big business maintained an ambiguous, aloof position while informal groups with liberal leanings such as the Asociación Empresaria Argentina (AEA), the Instituto para el Desarrollo Económico de la Argentina (Idea) and Convergencia Empresaria gradually stepped up on their criticism. In 2011, the currency appreciation accelerated, but inflation rates failed to abate (Damill and Frenkel, 2013; Salama, 2012), in part due to the government's refusal to control aggregate demand, moderating the expansive nature of monetary and tax policy (Damill and Frenkel, 2013). The government's strategy of shoring up demand led to small and medium-sized companies maintaining a closer relationship with the federal administration (*Industreales*, 2012), while the industrial sector expressed its detachment more sharply. Historically divided between a faction more favorable to economic opening, and another more 'protectionist' one, the stronger governmental intervention in the economic regulation and control deepened the differences within the Unión Industrial Argentina (UIA), the leading industrial employer federation and advocacy group in Argentina. In the 2011 elections, the two factions had a face-off (*Dos modelos*, 2011). The division, far from being overcome, worsened with the industrial community becoming even more fragmented (*Entre el empresariado*, 2014).

In spite of the efforts by the ruling coalition to maintain the level of economic activity (*Caen*, 2014), the labour movement maintained an ambivalent stance towards the government. The labour movement, too, experienced internal division, driven by the slower pace of job creation in the years immediately previous (*La creación*, 2014; Koatz, 2014) that was a consequence of the negligible expansion of the GNP.[21] Thus, over the last few years there have been increasing demands by trade unions (La CGT, 2011) for measures such as the elimination of the *impuesto a las ganancias*, aggravated by the rising inflation (Rosario, 2013). The government responded by favoring one faction within the labour movement, a situation that led to an increase in labour fragmentation (Schipani, 2012) and the generating of veto points against the official policy. The situation was paradoxical: on the

[21] Despite the success of the different measures in the short term (2010–2011), the rate of growth of the 2008–2012 period was substantially lower than over the 2003–2007 period (8.7% versus 2.6%), and inflation rose from an average of 11.2% to 22.0%.

one hand, a fragmented labour movement would tend to lose the ability to place sector-specific issues on the institutional agenda, and on the other, as competition among the different labour factions increased, the conflicts among factions of the labour movement and between the movement and the State became radicalized.

If the manufacturing industry appears as the main pillar of the productive model for social inclusion, the sharply un-Schumpeterian character of its controllers imposes limits upon the government's strategy. Fragmented, dependent, and highly denationalized, the national bourgeoisie appears to lack the ability to act as an agent for the transformation of the productive structure, given the low levels of fixed capital investment: the rate did grow from 12% to 18% between 2003 and 2004, and ranged from 21% to 22% between 2006 and 2008, but slipped to 16% in 2009. Moreover, in spite of the different consumption recovery measures implemented by the government, investment rates remained low: 19% in 2010, 20% in 2011, 21% in 2012 and 18% in 2013.

The low investment levels would account for / could be accounted by the low effectiveness of the government in fostering a Schumpeterian bourgeoisie,[22] potential allies of a reindustrialization strategy.[23] This failure reveals that government industrial promotion measures ultimately deepened the already concentrated nature of the industry. Thus, Azpiazu and Schorr (2010, p. 276) argue that 'the main industrial policy implemented in the post-convertibility period was related to fostering certain sectoral investments, which were incorporated in Law 25,924, for promotion of investment in capital goods and infrastructure projects', passed in 2004 and extended in 2008 by Law 26,360. The regime's efficiency regarding the

22 'Schumpeter (1984) was a pioneer in highlighting the importance of entrepreneurship for economic growth. In his vision, entrepreneurs are key for investment and innovation, creating the technological shifts that drive the cycles of capitalism. Innovation is derived from new companies, new products, and new technologies. Innovation and the process of "creative destruction", – or disruptive innovation, changes the balance in a system by creating a monopoly in favor of innovative companies (which generate almost privileged income). Balance is restored as the advances are massified among companies' (Gaitán and Boschi, 2015, p. 41).

