



Brazilian development bank

EFFECTIVENESS REPORT 2007-2014

The contribution of the BNDES to national development

2nd edition

2007-2014

Effectiveness Report

THE CONTRIBUTION OF THE BNDES TO NATIONAL DEVELOPMENT

MESSAGE FROM THE PRESIDENT

This is the BNDES' Effectiveness Report, which systematizes the efforts the Bank has made to evaluate its operations.

Financing several sectors and regions throughout the country is how the BNDES contributes to development. Assessing effectiveness is essentially aimed at verifying whether the planned results for financing have been achieved in a satisfactory fashion when implementing and operating projects that receive support.

By monitoring and evaluating its efforts, the BNDES creates official records, renders accounts to society, and draws on lessons learned, which help fine-tune its policies and programs.

Since it was founded, over sixty years ago, the Bank has constantly accompanied the projects it finances. Besides the legal requirements, including proof of invested resources, this activity enhances planning and management, as well as reinforcing sectoral and specific forecasts. This, coupled with external studies, has contributed to the BNDES, throughout its history, generating vast and applicable know-how related to the challenges that Brazilian development faces.

Over the last few years, progressively systematizing the use of monitoring and evaluation tools has boosted this accumulated expertise, focusing on the results from its operations.

The monitoring and evaluation model the BNDES has developed is based on three initiatives, inspired by international references, but adapted to the specific goal which is to induce internal learning and render accounts. The first initiative is in the operational divisions, which, by means of the Logical Framework method, seeks to systematize outcomes (direct and indirect, quantitative or qualitative) that are expected from a program. With this, these divisions record the effect of internal analysis, making it possible to evaluate results and contribute to analyses of new operations. In every department within the distinct operational divisions, sectorial studies consolidate the know-how obtained from day-to-day operations.

The second initiative is in the Planning Division. This division is responsible for extensive evaluations, usually in collaboration with operational teams. In general, these include quantitative studies of a corporate nature – such as the estimates for jobs created or maintained while implementing projects –, econometric evaluations of instruments like the BNDES Card, and transforming monetary disbursements – a traditional statistic for development banks – into immediate results indicators (products and services made possible through the projects receiving support). With this, assessments not only render accounts, but also guide the learning process for institutional planning.

The third initiative in the BNDES' monitoring and evaluation process entails partnerships with other institutions to mobilize independent consultants that conduct quantitative and qualitative analyses of credit lines, programs or studies on specific cases or companies. In this first edition of the Effectiveness Report, the BNDES' partners included the Center for Strategic Studies and Management in Science, Technology and Innovation (CGEE) and the Climate Policy Initiative. Partnerships with institutions of this caliber guarantee that high-quality independent evaluation will be carried out.

The BNDES is a State-owned institution whose mission is to contribute to Brazil's development. As such, the BNDES is expected to be increasingly efficient and effective. As a government institution, the BNDES is expected to render accounts to Brazilian society. In the recent past, society's demand for efficiency and quality from public institutions has grown. Rendering accounts is a tool for such a purpose, in addition to fulfilling its role as a mechanism to institutionally and democratically strengthen the country.

The Bank's efforts, revealed in this Effectiveness Report, aim to achieve this. Assessment is part of our planning and our corporate management structure.

Fine-tuning and perfecting it, while continuously expanding transparency, are a permanent commitment the institution has made to Brazilian society.

LIST OF ACRONYMS

ABCR – Brazilian Association of Highway Concessionaires
ABDI – Brazilian Industrial Development Agency
Abifer – Brazilian Association of the Railroad Suppliers
Abiquim – Brazilian Chemical Industry Association
Abrasca – Brazilian Shopping Centers Association
Abrelpe – Brazilian Association of Public Cleaning and Special Wastes Companies
AMA – Environmental Division
AMC – Minimal comparable areas
Ancine – National Film Agency
Aneel – Brazilian Electricity Regulatory Agency
Anfavea – Brazilian Association of Automotive Vehicle Manufacturers
Anip – National Pneumatics Industry Association
ANPTrilhos – National Association of Passenger Rail
Antaq – Brazilian Regulatory Agency for Waterway Transportation
ANTT – National Agency for Road Transportation
Anvisa – Brazilian Health Surveillance Agency
Apex – Brazilian Trade and Investment Promotion Agency
BCB – Central Bank of Brazil
BK – Capital goods
BM&FBOVESPA – Securities, Commodities and Futures Exchange
BNDES – Brazilian Development Bank
BNDES Cerealistas – BNDES Storage Incentive Program for National Cereal Cooperatives and Companies
BNDES Exim – BNDES Export Credit Program
BNDES Finame – BNDES Financing for Machinery and Equipment
BNDES Finem – BNDES Financing for undertakings
BNDES Moderinfra – BNDES Incentive Program for Irrigation and Storage
BNDES Prodecoop – BNDES Cooperative Development Program to Add Value to Agriculture and Cattle-Raising
BNDES Proengenharia – BNDES Support Program for Engineering
BNDES Profarma – BNDES Support Program for the Development of the Health Industrial Sector
BNDES Prosoft – Program to Develop the National Software and IT Services Industry
BNDES PSI – BNDES Investment Maintenance Program
BNDESPAR – BNDES Participações S.A.
Bracelpa – Brazilian Pulp and Paper Association

BRT– Rapid Bus Transit
BSC – Balanced Scorecard
CAR – Environmental Rural Registry
CDB – China Development Bank
CGEE – Center for Strategic Studies and Management in Science,
Technology and Innovation
Conab – National Company of Food Supply
CPTM/SP– São Paulo Metropolitan Train Company
DB – Development bank
DSC – Sustainable and Competitive Development
Embraer – Brazilian Aeronautics Enterprise S.A.
ERB – Cell Site
Fenabreve – Automotive Vehicles Distribution National Federation
Finep – Brazilian Agency for Innovation
GDP – Gross Domestic Product
GFCF – Gross Fixed Capital Formation
HPPC – Personal hygiene, perfumes and cosmetics
IBGE – Brazilian Institute of Geography and Statistics
IBRD – International Bank of Reconstruction and Development
Inep – Anísio Teixeira National Institute of Educational Studies and Research
IDB – Inter-American Development Bank
IMF – International Monetary Fund
Inmetro – National Institute of Metrology, Quality and Technology
IPCA – Extended National Consumer Price Index
Iphan – National Historical and Artistic Heritage Institute
IPO – Initial Public Offering
KDB – Korea Development Bank
KfW – Kreditanstalt für Wiederaufbau
Logframe – Logical Framework
LRV – Lightrail vehicle
MAE – Company Assessment Methodology
MSME – Micro, small and medium-sized enterprises
MTE – Ministry of Labor
OECD – Organization for Economic Cooperation and Development
OGU – Federal Government’s General Budget
Oscip – Civil Society Organization of Public Interest
PA – Federal and state protected areas
PAC – Growth Acceleration Program

PAS – Sustainable Amazon Plan
PCH – Small Hydroelectric Plant
PDR – Regional Dynamization Policy
PIA – Annual Survey of Industry
PP – Polypropylene
PPCDAM – Action Plan for Prevention and Control of the Legal Amazon Deforestation
PPP – Public-private partnership
Pronaf – National Program to Strengthen Family Farming
PVC – Polyvinyl chloride
R&D – Research and Development
Rais – Annual List of Social Information
ROB – Gross Operating Revenue
Sebrae – Brazilian Micro and Small Business Support Service
Senai – National Service for Industrial Training
S System – National Service for Industrial Training (Senai) – Social Service for Commerce (Sesc) – Social Service for Industry (Sesi) – and the National Service for Commercial Education (Senac)
SME – Small and Medium Enterprises
Snic – National Union of the Cement Industry
Snis – National Information System on Sanitation
STN – National Treasury Secretariat
SUS – Unified Health System
TEU – Twenty-foot Equivalent Unit
UHE – Hydroelectric Plant
US\$ FOB – US\$ Free-on-Board
VTI – Industrial Manufacturing Value

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EXECUTIVE SUMMARY

The Effectiveness Report systematically organizes information and studies either prepared or supported by the BNDES to monitor and evaluate its own operations. In addition to the financial aspects of projects receiving support, their economic, territorial, environmental and social effects must also be considered. Assessing the effectiveness of the BNDES means checking, both quantitatively and qualitatively, how the combination of such effects impacts companies, regions and people.

Preparing the report is part of the BNDES' Corporate Planning for 2010-2014 and lists not only the Bank's efforts to provide financial support by analyzing, approving and disbursing resources, but also the results achieved by interventions receiving support. It also concerns immediate results analyses (products and services related to financed projects) and their mid- and long-term effects. After presenting the BNDES' monitoring and evaluation system, this report will detail sections that reflect such aspects: Section 4 presents indicators on the BNDES' efforts and its importance to the Brazilian economy; Section 5 describes the products and services indicators surveyed so far; and the effects of projects receiving support are analyzed in Section 6 by means of impact studies and evaluations.

The BNDES' efforts and importance

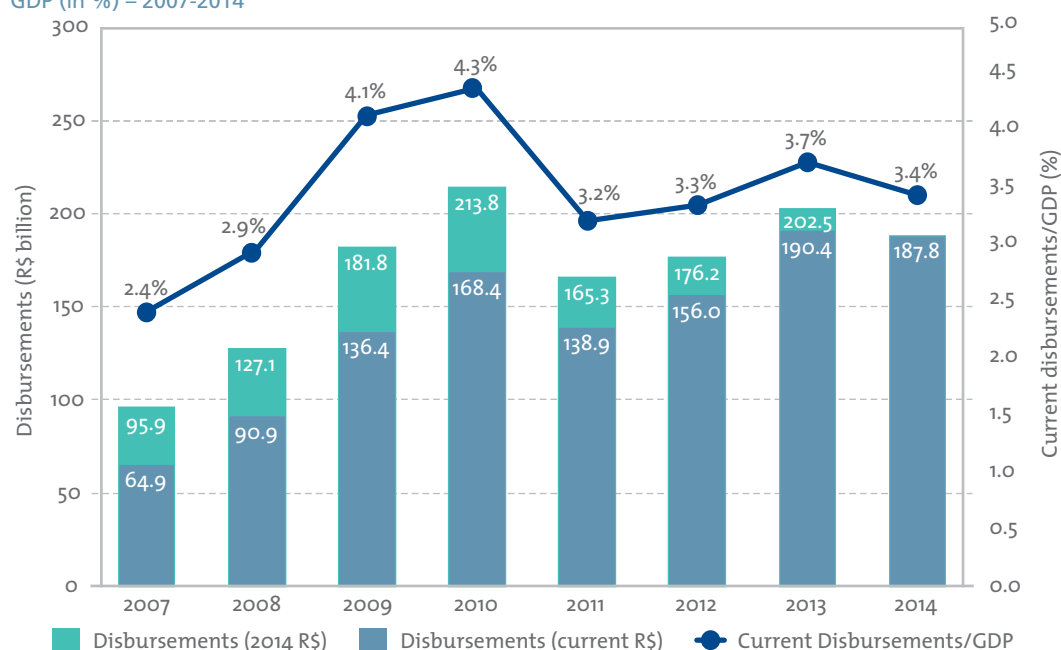
The BNDES is among the main development banks (DB) in the world. Compared to its peers, its credit portfolio as a Gross Domestic Product (GDP) percentage is below that of the German and Chinese DBs. However, its uniqueness lies in its considerable participation in overall credit, which reflects a restricted market in Brazil and the BNDES' role in compensating for the shortcomings in private long-term financing sources in the local currency.

In the last seven years, the BNDES has presented unique growth in fostering development and has increased the scale of both its operations and instruments. Total disbursements have increased at a real average rate of 12% per annum since 2007, reaching R\$ 187.8 billion in 2015, which represents 3.4% of the national GDP. This growth was significantly higher in 2009 and 2010, when the BNDES' disbursements, working in an anti-cyclical manner, represented more than 4% of GDP (Chart I). Investments receiving support from the BNDES followed that trend, moving from 11.8% of the national Gross Fixed Capital Formation (GFCF) in 2007 to 21.4% in 2014.

This growth helped strengthen the BNDES' corporate priorities. In its final perspective, the Corporate Planning 2010-2014 presented the following strategic goals: (i) to expand investments into infrastructure; (ii) to strengthen

competitiveness among Brazilian companies; (iii) to contribute to social and production inclusion; and (iv) to foster innovation, social and environmental sustainability as well as regional development. Disbursements for those priorities went from 76% of the bank's total disbursements in 2007 to 88% in 2014.

Chart I: BNDES' Disbursements (current versus 2014 R\$ billion) and comparison with GDP (in %) – 2007-2014



Sources: Quarterly System of National Accounts and Extended National Consumer Price Index (IPCA) from Brazilian Institute of Geography and Statistics (IBGE) and BNDES.

Note: The series of data on disbursements in 2014 R\$ corresponds to current disbursements adjusted to 2014 prices by the IPCA calculated by IBGE.

Finally, increased scale and scope resulted from incorporating new clients, mainly micro and small companies. The number of companies receiving support annually increased from 44,000 in 2007 to 277,000 in 2014. Converting the number of existing companies into percent, the BNDES' support increased from 2% in 2007 to 9% in 2012, which is the last year data was available. This increase in scope results from new credit programs and products, such as the BNDES Card, which is aimed at micro, small and medium-sized companies, as well as the Investment Maintenance Program (PSI) created in 2009 to counter the international crisis.

Immediate results from interventions receiving support

The BNDES is the main source of long-term financing in local currency, accounting for two thirds of the credit with terms exceeding five years, and with operations in different sectors. Immediate results indicators refer to a wide range of data seeking to show how the BNDES' efforts can be turned into physical deliveries. By comparing these indicators with those related to the country as a whole, it is

possible to identify areas in which the BNDES has larger operations, as well as to identify the reach of the bank's instruments in different sectors.

Similar to indicators showing disbursement per strategic priorities, the topics selected to monitor and evaluate effectiveness (immediate results analyses and effects analyses) have a close relationship with corporate strategic goals and, thus, are sorted by the Bank into four monitoring and evaluation target-subjects.

The subject "Infrastructure" includes investments in electric power generation, logistics and urban development. The subject "Contribution to production development" is associated with support provided to industry, including the commercialization of machinery and equipment receiving support from BNDES Finame and export operations under the BNDES Exim, also including segments from the services sector receiving support from the BNDES, such as telecommunications, cultural economics, logistics hubs and shopping malls. The subject "Social and production inclusion and sustainability" outlines the BNDES' operations such as granting microcredit, MSE access to credit, and environmental projects. Finally, the subject "Structuring corporate capacities and strengthening capital structures" seeks to provide data on financial support granted mainly by shareholding and investment funds. This summary presents some of the highlights in each monitoring and evaluation target-subject.

The main highlight in "Infrastructure" is the electric power sector, as it traditionally receives support from the BNDES. In the 2007-2014 period, the BNDES financed every single hydropower plant that became operational, totaling 12,300 thousand megawatts, thanks to project finance and co-financing from commercial banks, multilateral agencies and infrastructure-related debentures. In other renewable energy projects (wind farms and small hydro plants – SHPs), which are less capital-intensive, the BNDES' participation was nearly 63% in the 7,800 megawatt increase in Brazil's capacity in that period. In thermal power generation, which uses non-renewable sources and receives less incentive from the BNDES' operating policies, the Bank's support is not that important, representing 39% of the additional 17,300 megawatts. On average, the BNDES provided support to 64% of the investments in the sector, as shown in Table I.

In the subject "Contribution to the production development," one of the highlights of the BNDES' operation is in the pharmaceutical industry. During the period analyzed, the BNDES was as an important partner to local companies, contributing investments to expand and adjust Brazil's manufacturing sector and fostering activities, such as Research and Development (R&D). Locally producing generics made it possible to reduce the final price, helping increase competitiveness and expand access to medication for the population. Table II shows an estimated

number of new medication released in Brazil from 2007 to 2014: 3,338. In the same period, the BNDES approved projects responsible for releasing 501 types of medication. This amount indicates that of the total released medication, some 15% was developed in Brazil with the support of the BNDES.

Table I: Participation of the BNDES' support in electric power generation – 2007-2014

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2007 * (A)	BRAZIL: INCREASE IN INSTALLED CAPACITY BETWEEN 2007 AND 2014 (B)	BRAZIL: INSTALLED CAPACITY VARIATION (B/A)	BNDES: CAPACITY ADDED FROM SUPPORTED PROJECTS (C)	BNDES' PART. (C/B)
Hydro power plants	Megawatts	71,747	12,348	17%	12,348	100%
Thermal power plants	Megawatts	22,487	17,330	77%	6,811	39%
Wind power plants	Megawatts	142	4,746	3339%	3,011	63%
Small hydro power plants	Megawatts	2,041	3,058	150%	1,892	62%
Total generation	Megawatts	96,417	37,480	39%	24,061	64%

Sources: Brazilian Electricity Regulatory Agency (Aneel) and BNDES.

*Amounts refer to the installed capacity at the end of 2006.

Table II: Participation of the BNDES' support in the pharmaceutical industry – 2007-2014

SEGMENT	UNIT	BRAZIL: NEW MEDICINE LAUNCHED BETWEEN 2007 AND 2014 (A)	BNDES: MEDICINE IN PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (B)	BNDES' PART. (B/A)
New medicine launched *	Units	3,338	501	15%

Sources: Brazilian Health Surveillance Agency (Anvisa) and BNDES.

* For incremental innovation, generic and biological categories.

Note: Release data related to 2013 and 2014 are estimates based on average growth from previous years.

In the culture and entertainment segment, the BNDES seeks to stimulate and help develop both creative companies and creation agents, to expand and provide more efficiency in the cultural goods and services market, with economic sustainability and social gains and to offer a diversified set of support instruments. In cinematographic production, support occurs mostly by means of public calls-for-submission to select national feature films distributed in several categories since 1995. Table III shows the number of local films released in Brazil from 2007 to 2014: 741. Of these, the BNDES provided support to 153, i.e., some 21% of the total, which makes it the second largest supporter of national cinema. This participation is important considering there are several sources providing support to the segment.

In the culture segment, another form of support that the BNDES provides is financing for exhibition infrastructure. In 2007, there were 2,160 theaters and, by 2014, a further 670 new theaters were added. The BNDES' operational focus in this business, in partnership with the National Cinema Agency (Ancine), is to build theaters in cities and urban zones deemed priorities by the "Cinema Close to You" Program. In the period, the BNDES approved projects that planned to deliver 323 new theaters, almost half of the total added.

Table III: Participation of the BNDES' support in cultural segments – 2007-2014

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2007 (A)	BRAZIL: EVOLUTION 2007 TO 2014 (B)	BRAZIL: INSTALLED CAPACITY VARIATION (B/A)	BNDES: Nº ADDED FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Films released	Units	n/a	741	n/a	153	21%
Movie theaters	Units	2,160	670	31%	323	48%

Sources: Ancine and BNDES.

n/a.: not applicable.

In the support for "social and production inclusion and sustainability," the BNDES has worked to continuously improve its commitment to sustainable development, especially as an inducer of good practices that can help foster responsible environmental management. Some of the results of the BNDES' environmental support show how important the Bank's support is for projects whose purpose is to preserve the environment. Federal and state nature conservation units and indigenous land, which help curb deforestation activities, all received support from the Amazon Fund in projects of territorial protection and environmental management, as well as in projects of promoting sustainable production activities. Projects receiving support have grown significantly reaching 42% of indigenous land and 11% of conservation units within the Legal Amazon in the total accrued from 2009 to 2014, as shown in Table IV.

Finally, in support for "Structuring corporate capacities and strengthening capital structures," the BNDES mainly operates through the BNDES Participações (BNDESPAR), as a subscriber of securities in public and private companies that, in the short or mid-term, may join the capitals market. The Operational Policy in Equity is aimed at strengthening the capital structure of Brazilian companies, fostering improved management practices, governance and developing the Brazilian capital market, as well as creating value in BNDESPAR's securities portfolio.