23 In this sense, the Argentine scholar Ana Castellani states, 'National groups that improved their performance are those who achieved successful international insertion or those that were protected by State procurement. . . . It is perceived that there is a logic of liaising with the State similar to that of previous experiences. And public construction works appear as a great articulator of private areas of accumulation' (Lewkowicz, 2014).

strengthening of the productive fiber and the creation of jobs was doubtful: the accumulated outlay, over the six installments, involved disbursement of Arg$10 million, fiscal costs of Arg$1.8 million, the projected creation of 7,800 jobs and an increase of $4.5 million in exports. This initiative was basically prompted by large companies, concentrated in a limited segment (mostly large exporters) and tended to boost their locally hegemonic position.

In Brazil the trajectory was different, given that the neoliberal project had made a less dramatic advance. In this sense, one may speak of a gradual break with the parameters established over the 1990s yet always maintaining economic stability as the paramount requirement. Thus, no economic crises were tolerated where questions over the legitimacy of the political system could take root (as happened in Argentina), nor were any radical changes in the steering of the economic model. In the Brazilian scenario, there was an alternation with the coming to power of a labour-based party.

The coalition that supported President Lula was highly fragmented and comprised political parties on both the right and left. This situation, called 'coalition presidentialism' (Abranches, 1988), was characterized by alliances with several different political factions that were completely heterogeneous from the ideological and programmatic standpoints. In a fragmented, multiparty system, it aimed to ensure a parliamentary voting majority with a view to governance. Worth noting, in this regard, was the policy of distributing key ministerial seats by the Executive. Thus, President Lula had less room for maneuver, as compared to his Argentine counterparts. On the one hand, the checks and balances system in Brazil is more effective than in Argentina, preventing 'hyperpresidentialism'. On the other, the president had the challenge of dealing with both pragmatic and with ideological sectors and factions, making it more challenging to secure any long-term support for a development agenda (Diniz and Boschi, 2011).

In Brazil, in spite of the mistrust on the part of several different sectors in the business community in face of a hypothetical electoral victory of the PT, the party and the candidate took steps to ensure the transition actually took place, instead of a coup ensuing. The appointment of entrepreneur and conservative senator Jose Alencar as vice president to Lula represented a step towards structuring an alliance between capital and labour (Diniz, 2010; Erber, 2011), a traditional theme

in Brazilian developmentalism that went back to Getulio Vargas (1930–1945), the influential leader who significantly advanced both industrialization and workers' rights. At the same time, the *Letter to the Brazilian People* averred the candidate's commitment to economic stability, fiscal responsibility and legal security, including the continuation of payments to international creditors.[24] After his inauguration, several business leaders joined his administration, including Roberto Rodrigues, from the Brazilian Agribusiness Association (ABAG), as the Minister of Agriculture; Luiz Fernando Furlan, president of Sadia's board of directors, as the Minister of Development, Industry and Foreign Trade; Murilo Portugal, from the Brazilian Banking Federation (Febraban), in the Department of Finance; and Henrique Meirelles, former president of BankBoston Brazil, in the Central Bank.

In part, due to 'market threat',[25] or business-driven economic instability, in its first phase the Lula administration, and in fact all Labour administrations, opted to ensure the continuity of the fiscal-equilibrium economic policy. In fact, the president decided to increase the primary surplus[26] to 4.25% of the GDP (setting an even higher target than recommended by the IMF) and also raised the Central Bank Selic interest rate from 25% to 26.5%,[27] among the highest in the world. This increase in the basic interest rate was rejected by the industrial community (*Industrial*, 2002; *Opção*, 2003) and by organized labour (*Trabalhadores*, 2014), but had support from the financial sector.[28] Thus, an initial dissociation occurred between the industries that benefitted from government policies and those that were thought to be part of the support base.

24 Diniz (2006) equates the *Letter to the Brazilian People* to a moderate government program and the *Note on the Agreement with the IMF*, with a commitment to the agreement established with the International Monetary Fund (IMF), at the end of the FHC government.

25 In fact, before Lula's electoral victory, as the candidate rose in polls there was a steady drain of capital being wired abroad, and a drop in the stock exchange (*Por que*, 2002).

26 Also in 2003, the government obtained congressional approval of a fiscal 'mini-reform' 13 and a welfare reform 14. As a result, tax collection increased (Barbosa and Souza, 2011 *apud* Silva, 2013).