Table IV: Participation of the BNDES' environmental support – 2009-2014

BRAZIL INDICATOR	UNIT	BRAZIL: MEASURED AREA (A)	BNDES INDICATOR	BNDES: AREA OF SUPPORTED PROJECTS (B)	BNDES' PART. (B/A)
Indigenous area in Amazon (Dec. 2014)	Km ²	1,376,478	Indigenous areas (2009–2014)	582,265	42%
Amazon conservation units (Dec. 2013)	Km ²	1,273,741	Environmental management of conservation units (2009–2014)	144,899	11%

Sources: National Institute for Space Research, Ministry of Environment (MMA) and BNDES.

Table V shows that the BNDES has succeeded in supporting the segment, which aims to foster the growth of small and medium-sized companies via gradual access to the capitals market (Bovespa Mais). To be listed on Bovespa Mais, companies must meet certain requirements in terms of corporate governance and transparency, and the Bank's participation as a shareholder affects such a process. From eight companies listed in the last eight years, seven received support from the BNDES.

Table V: Participation of the BNDES' support in equity (Bovespa Mais and IPOs) – 2007-2014

BRAZIL INDICATOR	UNIT	BRAZIL: TOTAL INDICATOR BETWEEN 2007 AND 2014 (A)	BNDES INDICATOR	BNDES: TOTAL INDICATOR BETWEEN 2007 AND 2014 (B)	BNDES' PART. (B/A)
Total number of companies listed on Bovespa Mais	Number of companies	8	Companies receiving support listed on Bovespa Mais	7	88%
Total number of companies that held an IPO	Number of companies	110	Companies receiving support which held an IPO	16	15%

Sources: BM&FBOVESPA and BNDES.

Effects of interventions receiving support

Effects analysis evaluations seek to disclose information on the outcomes that interventions receiving support managed to achieve, which can be further used in decision-making in processes to improve such support. Studies performed aim to apply different methodologies that make it possible to analyze the Bank's operations from several angles. As in Section 5, Section 6 has organized studies according to monitoring and evaluation target-subjects.

The subject "Infrastructure" is presented as a study that evaluates the impacts of constructing hydropower plants receiving BNDES support in cities that suffered from

flooding. Results indicated average positive effects on the economic activities in the cities, mainly in the beginning of the construction phase and after the plant was made operational. Estimated effects vary significantly, which corroborates with the view that investments in hydropower plants are unique, and taking into account the specificities of each project and region is fundamental.

In the subject "Contribution to production development," the first study evaluated the initial phase of the Investment Maintenance Program (PSI). Results demonstrated a positive and statistically significant impact from the PSI on the level of current investment made by financed industrial companies. Therefore, it can be concluded that investments from the Brazilian industrial sector in 2009 and 2010 would have been lower if there had been no program at all. This result was considered extremely successful, and it was reached by means of several specifications in the applied statistical methods.

The BNDES also evaluated three sectorial financing programs: the Program to Support the Development of the Industrial Health Sector (BNDES Profarma); the Program to Develop the National Software and IT Services Industry (BNDES Prosoft); and Support for Collections Preservation, associated with the BNDES Program to Develop Cultural Economics (BNDES Procult). Positive results were recorded by institutions receiving support.

In addition to evaluations, effects indicators were also analyzed to monitor the performance of industrial companies receiving financial support with a focus on large firms. There are signs that indicators, such as employed personnel, the value of industrial transformation, and investment, all presented more growth in companies receiving support than in those that do not.

Regarding the subject "Social and production inclusion", the focus was on the BNDES Card, which was assessed by the BNDES' internal team and a study conducted by the Inter-American Development Bank (IDB), which examined other instruments aimed at supporting small and medium-sized companies. Particularly in respect to the IDB study, support via credit – largely operated by the BNDES Card – was demonstrated as the only type of support with positive and statistically significant impact on all result variables, in addition to presenting most of the positive impacts on employment and wages.

The BNDES also monitored effects indicators related to the support provided to MSMEs. Monitoring demonstrated that MSMEs receiving support grew more in employment, average remuneration and the percentage of employees that had completed high school than those that did not receive support. Moreover, the number of companies that continue to employ staff is higher among firms receiving support than those that do not.

Concerning sustainability, the Amazon Fund was the evaluation's main subject. The Fund aims to contribute to reducing greenhouse gas emissions resulting from deforestation and forest degradation, primordially in the Amazon Biome. Managed by the BNDES, the Fund receives donations, and its projects must be shaped into concrete efforts that show potential to reduce deforestation and forestry degradation. To do so, a Logical Framework was prepared to gather information on each project, presenting numbers that support the idea that the Amazon Fund is helping reduce deforestation, as well as to present the methods through which this reduction is operationalized.

With regards to improving entrepreneurial skills, through a partnership with the Center for Strategic Studies and Management in Science, Technology and Innovation (CGEE), case studies were conducted on three companies receiving support from the BNDES in equity operations (JBS, TOTVS and Tupy), assessing how the entry of the Bank affected the performance of said companies, their sectors, and society. Conclusions show that the BNDES contributed to the growth of all three companies, thanks to the inflow of considerably more resources to implement their strategies and strengthen their skills, such as innovation and socioenvironmental commitment, in addition to stimulating the capitals market.

Finally, Section 6 presents estimates of the effects from the BNDES' support on employment when implementing investments. The estimates are calculated using an input-output model based on official data from the Brazilian Institute of Geography and Statistics (IBGE) – called Model of Employment Generation (MGE). MGE estimates on generating/maintaining registered jobs associated with projects receiving support from the BNDES showed significant growth between 2007 and 2014. Estimated amounts constantly increased from 2007 (approximately 1.2 million jobs) to 2013 (approximately 3.2 million jobs), but suffered a slight drop in 2014 (approximately 3 million jobs).

Balance and perspectives

This Effectiveness Report summarizes the first pieces of information structured by the BNDES' Monitoring and Evaluation System.

Indicators of results and evaluations are presented to reflect delivered products and services as well as the effects from the Bank's efforts in several sectors, client sizes and operating modalities.

Producing and organizing information, aimed at checking the results of the BNDES' efforts and how they help foster sustainable and competitive development of the local economy – was useful to measure the progress made over the last few

years in building an institutional environment that was appropriate for implementing monitoring and evaluation practices. The bank evolved significantly in terms of operational availability, with clearer explanations of the expected results. Additionally, there were important institutional improvements in disseminating and employing assessment concepts, mainly by operating areas and senior management. In human capital, the BNDES' collaborators are continuously receiving training with aims to applying the best monitoring and evaluation practices and opening up dialogue channels with all parties interested in the Bank's operation in order to discuss the achieved results.

The continuous evolution of the BNDES' Monitoring and Evaluation System should make it possible, on a growing and improving scale, to identify, organize and present analyses from results on the Bank's efforts and, thus, to systematically verify the alignment with respect to its adopted strategies.

1. INTRODUCTION

In recent years, the BNDES has strengthened its role as Brazil's main institution providing support to development projects, especially when it comes to financing fixed investments in almost all economic activities. Total disbursements grew at an average real rate of 12% per year since 2007, reaching R\$ 187.8 billion in 2014.

The main indicators used to measure the BNDES' performance and the importance to the economy – disbursements and number of financial transactions – are necessary, but not enough to describe the range of results achieved. However, structuring indicators which reflect the delivered goods and services as well as the effects generated by transactions, is not a straightforward task. The agricultural, industry, infrastructure, trade and services sectors, companies of all sizes, individuals and public administrations receive support, using several operating modalities, such as direct and indirect financing, non-reimbursable support and subscription of securities.

In this regard, the Bank has evolved by adopting methodologies and monitoring and evaluation practices making it possible to identify, organize and present the results generated by its transactions. Producing such information is intended, ultimately, to generate knowledge regarding the impact of the BNDES' performance, aimed at improving and enhancing the results, while ensuring greater transparency in the way public resources are used.

The BNDES' Effectiveness Report is the initial compilation of data structured by the BNDES' Monitoring and Evaluation System and is the main instrument to publicize this system.¹ In the first edition of the report, results refer to the 2007-2014 period.

To start, the BNDES' Effectiveness Report presents its Strategic Corporate Planning. The goals in the Bank's Strategic Map for sustainable and competitive development perspectives are to: (i) expand investment in infrastructure; (ii) help strengthen the competitiveness of Brazilian companies; (iii) contribute to social and production inclusion; and (iv) foster innovation, social and environmental sustainability as well as regional development.

The elements in this perspective can be analyzed both from the point of view of the institution's efforts to implement financial support by analyzing, approving and disbursing funds,² and the results from interventions receiving support. The information produced within the scope of the BNDES' Monitoring and Evaluation System seek to complement the already well-developed view of efforts, using structured data on the results, for example, in relation to not only the additional production capacity of industrial projects, but also the amount of megawatts in

¹ The BNDES' Monitoring and Evaluation System is described in Section 3.

² Designated in this report as effort.

electric power projects, the increasing employment at smaller companies receiving support, or the impact of financing on company investment.

As can be seen throughout this document, the information presented here is in keeping with the communications made by leading international institutions in monitoring and evaluation, such as the World Bank and the IDB: monitoring disbursements, the number of transactions and businesses receiving support, as well as delivered products and services. Additionally, the BNDES' Effectiveness Report presents monitoring data from the result of some of its interventions, as well as evaluations on the effectiveness of the Bank's performance. However, it does not address the BNDES' transactional efficiency, or internal efforts to improve information and training systems, as this information is not within the scope of the BNDES' Monitoring and Evaluation System. They are presented in other institutional communication vehicles, such as the Annual Report.³

In addition to this introduction, the Effectiveness Report consists of six sections. Section 2 presents the role of development banks in the world and the position of the BNDES. Section 3 comprises the structure of the BNDES' Monitoring and Evaluation System and the model to integrate efforts and results, which is the basis of the data presented in this report. Section 4 presents indicators on the BNDES' internal efforts, especially disbursements to strategic priorities. Section 5 deals with monitoring immediate results indicators, while Section 6 brings together monitoring effects indicators and effectiveness evaluations, carried out within the scope of the BNDES' Monitoring and Evaluation System. Finally, Section 7 concludes the report with an overall appraisal and presents prospects for the coming years. The document also includes an annex, which presents the BNDES' Monitoring and Evaluation System concepts.