27 Notes of the 81st Meeting of the Monetary Policy Committee of the Central Bank of Brazil (Copom), February 19, 2003. For more information, see Central Bank of Brazil, <http://www.bcb.gov.br/?COPOM81>.

28 Febraban's president expressed support for the first measures adopted by President Lula, stating that the sector evaluated the new government 'very positively' (Ribeiro and Guerreiro, 2003).

The financial sector had been a key actor of the neoliberal coalition (Diniz and Boschi, 2007; Erber, 2011), a period during which the country underwent a restructuring that led to a greater concentration and presence of foreign banks (Minella, 2007). The segment benefitted from a combination of increased domestic consumption and the rising interest rates – in fact, the bank boosted their net profit between 2003 and 2007, from 14.8% to 22.9% (Erber, 2011). In a long-term perspective, bank profits, which had amounted to R$34.4 billion under Fernando Henrique Cardoso (FHC), skyrocketed to R$279.9 billion under Lula, slightly dipping down to R$239.9 billion by June 2014 during the Dilma administration (Ribeiro, 2014). The high interest rate as an element of inflation control policy ended up providing a cohesive factor, enabling a tacit alliance between sectors with opposing goals (i.e. the financial bourgeoisie and the government coalition formed by left-wing parties). Paradoxically, the continuation of a cautious approach to macroeconomic policy, concomitant to a tenuous developmentalist, line ultimately benefitted the banking sector, given that credit operations increased among both legal entities and individuals. The highly concentrated banking sector (Silva Jnr, 2014), responded by increasing domestic credit operations, which nudged up from 96.3% to 110.1% of the GDP.[29]

Despite the importance of the financial sector, the government tried to also forge an alliance with the industrial bourgeoisie. The macroeconomic continuity notwithstanding, several government measures sought to gradually unravel the neoliberal legacy, of which the most prominent were the social and productive policies. The social safety net was expanded to universalize targeted programs, with the explicit goal of eradicating hunger thorough childhood-targeted income transference programs, and a series of guidelines for industrial policy were released. As a result of lengthy discussions with the productive forces, the first policy – the Industrial, Technological and Foreign Trade Policy (Política Industrial, Tecnológica e de Comércio Exterior, Pitce), launched in 2004 – tried to define priority industries for strengthening value chains (pharmaceuticals, semiconductors, capital goods, machineries). The fine balance between measures catering to the market and others

29 For more information, see World Bank, <http://data.worldbank.org/indicator/FS.AST.DOMS.GD.ZS>. Accessed: 17 Apr. 2015.

geared to implementing a developmental agenda impacted the positioning of the productive industries in face of government policies.

Two moments may be identified as turning points in the government's effort to forge an alliance with the national industrial business community. The first was in 2006, when President Lula decided to change a few cabinet members, appointing Guido Mantega as head of the Treasury Department and Dilma Rousseff (the subsequent president) as chief of staff (Erber, 2011; Diniz, 2011; Singer, 2012). A set of developmental measures was adopted to accelerate a model driven by domestic demand, in order to galvanize a virtuous circle involving industrial production and mass consumption (Bielchowsky, 2012; Brandão Júnior, 2004). The Growth Acceleration Program (Programa de Aceleração do Crescimento, PAC), with investments of over 4% of the GDP over 2007–2010, was announced, and the government began to ramp up public funding for industrial productive activity through State banks (in particular the National Development Bank, BNDES). Moreover, measures were taken to boost domestic consumption, which reached and remained at elevated levels[30] until the economic and political crisis of 2016. The Selic interest rate dropped from 19.75% to 11.25% between August of 2005 and August of 2007.[31] The reduction in interest rates and a sharper productionist policy revealed the developmental focus of the government coalition. In a gradual process, the Productive Development Policy (Política de Desenvolvimento Produtivo, PDP) was launched in May 2008 in order to coordinate the government's actions encouraging industrial development in the country. The PDP provided continuity to the Pitce, which reinstated a proactive industrial policy. The State sought to coordinate programs with well-defined instruments, resources and responsibilities, addressing the challenge of making the expansive cycle sustainable by establishing goals and policies. Elaborated under

30 Private consumption increased by 3.8% in 2003, 4.5% between 2004 and 2005, 5.2% in 2006 and 6.1% in 2007, dropping slightly to 5.7% in 2008. Between 2009 and 2013, there was abatement in consumption growth, which varied from 4.4% in 2009 to 2.6% in 2013, but recovering in 2010, when it grew by 6.9%.

31 Copom decided to gradually reduce the Selic Central Bank interest rate in 2005. The rate stood at 19.75% in August 2005, and was lowered to 18% in December, 17.25% in January 2006, 16.5% in March, 15.25% in April, 14.75% in July, 14.25% in August, 13.75% in October and 13.25% in November. In 2007, the reductions resumed, to 13.00% in January, 12.75% in March, 12.50% in April, 12.00% in June, 11.50% in July and 11.25% in March 2008. On this topic, see the Banco Central do Brasil, <http://www.bcb.gov.br/>. Accessed: 13 June 2015.

the supervision of the Ministry of Development, Industry and Foreign Trade (MDIC), the PDP is said to have been, in fact, drafted by the BNDES, the main organ for stimulating productive and industrial activity in the country, appointed as spearheading the developmental agenda.

The second turning point – the subprime crisis – deepened the developmental character of national policy, as the government adopted a series of measures to maintain the level of activity and employment through growth sustained by domestic consumption (Arroyo and Abrantes, 2011) in a country that, after all, has around 190 million consumers.[32] The manufacturing industry, critical of high interest rates (Câmbio, 2006; Cabral, 2009), gradually became regarded as a key player for working out / concatenating a developmental alliance. The sector is highly concentrated, both geographically and in the small number of companies (Em 2012, 2014) and, facing the risk of loss of value participation, reached moderate investment levels (Bielschowsky, Squeff and Vasconcelos, 2014).

Unlike the manufacturing industry, the agribusiness sector[33] grew and diversified, taking advantage of the increased demand for agricultural products that led to a recovery in commodity prices in the world market. Grain production increased from 96 million tons, the harvest in 2001–2002, to 191 million tons in the 2013–2014 crop (*Satisfeito*, 2014). The sector exports US$100 billion and is highly concentrated: the net revenue of 500 largest companies in the segment had net revenue of R$514 billion, only 50 of them taking in 60% of the total (Daher, 2013). The sector maintained ambiguous relations with the Lula administration (*Agricultores*, 2006).

As in the Argentine case, organized labour formed a key node / pillar in the government's support base, though for different reasons. The first, as discussed by Ianoni (2013), is that PT relies on wage earners as a key bloc of voters, as evidenced by its close proximity to the Worker's Central Union (Central Unica dos Trabalhadores, CUT), the Landless Workers' Movement (Movimento dos

32 http://www.agricultura.gov.br/arq_editor/file/Desenvolvimento_Sustentavel/Produ%C3%A7%C3%A3o%20Integrada/PI_Brasil.pdf. Accessed: 13 May 2014.

33 The CNA joins together 27 federations, 2,142 rural unions and 1 million rural producers.

Trabalhadores Rurais Sem Terra, MST) and the National Confederation of Agricultural Workers (Confederação Nacional dos Trabalhadores na Agricultura, CONTAG).

Several measures consolidated this support. To begin with, legislation was enacted that benefitted labour: Law 11,770 of 2008, amending Law 8212 of 1991 and creating the Citizen Company Program, extending maternity leave by granting tax incentives; Law 10,710 of 2003, amending Law 8213 of 1991 and reestablishing maternity pay by employers; MP 132 of 2003, which converts into Law 10,836 of 2004 the Bolsa Familia Program; and Law 10,790 of 2003, granting amnesty to union leaders for participation in *piquet* strikes (Moraes, 2013). Secondly, a significant number of jobs were created, more than 15 million over the 8 years of the Lula administration, with more than 4 million added in the post-crisis period (Araújo, 2010). Even though the Economically Active Population went up from 87.7 million to 104.7 million between 2000 and 2013, unemployment fell in this period. The unemployment rate rose from 7.1% to 11.7% between 2000 and 2002, but declined steadily during the two Lula administrations / after the arrival of the PT to power, from 11.5% in 2004 to 10.0% in 2006 to 7.9% in 2008 to 6.7% in 2006.[34] Thirdly, the government raised the minimum wage,[35] which resulted in the proportion of wages in the GDP growing from 31.4% in 2002 to 35.1% in 2009 (Singer, 2012). The increase in the minimum wage enabled the transition from a capitalist model that was detached from consumption to a model that strove to benefit both production and mass consumption.[36]

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34 For more information, see the Cepalstat database, <http://interwp.cepal.org/sisgen/consultaIntegrada.asp?idIndicador=127&idioma=e>. Accessed: 13 May 2014. Accessed: 13 May 2014.