2. THE BNDES AND DEVELOPMENT BANKS IN THE WORLD

Among institutions geared towards development, DBs play a prominent role in economies at different stages of maturity.⁴

The first DBs arose in the 1940s within the context of post-war reconstruction, and one of their original goals was to provide credit to small and medium-sized industrial companies. Throughout various stages of development, these institutions have financed the expansion of production capacity, aimed at serving the business segments to which the private financial system does not provide adequate financing instruments. To a large extent, these segments correspond to those that generate positive externalities and, therefore, are characterized by presenting important

³ The BNDES' Annual Report is available at: <http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Relacao_Com_Investidores/Relatorio_Anual/>.

⁴ This section is based on Ferraz, Além and Madeira (2013).

social return, such as infrastructure (especially segments associated with energy generation and social infrastructure); technological innovation; support for micro, small and medium-sized enterprises (MSMEs); microcredit; as well as environmental and social development projects. DBs are also usually industrial policy instruments in their respective countries, providing support to selected sectors.

In developing countries, the very lack of a private long-term financing market in local currency prevents the development of disruptive technologies (in which uncertainty is high), requiring public institutions to help create these new markets. DBs thus can fill in the gaps left by the private market while stimulating a long-term, sustainable, innovative financial industry.⁵ Finally, in times of economic crises, DBs usually play a countercyclical role, helping increase systemic stability. This role was evident during the rise of the 2008 crisis, when, during a private credit crunch, countries that had a DB managed to minimize the withdrawal in total credit in the economy, preventing a collapse in aggregate demand.

Another feature of DBs is the flexibility of their “missions” and goals over time, reflecting each country’s different stages of development. In developing nations, such as Brazil and China, DBs have broader efforts, financing projects in several sectors of the economy, while in developed economies, DBs tends to be relatively focused on facing new economic, social and environmental challenges.

Table 1 shows the performance of four DBs with similar characteristics and scope of operations. The chosen DBs finance several segments/sectors and are historically important in the countries where they operate.

Table 1: Segments receiving support from selected DBs

SEGMENTS	CHINA DEVELOPMENT BANK (CDB)	KfW (GERMANY)	BNDES (BRAZIL)	JAPAN FINANCE CORPORATION (JFC)
MSME	X	X	X	X
Agriculture	X		X	X
Infrastructure	X	X	X	
Export		X	X	
Innovation	X	X	X	X
Green economy	X	X	X	X
Internationalization	X	X	X	X
Capital market	X	X	X	X
International financial cooperation	X	X		

Source: Ferraz, Além and Madeira (2013).

As can be seen from the table, financing MSMEs, innovation, internationalization and the green economy, as well as operations in the capitals market, are present

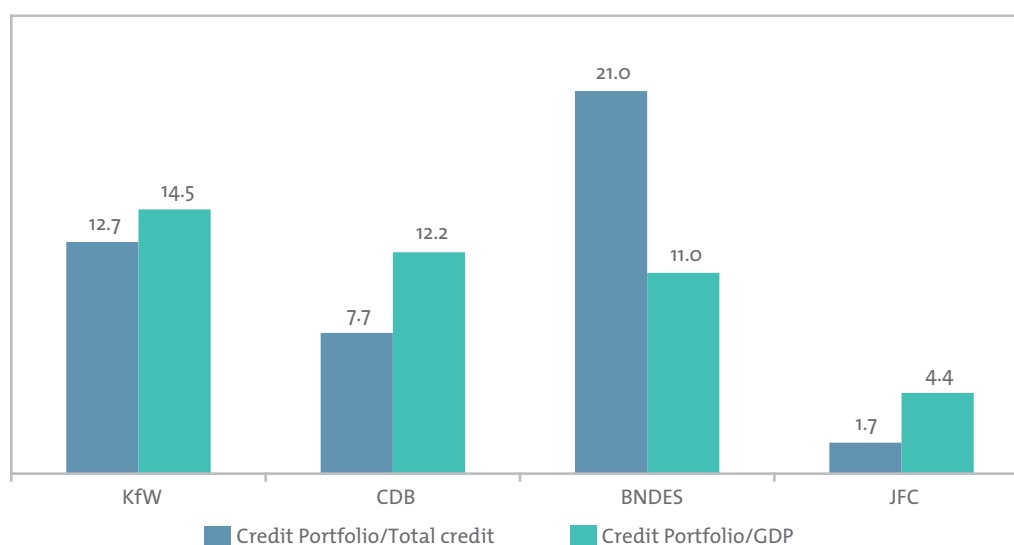
⁵ An example that aligns these goals is temporary operating in a particular market, possibly combined with the private sector, to develop a credit market niche, creating mechanisms and scale for private banks to operate. In this case, the DB assumes part of the risk related to entering the sector, reducing the risk for future incomers into the private sector.

in all the surveyed institutions. In many cases, even the sectors not included in the performance of one of the selected DBs are supported by another institution or public policy. Despite this coincidence, in which sectors are similar, each DB does so differently, depending on the credit market characteristics in each country and the degree of economic development. In the green economy, for example, it is worth highlighting the pioneering approach of KfW, which have provided support to this initiative since the 1950s. Mazzucato and Penna (2015) offers a deep comparison of mission-oriented investments in BNDES and KfW.

Chart 1 illustrates the importance of selected DBs, considering the stake of their portfolios in GDP and in the amount of total credit in their countries. Two characteristics come to light. First, it can be noted that, regarding GDP, DB portfolios are in a 10 p.p. range, stretching between 4% and 14% of GDP. Second, it is noted that the persistently low credit/GDP ratio in Brazil – 56% in 2013 against more than 100% in most developed countries – makes it the only country in which the blue column surpasses the green column. This shows the BNDES’ higher participation in total credit in the economy (21%), which may strengthen the argument that the Bank operates so as to fill the gap left by the private financial sector in the country.

Nevertheless, as shown in Chart 2, the growth of the credit volume in the past decade brought the BNDES’ participation in total credit from 30.9% in 2002 down to 21% in 2013.⁶ In the opposite direction, between 2002 and 2013, KfW and the CDB increased their stake in total credit in their countries from 8.1% to 12.7%, and from 5.2% to 7.7%, respectively.

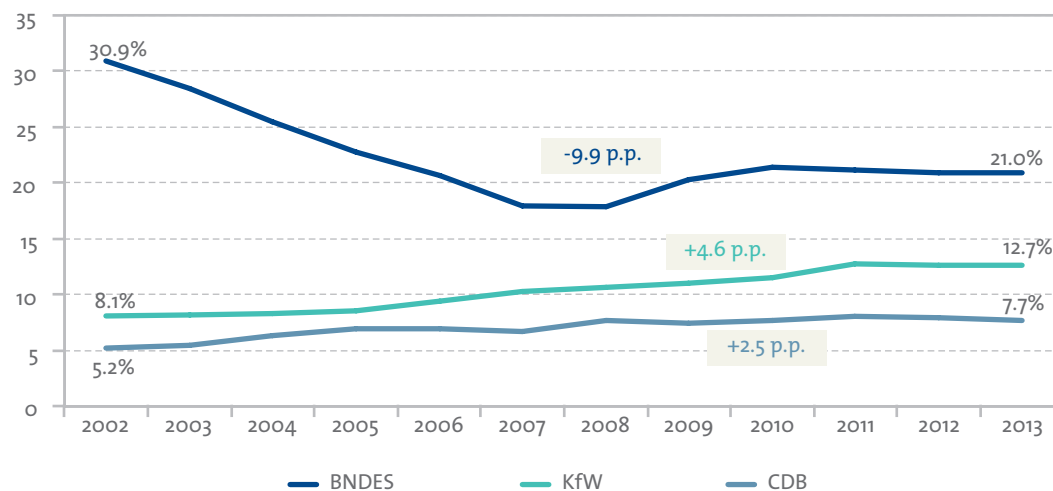
Chart 1: Importance of selected DBs to their respective economies – 2013 (in %)



Source: Ferraz, Além and Madeira (2013).

⁶ To standardize the methodology between the DBs analyzed, we used the balance of the loan portfolio recorded on the BNDES’ balance sheet. Thus, the values in the portfolio over the total credit stock may differ from those registered at Brazil’s Central Bank.

Chart 2: Progress of selected DBs' participation in the total credit in their countries (in %) – 2002-2013



Source: Ferraz, Além and Madeira (2013).

3. THE BNDES' MONITORING AND EVALUATION SYSTEM

Evaluation focused on sustainable development has been incorporated into practices at agencies, companies and public entities, and theoretic and technical aspects have been improved in recent decades. From this perspective, the progress of society is measured by its ability to generate wealth (economic aspect); to share the wealth generated (social aspect); to preserve and conserve the environment (environmental aspect); to generate innovation (knowledge aspect); and to invest in institutions and people to foster sustainable development (institutional aspects).

The structure of BNDES' Monitoring and Evaluation System aimed to incorporate analysis of results generated by the Bank's performance in all of these aspects, in addition to the financial and economic aspects. The main goal of the BNDES' Monitoring and Evaluation System is, therefore, to establish an institutional environment in which enough information is generated and organized to verify the results of BNDES' performance and how much they have helped achieve its mission, which is: "To foster sustainable and competitive development in the Brazilian economy, generating employment while reducing social and regional inequalities." In this sense, monitoring and evaluation should be an integral part of the BNDES' work process.

It is understood that implementing a monitoring and evaluation system brings several advantages to the BNDES, including:

- improving the Bank's ability to analyze the effects generated by its interventions: checking what occurred, the elements that positively or negatively

contributed to the results of the investment, what else can be done to complement the performance and what can be improved;

- providing inputs to the process of policy formulation and planning of the BNDES;
- guiding the Bank's contribution to sustainable development;
- revealing and disseminating information to stakeholders: government, regulatory agencies, beneficiaries, employees, resource providers and society in general; and
- safeguarding the institutional memory and contributing to knowledge management at the BNDES.