35 The minumum wage increased from R$200 in 2002 to R$240 in 2003, and after that the increase was constant, always above inflation: R$260 in 2004, R$300 in 2005, R$350 in 2006, R$380 in 2007, R$415 in 2008, R$465 in 2009, R$510 in 2010, R$540 (with a second increase to R$545) in 2011, R$622 in 2012, R$678 in 2013 and R$724 in 2014. For more information, see the Portal Brasil website, <http://www.portalbrasil.net/salariominimo.htm>. Accessed: 13 May 2014.

36 Along with the creation of private sector jobs, there was an expansion of public tenders and an enhancement of federal careers – a dynamic in which trade unions played an active role. Finally, there was an increase in worker participation in channels of mediation among interests (National Labour Forum, Fórum Nacional do Trabalho; Economic and Social Development Council, Conselho de Desenvolvimento Econômico e Social [CDES]; and Conselho Nacional de Desenvolvimento Industrial, National Council for Industrial Development [CNDI]).

The combination of an increase in the minimum wage, and the expansion of social programs[37] in order to mitigate the narrow focus of the previous regime's economic policy resulted, as would be expected, in a reduction of inequality and poverty. In fact, indicators clearly showed a decline in poverty during the early years of the PT administration (IPEA, 2010). Between 1995 and 2008, 12.8 million people emerged from poverty (IPEA, 2010), so that the percentage of the country's population living in poverty plunged from 43.4% to 23%.[38] During the PT's first administration alone, this index dropped from 36% to 23% / 43.4% to 36% (Singer, 2012). As for those living under extreme poverty, the share fell from 20.9% in 1995 to 10.5% in 2008, which means that 13.1 million people were freed from this dire situation. Spending on income transfers to households increased from 6.8% of the total federal budget in 2003 to 9% in 2010 (Singer, 2012). The Gini index fell to a lesser extent,[39] but it is important to note that this drop occurred due to the greater participation of the three lower deciles.

The strategy of combining minimum wage increases above inflation levels with the encouragement of domestic consumption in order to synergize the impact of economic and social policies hit a limit, in the form of the passing of a consumption moderation policy to avoid inflationary pressure and the business community's opposition to a few government measures. In spite of the joint efforts between entrepreneurs and workers, striving to repeat Vargas's successful class-alliance policies, the difficulty in forging a virtuous alliance between the productive manufacturing industries and organized labour derives in part from the orthodox conservative views held by the business community, which, in general, continues to demand measures to open the economy. In the case of the agricultural sector, which, unlike in in Argentina, is a major creator of employment,[40] there

37 In particular, the Bolsa Família program, created by Law 10,836 of 2004 and regulated by Decree 5209/2004, which benefits 13 million families and 52 million people, a local equivalent of the German Kindergeld program.

38 On this topic, see the Cepalstat database, <http://interwp.cepal.org/sisgen/ConsultaIntegrada.asp?idIndicador=182&idioma=e.>. Accessed: 13 may 2014.

39 For further information, see the Cepalstat database, <http://interwp.cepal.org/sisgen/ConsultaIntegrada.asp?idIndicador=284&idioma=e>. Accessed: 13 May 2014.