3.1 Model for integrating corporate results

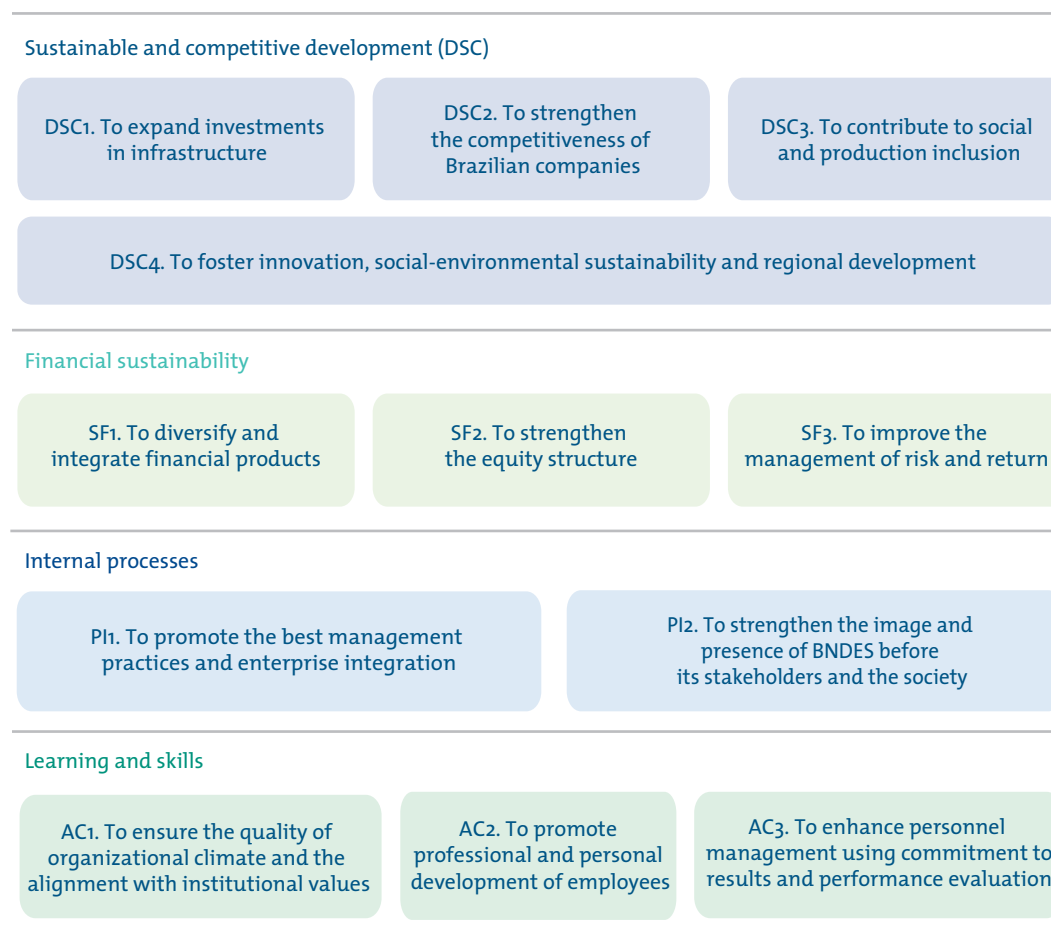
As discussed in previous sections, one of the guidelines of the BNDES' Monitoring and Evaluation System is to produce timely information on the results of development interventions receiving the BNDES' support as a complement to indicators and analysis based on the disbursement metrics. This section presents the integrated corporate view between the aspect of effort, structured in the Strategic Corporate Planning, and the aspect of results, organized using immediate results and effects indicators within the scope of the BNDES' Monitoring and Evaluation System.

The BNDES, when developing its strategic plan, uses the Balanced Scorecard (BSC) methodology, which aligns business activities with the vision and strategy of an organization, improving internal and external communications, and monitoring performance regarding the strategic goals established. The main element of BSC is the strategic map, which concisely presents the organization's strategic goals for the period in question under four perspectives. The strategic map that guided the BNDES' planning in the 2010-2014 period is shown in Chart 3.⁷

As the BNDES' mission is to foster development, the most important perspective on its strategic map includes goals related to sustainable and competitive development, while other perspectives, common to other organizations, relate to financial sustainability, internal process improvements as well as learning and skills. Developing the indicator system to monitor corporate results should begin with the goals of the Sustainable and Competitive Development perspective, as it is conceptually associated with the results of operations receiving the Bank's support.

⁷ The BNDES' Strategic Map was changed during the period, due to lessons learned while implementing the BSC methodology and changes in the economic environment. In the map update, in 2015, the issue of monitoring and evaluation results was included in the perspective for internal processes. The goal now has the following wording: "To promote the best corporate management, integration and assessment practices."

Chart 3: BNDES' Strategic Corporate Map in the 2010 to 2014 period

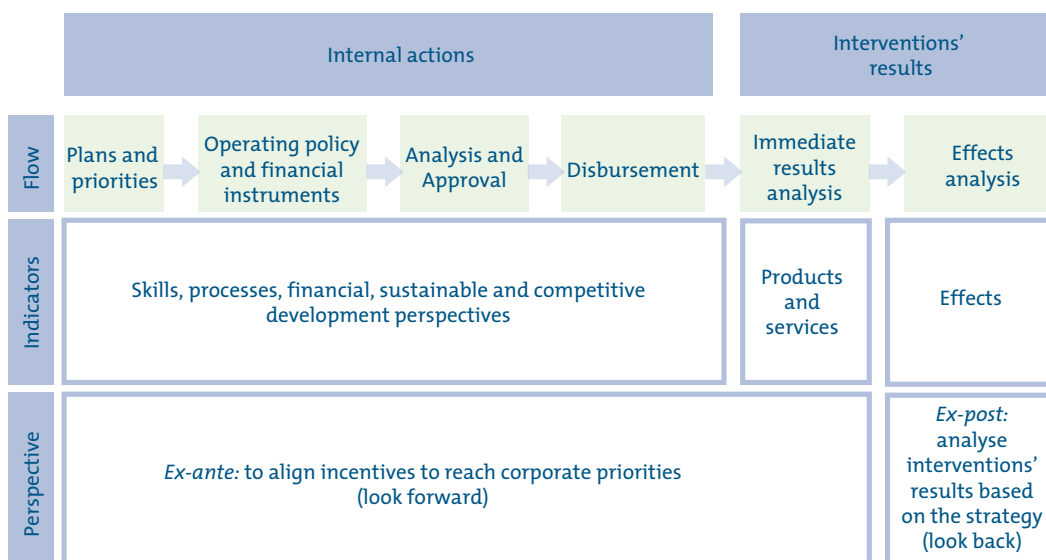


Source: BNDES.

Taking the goal “to contribute to social and production inclusion” as an example, performance associated with it can be analyzed from the point of view of the organization’s effort, illustrated with an indicator such as “disbursements to micro and small enterprises and individuals.” It can also be analyzed from the point of view of the results from support for these clients, using indicators such as “progress of employment in MSEs” and “income of individuals receiving support.”

Thus, in light of the monitoring and evaluation concepts that the BNDES adopted, and starting with its Strategic Planning and operating policies, it is possible to understand the Bank’s Model for Integrating Corporate Results as shown in Chart 4. This view aligns the Bank’s efforts, using disbursements, to achieve its strategic priorities with the results obtained by analyzing the delivery of products and services from the projects receiving support as well as their effects.

Chart 4: Model for Integrating Corporate Results



Source: BNDES.

The logical sequence is expressed along the stages of the “Flow” line, beginning with internal processes (defining plans and priorities, formatting operating policies, analysis and financial support), moving through disbursements (most important point of internal efforts to structure and analyze operations), then through the immediate results of interventions receiving support (immediate delivery) and the effects of interventions (medium and long-term effects).⁸ The indicators for the BSC strategic goals show the performance of efforts in this model, while indicators for products and services and effects complement the sequence, analyzing results.

Indicators for disbursements as well as products and services are planned and monitored so as to achieve strategic goals and for that reason the reference is an ex-ante approach (look forward). One issue could be, for example, what the BNDES’ disbursements to foster the competitiveness of Brazilian companies should be, and what the immediate delivery of interventions receiving support for this purpose should be.

Meanwhile, effects indicators are only verified after the fact, i.e., after interventions are completed, which means “looking back”. Moreover, the availability of secondary data needed to measure the effects of interventions makes it difficult to assess interventions underway or those recently completed. This does not mean that there is no future expectation regarding the expected effects of interventions. For example, one of the expected effects of the BNDES’ support to smaller companies is the increase in the number of registered jobs. However, this effect is

⁸ It is important to state that the model is a simplification of the BNDES’ efforts, as there are activities associated with disbursements that are not shown, such as monitoring operations, in which the borrowers/beneficiaries’ correct use of resources is verified.

monitored and/or assessed using the appropriate indicators only a few years after the BNDES' support has been disbursed, as will be seen in Section 6.

The data presented in the Effectiveness Report is organized in keeping with the Model for Integrating Corporate Results: in the next section, the indicators for efforts and the BNDES' importance to the Brazilian economy are presented; the following section compiles indicators for products and services surveyed so far; and, finally, effects are analyzed in the penultimate section.

3.2 The structure of the system

Given the specificities of the BNDES – size and diversity of operation modalities, supported sectors and types of clients – its Monitoring and Evaluation System was based on the following guidelines:

- to serve as learning for the staff and not as an “audit” of the quality of work;
- to have general characteristics that are applicable to all operating divisions, with the flexibility to adjust to the specific characteristics in each one; and
- to produce information on the Bank's effectiveness for the staff, society, monitoring entities and resource providers.

The first concern was to make it easier to assess the Bank's operations, which meant explaining the expected results more clearly. Thus, the first effort was to internally disseminate the importance and the concepts of effectiveness evaluations, especially in the operating divisions.