40 Employment in agribusiness fell from being 24% of total employment? in 1999 to 21% in 2007. In 2009, this rate dropped to 17% and in 2012 to 15%. However, even with this decline, agribusiness continues to be a significant employer.

are demands for more-flexible laws. This same viewpoint jeopardizes a virtuous relationship between the business community and the State, in view of a consensus within the private sector that favors a reduction of bureaucracy and of public spending (*A reforma*, 2004) and the imposition of neoliberal reform (*A reforma*, 2011). For their part, the labour unions being fragmented jeopardized their ability to put themes on the legislative and institutional agenda.[41]

The balance of forces shifted with the first election of President Dilma Rousseff in 2012. The harmful impact of a combination of an overvalued exchange rate and high interest rates for the industry caused the president to put in place a gradual interest rate reduction policy for public and private banks,[42] and at the same time promote currency depreciation without neglecting macroeconomic stability.[43] Rousseff's decision seemed to express a determination to crack down on foreign exchange and financial valuation policy, addressing the demands of the productive industries (Nogueira, 2010; Villaverde, 2010) and of labour (*Selic*, 2009). The measure was criticized by the Febraban (*Federação*, 2012), which called for compensatory government measures, leading to friction between the government and the banking federation.

Different pressures led to an easing of this strategy. Given that the government eventually increased the Selic rate at the beginning of 2013,[44] it may be said

41 The existing central trade union were legally recognized by the Lula government under Law No. 11,648 of 2008, receiving a portion of the trade union fund as per requirements of the Ministry of Labour and Employment established by Vargas. Between 2005 and 2007, four new central unions emerged, the New Central Trade Union of Workers (Nova Central Sindical de Trabalhadores, NCST), and three splinters from Central Única dos Trabalhadores (CUT): the National Labour Fight Coordination (Coordenação Nacional de Lutas, Conlutas), The Central of Male Workers and Female Workers of Brazil, (Central de Trabalhadores e Trabalhadoras do Brasil, CTB) and Intersindical.

42 Copom cut the Selic rate from 10.50% to 7.25% with several reductions between March and October 2012 and one in April 2013: the rate was reduced to 9.75% in March, 9.00% in April, 8.50% in May, 8.00% in July, 7.50% in August and 7.25% in October. For more information, see Central Bank of Brazil, <http://www.bcb.gov.br/?CopomJUROS>. Accessed: 13 May 2014.

43 In fact, the measured rate of inflation nudged up from 5.8% in the Lula administration to 6.1% in the first three years of Dilma administration.

44 The increases decided upon by the Copom raised the Selic rate from 7.25% to 7.50% in April 2013. The Selic rate continued to be raised in the following months, to 8.00% in May, 5.80 / 8.50% in July, 9.00% in August, 9.50% in October, 10.0% in November, 10.50% in January 2014, 10.75% in February and 11.00% in April.

that the battle against financial capital was won by the banks. The measure was criticized by the industrial community (Wamburg, 2013). However, as part of balancing inflationary pressures and the consolidation of a productivist alliance, Rousseff pushed forward a series of measures to boost growth and demand: her government increased the amount of BNDES funds available for stimulating industrial production, implemented payroll exemptions, advanced a model of industrial policy through the Greater Brazil Plan (Plano Brasil Maior, PBM)[45] favoring national industry in federal procurement and put in place several tax exemptions (*Governo*, 2012). The PBM, launched in 2011, can be understood as a deepening of the pursuit of an improved industrial policy, linking incentives and benefits to the achievement of goals by the productive industries. Despite passing several pro-industrial measures, Rousseff faced increased criticism by the industrial community, especially regarding the country's low rate of economic growth[46] and the risk of de-industrialization.

Her relationship with organized labor was also marred by conflicts. The Dilma administration advanced a series of measures to benefit the working class; continuing President Lula's policy, she adopted various measures to benefit the working class: Law 12,551 of 2011, which acknowledged working from home as regular employment; Law 12,506 of 2011, which extended the advance notice of dismissal from thirty to up to ninety days; Law 12,382 of 2011, which instituted a real increase in the minimum wage through 2015; and Law 12,470 of 2011, which established a welfare inclusion system for low-income workers that extended to domestic workers such as house cleaners and housemaids the same rights as other urban workers (Morais, 2013). The last particularly annoyed the upper middle class.

45 The Greater Brazil Plan, which aims to increase the competitiveness of the national industry, is summed up by the motto 'Innovate to compete. Compete to Grow'. It sets goals for increasing fixed capital investments, raising private spending on science and technology and expanding industrial participation in the GDP. For more information, see Plano Brasil Maior, <http://www.brasilmaior.mdic.gov.br/>. Accessed: 13 May 2014.

46 In 2011, the domestic industry grew by only 0.3% compared to 2010. *Valor Econômico*, December 14, 2010. According to the Industrial Development Study Institute (Instituto de Estudos para o Desenvolvimento Industrial, IEDI) the loss of industrial participation in the economy can threaten growth. The average growth of the first three years of the Dilma government was 2.1%, substantially lower than the second Lula government's average of 4.5%.

In addition, during the Dilma administration, unemployment continued to fall, from 6.7% to 6.0% between 2010 and 2011 to 5.5% in 2012 and to 5.4% in 2013.[47] Wages continued to rise,[48] from R$510 in 2010 to R$545 in 2011 to R$622 in 2012 to R$978 in 2013 and to R$724 in 2014. Yet in spite of the different pro-labour measures, the government faced some resistance from the labour sector, including demands for a reduction in shifts to forty weekly hours, the end of the social security factor,[49] and further increases in the minimum wage.[50] Thus, in July 2013 eight unions called for a national strike day, the first general strike in Brazil against a contemporary Labour government.

In spite of the divergent interests, the business community did agree in viewing labour as a cost, and criticizing the expansion of public spending. The government's various measures did not seem effective in increasing private investment rates (Costa, n.d.), which had remained between 16% and 17% over the 2003–2006 period, increasing to 18% in 2007 and 21% in 2008. The subprime crisis led to a decline in the rate in 2009 to 18%, followed by a recovery between 2010 and 2011 up to 20%, but a new fall between 2012 and 2013 back down to 18%. In comparison, investment levels in other emerging economies are 49% in China, 30% in India and 29% in Korea and Singapore. And even by South American standards, Brazilian investment rates are low compared to those of Chile and Colombia (24%) and Peru (28%).

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47 For more information, see Commission for Latin America and the Caribbean (ECLAC), in particular the Social Panorama of Latin America and the Cepal stats database, <http://estadisticas.cepal.org/cepalstat/web_cepalstat/Portada.asp?idioma=e>). Accessed: 17 May 2014.

48 On this topic, see the Portal Brasil, <http://www.portalbrasil.net/salariominimo.htm>. Regarding parity, the exchange rate history was (US$ to R$): 2003, average 3.01; 2004, average 2.92; 2005, average 2.45; 2006, average 2.17; 2007, average 1.95; 2008, average 1.83; 2009, average 2.00; 2010, average 1.76; 2011, average 1.67; 2012, average 1.95; 2013, average 2.15; 2014, average 2.35; 2015, average 3.33; and 2016, average 3.48. Source: http://usd.pt.fx-exchange.com/brl/exchange-rates-history.html. Accessed: 13 May 2014.

49 The Social Security Factor, approved in 1999 as part of the reform of social security that kicked off in 1998, changed the criterion for the concession of retirements paid by the INSS. The Social Security Factor is applied to the calculation of retirement pensions based on time of contribution and age and was created to equalize the contribution of the retiree to the benefit value. Source: https://www12.senado.leg.br/internacional/en/issues/social-security-factor. Accessed: 13 May 2014.

50 At the beginning of 2011, the president faced labour pressure over the level of the minimum wage; instead of the R$545 set by the government, Força Sindical demanded it be raised to R$580.

The exact neoliberal reform that the conservative elite demanded was subsequently imposed, following the controversial impeachment of President Rouseff in 2016 for fiscal maneuvers that were legalized the subsequent week. Many considered this a 'cold coup' organized by rent-seeking forces, with the support of the conservative media. It brought about a nearly complete deregulation of labour and drastic social spending cuts, including the need to work up to 12 hours a day for 49 years in order to retire. The relentless campaign for the impeachment started right after she won reelection.

4. CONCLUSION

This chapter has attempted to evaluate the possibilities of forging coalitions for development through a comparison of the cases in Brazil and Argentina. First, a few elements of the debate on the State, predominant actors and development were introduced. Then, the positions of the dominant players in each national experience were analysed in order to infer their participation in developmental coalitions. Finally, we evaluated a set of capabilities that coalitions should acquire for development.