The Logical Framework methodology (logframe) proved particularly useful for monitoring and evaluating operating programs, and it is now applied in cooperation between both the evaluation and operating teams. The use of the logframe made it possible to explain the goals related to the effectiveness of interventions receiving the Bank's support, helping create and renew programs, as well as monitoring their indicators – which show whether interventions are moving in the expected direction.

At the same time, training was offered to a team responsible for implementing the system so that the BNDES became aware of the best practices in monitoring and evaluation and adapted them to its own specificities. Thus, the first evaluations were carried out by the team, and the BNDES' Monitoring and Evaluation System was built to show the corporate activities in the most comprehensive way possible.

The work was structured into three lines of action:

- preparation of logframes to monitor and evaluate operating programs;
- external and own production of studies assessing the impact of interventions to which the BNDES was providing support; and

- preparation of a system of indicators to monitor corporate results, which includes immediate results and effects indicators.

Each of these lines of work progressed differently, taking into account the complexity of implementation and the gradual increase in internal capacities on the subject. Activities were always conducted by the BNDES Evaluation Unit of the Planning Division in partnership with the operating divisions, which may – depending on the need for their teams to engage – require more or less participation in the process, or to take on a leadership role, in this case, relying on advice from the team responsible for the BNDES' Monitoring and Evaluation System.

4. THE BNDES' EFFORTS: INTERNAL PERFORMANCE

As the main institution financing fixed-investment projects in Brazil, and a key player to industrialization in the 1950s, the 1960s, and the 1970s, the BNDES has played a number of roles and modified its focus in accordance with the varying economic policies. However, as shown briefly in the introduction, over the last seven years, the BNDES has made remarkable efforts to promote development.

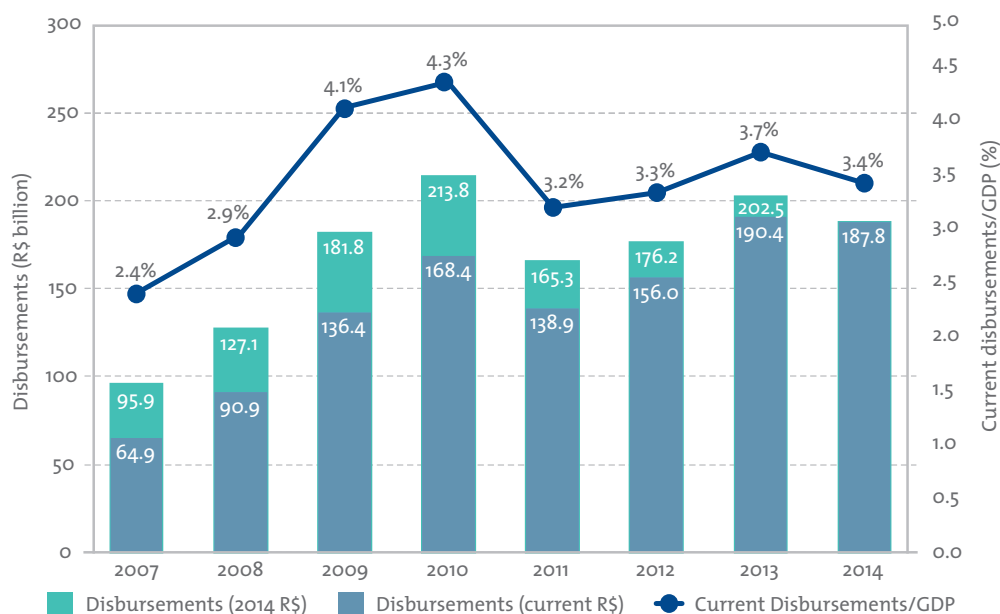
Starting with this section and extending into the following two, we will analyze the Bank's performance, beginning with data traditionally used to verify the macroeconomic importance of the institution.

4.1 Participation in the GDP and in the Gross Fixed Capital Formation

Using the flow of resources injected in the economy (disbursements) as an indicator, Chart 5 shows that, in real terms, the BNDES doubled its support in the period analyzed, with disbursements jumping from approximately R\$ 96 billion in 2007 to R\$ 188 billion in 2014. The increasing importance of the BNDES' operations is also made evident when examining that, in proportion to the GDP, disbursements increased from 2.4% in 2007 to 3.4% in 2014. While disbursements grew at a real average of 12% in the period, the GDP, also in real terms, grew 3% on average.⁹

⁹ Data on GDP variations take into account the new calculation methodology of the IBGE's System of National Accounts, which reviewed the historical series in March 2014. We used the arithmetic average of the annual rates for real GDP variations.

Chart 5: BNDES' Disbursements (current versus 2014 R\$ billion) and compared with GDP (in %) – 2007-2014



Sources: Quarterly System of National Accounts and Extended National Consumer Price Index (IPCA) of the Brazilian Institute of Geography and Statistics (IBGE) and BNDES.

Notes: 1. Data from the Quarterly National Accounts consulted in April 2015 after IBGE's methodological review. 2. The series of data on disbursements in 2014 R\$ corresponds to the current disbursements adjusted to 2014 prices by the IPCA calculated by IBGE.

Also visible in the data presented is the Bank's effort in anti-cyclical operations, as the comparison with GDP grew significantly during the years of the international financial crisis (4.1% in 2009 and 4.3% in 2010), returning to 3% in the following years. In 2010, the BNDES posts record-breaking disbursements: close to R\$214 billion at 2014 prices.

Comparing with the GDP is illustrative of the BNDES' role in anti-cyclical policy, aimed at recovering economic growth. However, the macroeconomic variable more clearly related to the BNDES' activities is the gross fixed capital formation (GFCF), which includes increasing the future production capacity of an economy through current investments in fixed assets.¹⁰

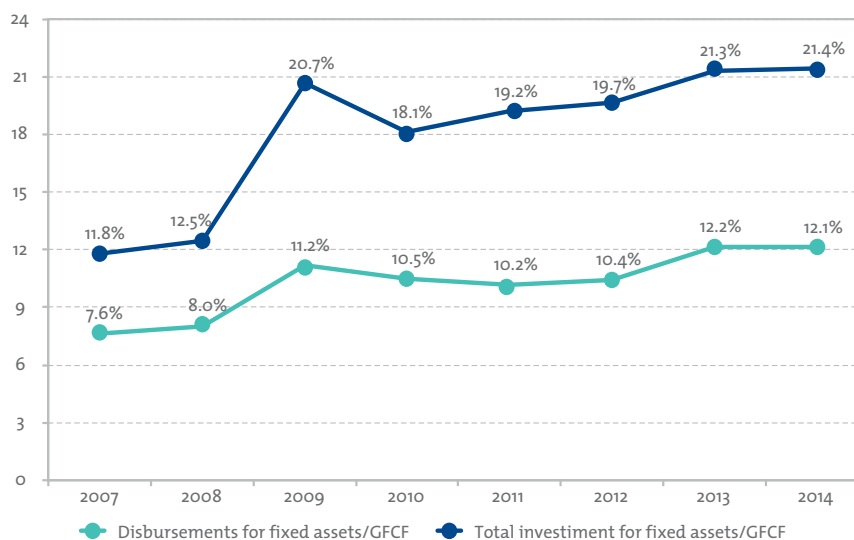
The BNDES' usual charge is to provide resources in long-term financing for investment projects in a wide array of sectors with appropriate conditions. A large part of the financing operations involves companies increasing or constructing new production plants, as well as purchasing machinery and equipment, which enables a greater volume of products and services in the future.

¹⁰ IBGE (2015).

Nevertheless, the BNDES has credit lines, programs and modalities connected not only to interventions that expand the production capacity (GFCF), but that also foster other equally important strategic aims, such as increasing exports, providing working capital to micro and small companies, as well as developing the stock market.

Comparing to the total GFCF in the economy, in the total investment related to the BNDES' support (Bank disbursements plus borrower's investment using other sources), only the amounts related to fixed investments were considered. In this total, expenditure on construction, purchasing machinery and equipment, as well as transport equipment stands out.¹¹

Chart 6: Disbursements and total investment for fixed investments compared with GFCF – 2007-2014 (in %)



Source: The IBGE's System of National Accounts and BNDES.

Note: Total investment corresponds to the BNDES' disbursements plus borrower's investment using other sources of resources.

Data displayed in Chart 6 show that the volume of the BNDES' resources earmarked to increase the future production capacity, in comparison with all fixed investment in the economy, is significant: in the 2007-2014 period, the participation of disbursements in GFCF was above 10% since 2009.

In 2007 and 2008, the GFCF was growing at a strong pace (quarterly rates almost always higher than GDP growth), and the BNDES contributed approximately 8%. In 2009, due to the international financial crisis that resulted in much less private credit for the production sector, the BNDES operated in an anti-cyclical fashion, which was reflected in a high volume of support granted. In that year, the participation of disbursements in fixed assets reached approximately 11% of the GFCF. The new level remained between 2010 and 2012, when investments in the economy showed

¹¹ When calculating disbursements and total investment for fixed assets, the BNDES considers operations to trade capital goods (BNDES Finame) and estimates for fixed investment in development projects (BNDES Finem and part of the equity operations).

signs of recovery. In last the two years of the period, amounts grew slightly to 12% due to the volatile performance of the GFCF's growth rates, while the level of the BNDES' disbursements remained relatively stable.