Brazil and Argentina have undergone two major transitions over the past three decades. The first was from the import substitution industrialization model (ISI) to the neoliberal model, and more recently from neoliberalism to the construction (still rather undefined and therefore not without problems, limitations and contradictions) of a neodevelopmental agenda. The neoliberal phases of the 1990s and the current neoliberal regimes in Argentina (elected) and in Brazil (after the controversial impeachment) were dominated by an alliance among rentiers and financiers, supported by an unbalanced, hegemonic conservative media. After 2002–2003, with the coming to power of Labour coalitions, there was a gradual and difficult dismantling of the neoliberal coalition that did not entail the emergence of a new clearly defined alliance. Indeed, it is difficult to identify a coherent, articulated project.

A coalition for development is defined herein as convergent action by actors in pursuit of growth, innovation and distribution. Therefore, thinking of development is thinking of a plurality of actors within the capitalist mode of

production in a dynamic where the actors' interests do not always coincide. There are contradictions (structural in character) among the different factions of capital (finance vs industry, for example) and between capital and labour. However, intertemporal agreements may nevertheless occur, opening spaces to consolidate alliances for development.

In both Argentina and Brazil, the post-neoliberal governments tried to forge coalitions that included the productive bourgeoisie and organized labour, so as to generate a virtuous spiral involving increased aggregate demand (via job creation, wage raises and several social programs) and an increase in private investment. There are, however, a number of limits for the consolidation of models that combine production and mass consumption: the risk of deindustrialization, the resilient power of financial capital and the conservative, un-Schumpeterian approach of the business community. Thinking of a coalition for development implies strengthening the actors engaged with national production at the expense of those eminently rent-seeking in character.

The *time* variable should be also considered. Certain changes take time: thus, initially, the Lula administration coalition did not unveil any major changes, upholding the importance and prevailing role of financial capital. Though the macroeconomic continuity was preserved, there was, however, a maturing process present for a developmental proposal to take root, driven by a combination of measures to stimulate consumption, job creation and industrial policy. In Argentina, overcoming the neoliberal alliance through a clear rupture gave the government greater degrees of freedom to adopt market regulation measures. However, in the long run, one witnesses the deterioration of a growth model based on the expansion of aggregate demand. Thus, the time variable matters, because development is a long-term process and the assessment of economic dynamics may vary over time.

The possibility of conforming / forging coalitions for development takes into account the institutional framework across different arenas, in particular those directed at the liaising among the different actors. In this direction, the Brazilian case has been better articulated, as evidenced by the preservation of public institutions for the subsidizing of productive companies, the revitalization of State-business dialogue mechanisms and the promotion of a social-State interface to incorporate

the strategic actors into the cycle of design and formulation of public policies.[51] In Argentina, however, this liaison is less institutionalized, and more prone to conflicts or informal relations.

However, the fact that this alliance was quickly ruptured in Brazil as soon as this proved viable, right after Rousseff's reelection, casts doubt as to the solidity of any such alliance. One structural element that is often held up as requiring groundwork to enable political stability is the building of a balanced media, because the conservative media is hegemonic and just as biased as the far-right-wing media in the United States. This was aggravated after the shutting down of the last progressive, or rather neutral, printed newspaper, the *Jornal do Brasil*, in 2010, which survives as a website. The Labour government believed merely distributing money to the media (which was multiplied after the cold coup / impeachment) would suffice, along with stimulating independent blogging. The construction of a whole progressive media apparatus – TV networks, radios, printed newspapers of the same size and quality as the conservative ones – will be indispensable to ensure political stability in a future developmental cycle. This lesson should have been learned before: this lack was exactly what caused Vargas's downfall and even suicide in 1945. It is said that if social media had existed, he would have known that half of the population still strongly supported him, whereas the impression he had was that no one supported him, which was not true.

The combination of public institutions to promote development, the trajectory of a strong Executive and a diversified productive apparatus means that Brazil has *comparative institutional advantages* over Argentina. Nevertheless, in both countries the consolidation of a national development strategy will undoubtedly entail the materialization of an alliance that will place at the forefront the need for change and innovation. How to consolidate coalitions for development through the capacity to liaise interests, allocate resources and discipline capital – in order to make it act in a more Schumpeterian manner – are issues that deserve further theoretical and empirical analysis.

51 Mention may be made of BNDES, CDES, the Brazilian Industrial Development Agency, Agência Brasileira de Desenvolvimento Industrial (ABDI) and the National Public Policy Conferences (Conferências Nacionais de Políticas Públicas).

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