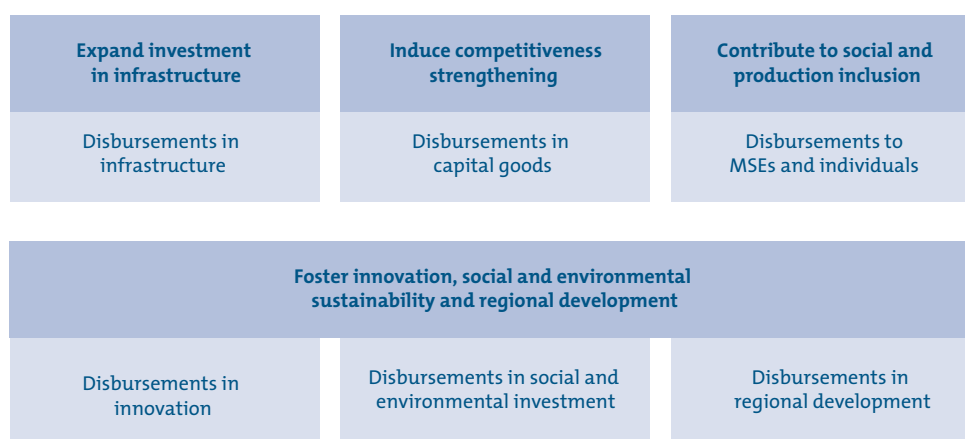
Considering the estimates of all fixed investment made in development projects receiving support, progress in the data is similar and the index went from approximately 12% in 2007 to 21% in 2014. In other words, one fifth of all fixed investment in the country, in 2014, was linked to expenditure on projects the Bank was supporting. It is worth mentioning that this index does not show the causality relation between the BNDES' support and the rate of investment in Brazil – the latter is influenced by several other factors, such as entrepreneurs' expectations, tax exemptions, the exchange rate etc. –, and an analysis of causality requires a more sophisticated structure using impact evaluations. Still, the comparison helps highlight not only the Bank's efforts to support the economy, but also, and in particular, its importance.

Finally, such proportion is considered conservative as the GFCF includes expenses with building housing, which is a relevant undertaking in the country's fixed investment, which does not receive support from the BNDES.¹²

4.2 Disbursements per corporate priorities

From 2010, following the strategic planning process, the BNDES started monitoring its operating performance in accordance with the qualification of its disbursements. The references for such qualification were the priorities reflected in the strategic goals of the Sustainable and Competitive Development (DSC) perspective from the Strategic Corporate Map, as detailed in Chart 7.

Chart 7: Disbursement indicators per corporate priority associated with DSC's strategic goals
Sustainable and competitive development



Source: BNDES.

¹² Housing construction separated as a GFCF component is only available in the National Accounts published by IBGE for the years 2010 and 2011. For illustration purposes, this type of expenditure corresponded, in both years, to about 20% of the total GFCF. If this percentage had been extrapolated further, the BNDES' participation numbers would be 25% higher than those reported in Chart 6.

The annual performance of each of the six indicators for disbursement per corporate priority is presented in Table 2, and comparing their growth rates between 2010 and 2014 against the growth of total disbursements allows us to see the performance in terms of resource prioritization.

Table 2: Annual disbursements per corporate priority – 2010-2014 (in current R\$ billion)

INDICATOR	2010	2011	2012	2013	2014	VARIATION 2010-2014
Infrastructure: energy, logistics, mobility and sanitation	23.8	26.8	32.5	37.8	42.2	77%
Capital goods	57.2	59.1	51.3	77.4	74.0	29%
MSEs and individuals	31.9	35.3	36.4	47.4	44.6	40%
Innovation	1.4	2.7	3.3	5.2	5.9	333%
Social and environmental	26.1	24.5	35.7	42.0	46.6	79%
Regional development	29.0	29.7	34.4	38.6	38.2	32%
Total – strategic priorities*	101.7	106.3	115.4	150.0	150.6	48%
Total – disbursements	168.4	138.9	156.0	190.4	187.8	12%

Source: BNDES.

* Sum of disbursements on strategic priorities disregarding intersections between priorities.

First, it is important to highlight that the indicators from Table 2 do not total 100% of the BNDES' total disbursements, as they are of a topical nature rather than sectorial. Therefore, a financing operation for an innovation project from a company in the Northeast, for example, will be included when calculating both the indicators "Innovation" and "Regional development". On the other hand, certain operations are not considered in the calculation, as they do not fit the scope of any of such indicators (operations that are not included in the calculation of any corporate priority indicators accounted for 20% of total disbursements in 2014).

The disbursement indicator in infrastructure considers only resources for investment projects in electric power (generation, transmission and distribution), logistics (highways, railways, ports, airports, waterways and merchant shipping), mobility (wheeled and railed urban transport) and sanitation (environmental and water resources).¹³ Their performance over the last five years showed a significant growth of 77%, stepping up from an initial disbursements of R\$ 23.8 billion to R\$ 42.2 billion, thus reflecting the BNDES' direct contribution to expanding investments in infrastructure.

The purpose of inducing competitiveness is evident in the volume of resources allocated to help commercialize capital goods produced in the country, as these

¹³ This indicator differs from the calculation of disbursements to infrastructure presented in the BNDES' Annual Report, which also includes part of the IBGE sector "Trade and Services" considered infrastructure, particularly transport services.

investments in new fixed assets foster productivity gains in the future. On the other hand, the capital goods production sector is stimulated by offering favorable financing conditions for these goods.

Since 2010, the Bank has reserved some 34% of its resources to support capital goods. These expressive numbers started growing after the matter was considered a corporate priority. The 2014 results surpassed disbursements in 2010 by more than R\$ 15 billion, representing 39% of the BNDES' total disbursement in that year. This progress was influenced by the 2009 launch of the BNDES' Investment Maintenance Program (BNDES PSI), which provided – as a response to the signs of stagnation in fixed investment in Brazil – more attractive conditions when financing and acquiring machinery and equipment. BNDES PSI has become responsible for the BNDES' largest portion of disbursements in capital goods.

Social and production inclusion benefits from the BNDES' efforts to facilitate access to credit, mainly for micro and small companies, as well as for individuals, such as farmers, microcredit beneficiaries, truck drivers and others. For them, results are also significant, thanks to 40% growth in the volume of disbursements between 2010 and 2014, reaching 24% of total resources disbursed in the last year in the period.

Currently, it is worth emphasizing that the indicators “Capital goods” and “MSEs and individuals” are tightly connected as they often refer to the same disbursements since support to commercialize machinery and equipment is aimed at MSEs through the BNDES' products: BNDES Finame and the BNDES Card.

Besides the three priorities defined per sector or per size of the borrowers, three other across-the-board issues were defined to represent important aspects in different projects receiving support. Namely: innovation, social and environmental sustainability, as well as regional development.

Support for investments in innovation, although still shy in comparison to the Bank's total disbursements, presented the highest progress in percentage over the last five years, quadrupling the amount of allocated resources, an increase of 333%. This progress is due to: (i) new or improved instruments that provide support for investments in Research, Technological Development and Innovation (RD&I) in order to better meet customers' needs; and (ii) sectorial plans that select projects involving RD&I activities. Also worthy of note is the growing activities via direct stakes in companies or intermediated through funds in which the BNDES is a member.

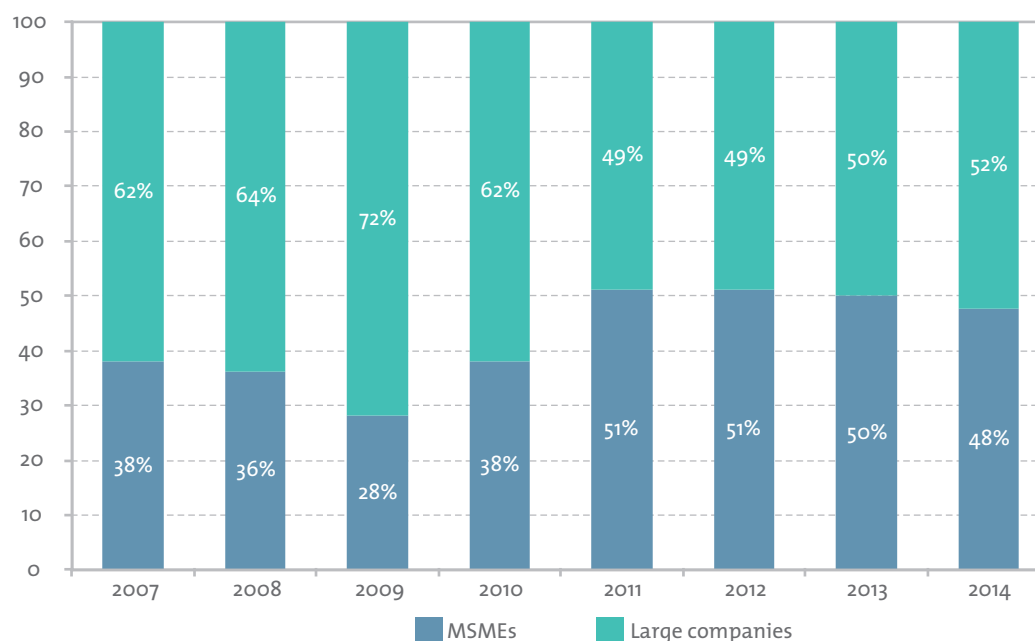
The volume of disbursements earmarked for social and environmental investments increased R\$ 20 billion, from R\$ 26.1 billion in 2010 to R\$ 46.6 billion in 2014. Most of this growth was driven by clean energy, mobility, sanitation and environmentally sustainable projects.

Finally, the resources associated with promoting regional development jumped from R\$ 29 billion in 2010 to R\$ 38.2 billion in 2014, representing an increase of 32%. This indicator considers disbursements earmarked for the North and Northeast regions of the country, as well as disbursements allocated to other municipalities contemplated in the Regional Dynamization Policy (PDR).¹⁴ Among efforts are: the increased reach by issuing the BNDES Card (which reached almost 98% of Brazil's municipalities in 2014) and the Bank's efforts in the surrounding areas of large-scale infrastructure projects.

In sum, it is clear that prioritizing specific sectors and issues had the desired effect as the growth rate in disbursements for strategic priorities was 48%, which is higher than the progress in total disbursements (12%) in the same period.

Further exploring the presented data on resources granted to small-sized companies, an urgent methodological breakthrough is required in order to analyze the composition of disbursements per business size. Therefore, as Brazil's infrastructure sectors and export companies are structurally dominated by large firms, when calculating the share of disbursements for small companies receiving support from the BNDES, it was decided to disregard the following disbursements: (i) infrastructure; (ii) BNDES Exim; and (iii) public bodies.¹⁵

Chart 8: Breakdown of disbursements to industry, cattle-raising and farming, as well as trading and services per company size – 2007-2014 (in %)



Source: BNDES.

¹⁴ PDR's focus on reducing regional and social income inequalities by granting special conditions for operations supporting investments in the municipalities encouraged by the policy or in Brazil's North and Northeast regions.

¹⁵ At this point, the BNDES' size classification per gross operating revenue is used, according to the statistics disclosed by the institution. Analysis of the number of companies receiving support as presented below is based on a different classification.

Chart 8 shows the participation of MSMEs (micro, small and medium-sized enterprises) and large companies in disbursements to industry, cattle-raising and farming, as well as trading and services sectors, where there is a significant presence of small companies.¹⁶ It can be noted that during the first half of the period under analysis, the participation of MSMEs shifted between 28% and 38% and that, during the second half of that period, this indicator went up to approximately 50%. Factors that explain most of this growth is the purchase of machinery and equipment financed by the BNDES Finame and the BNDES Card, a revolving line of credit intended for small companies to acquire equipment and raw materials for production.

4.3 Number of companies receiving support

Another important aspect of the BNDES' performance, concerning its efforts, is the amount of companies receiving support. The data presented in this section makes it possible, from one point of view, to examine the reach of the resources provided by the BNDES. It is important to point out two methodological observations required to correctly understand the analyses in this subsection. The first is the distinction between company and establishment: a company can comprise several local units, i.e., several establishments.

The second refers to the size classification of the company receiving support: the Bank uses annual Gross Operating Revenue (ROB) brackets when granting financial support and submitting operational statistics, but in this Subsection companies are classified according to their staff number. This criterion, adopted by the Organization for Economic Cooperation and Development (OECD) and IBGE, classifies companies with up to nine employees as micro-companies, companies with 10 to 49 employees as small companies, companies with 50 to 249 employees as medium-sized companies, and those with at least 250 employees as large companies. This allows for more appropriate comparisons between companies receiving support from the Bank and the total number of existing companies. This comparison would not be possible if classifications were per ROB, as in Brazil there is no database with sales revenues available for all companies.¹⁷

Chart 9 compares the growth in the number of companies receiving support from the BNDES between 2007 and 2014 with the increasing volume of resources disbursed during that period. Some 277,000 companies received support in 2014, nearly six

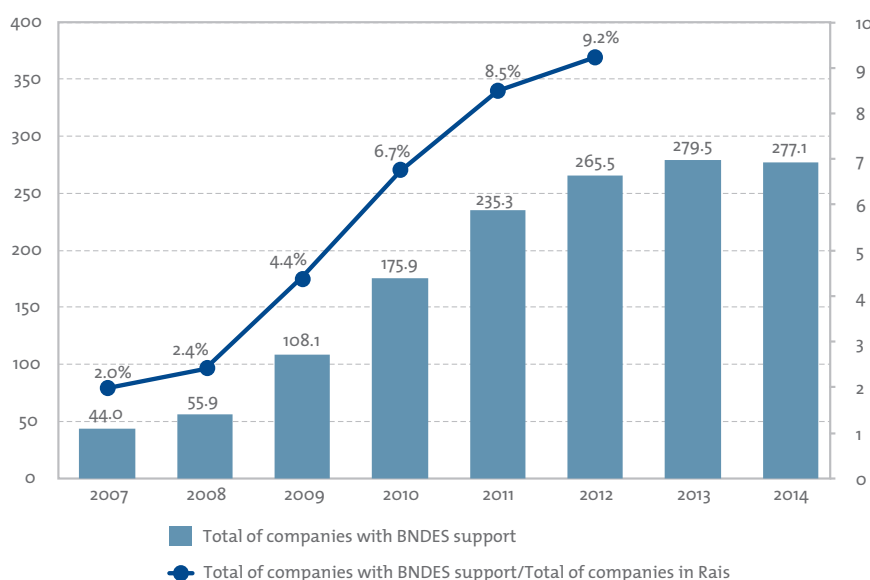
¹⁶ Financing for buses and trucks for cargo and passenger transport service companies, in this report, is considered a service disbursement and is usually included in the BNDES' statistics as infrastructure.

¹⁷ Size classifications per ROB and per number of employees cannot be compared and have positive and negative points related to its application and analysis.

times the number of companies receiving support in 2007, an annual average growth of 33%. As can be seen further on, the main driving factor behind this growth is the performance of the BNDES Card, a product aimed at financing small companies.

To demonstrate that this progress did not represent vegetative growth, the number of companies receiving support was compared to the total number of registered companies in Brazil according to the Annual List of Social Information (Rais) from the Ministry of Labor and Employment (MTE). Progress shown in Chart 9 allows us to see that the number of companies receiving support from the BNDES has increased much faster than the growth of registered companies in Brazil. The BNDES' support went from 2% of all Brazilian companies in 2007 to 9% in 2012, the last year when Rais was available to the Bank. Since estimates for the potential number of companies that could have requested the BNDES to finance their investments depend on some hypotheses concerning data, what is relevant in this indicator is its positive progress: a growing number of Brazilian companies had access to public resources to finance their production activities.¹⁸ Nevertheless, it is important to note the significant number of different companies receiving support between 2007 and 2012, corresponding to 16.8% of those present in Rais available in 2012.

Chart 9: Number of companies receiving support from the BNDES (in thousands), compared with the number of existing companies in Brazil (in %) – 2007-2014



Sources: Rais (MTE) and BNDES.

Note: Each year considered companies that received disbursements from any of the BNDES' financial support instruments. A company may have received support in more than one project during a certain year, therefore, said company is included only once for that year, but can be included in different years. Companies that did not have any registered employees during the year were excluded.

¹⁸ As part of companies stated in Rais either did not make investments during the period or do not meet the requirements to receive resources from the BNDES (not up to date with tax payments, for example), the indicator underestimates the Bank's reach to companies. Therefore, the most important issue is not to judge the percentage of companies receiving support, but to observe the growing curve in the period.

Regarding disbursements, medium-sized and large companies represent most of the BNDES' budget due to the large-scale nature of their investment projects, while, when it comes to numbers of companies, small firms have the largest participation. Classifying the size of companies receiving support based on the number of employees stated in Rais, Table 3 shows that micro-companies have systematically increased their participation in the total of companies receiving support, while small firms saw variations in their participation while maintaining the same level. Therefore, good performance for disbursements to the strategic priority (MSEs) was strengthened by the increasing number of companies of that size in the BNDES' support, reaching up to 90% in 2012. On the other hand, medium-sized and large companies lost participation during the period.

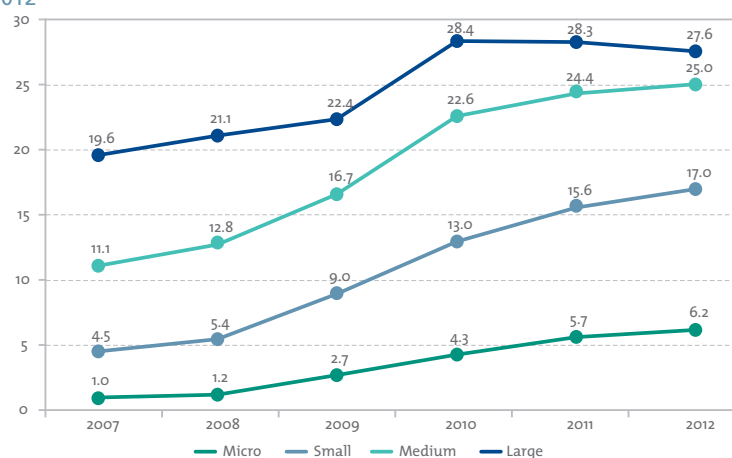
Table 3: Breakdown in the total number of companies receiving support from the BNDES per size (in %) – 2007-2012

SIZE	2007	2008	2009	2010	2011	2012
Micro business	40	41	51	54	57	58
Small	36	37	34	33	32	32
MSEs	76	78	85	87	89	90
Medium	15	15	11	10	8	8
MSMEs	92	93	96	96	97	98
Large	8	7	4	4	3	2
Total	100	100	100	100	100	100

Sources: Rais (MTE) and BNDES.

Chart 10 shows the progress between 2007 and 2012 in comparison indicators on companies receiving support per size against the number of equally sized companies in the country, as well as important information on the focus of the BNDES' support.¹⁹

Chart 10: Comparison between the number of companies receiving support per size according to Rais (in %) – 2007-2012



Sources: Rais (MTE) and BNDES.

Note: Companies that did not have any registered employees during the year were excluded.

¹⁹ As most companies in the country are micro sized (average of 82%), to improve the comparison with Rais, which has some statement inaccuracies for small companies, those with zero employees were excluded from the calculation, both companies receiving support and those from Rais. Therefore, micro-companies are those with one to nine employees; other sizes are not affected.

There are signs that the BNDES has increased its performance to companies of all sizes, as demonstrated by the rising lines. However, the most significant progress was seen in support for smaller companies: participation was multiplied a little more than six times in micro-companies and almost four times in small companies, while participation in medium-sized companies was 2.3 times larger and 1.4 times higher in large firms (all in 2012 when compared to 2007). In 2012, MSEs receiving support corresponded to 8% of Brazil's MSEs.

Once again, the trend is more important than the level: naturally the quantity of MSEs receiving support against the total number of existing firms is lower in comparison with larger companies, but their systematic growth reflects the BNDES' efforts to foster credit access to small companies. Participation of companies of all sizes increased significantly in 2009 and 2010, but the growth rate in the following years cooled down for medium-sized companies along with a visible drop in large firms.

The BNDES, with a few exceptions, directly supports investment projects exceeding R\$ 20 million. The reach of support compared to the number of companies receiving support is made feasible through indirect support, using accredited financial agents. Table 4 provides the degree of access for companies receiving support from BNDES Finame from 2007 to 2012. This analysis compares the progressing number of companies receiving financing from Finame against the number of registered companies in the country.

Table 4: Progress in the number of companies receiving financing from BNDES Finame in the total number of Brazilian firms per sector – 2007-2012 (in %)

SECTOR	2007	2008	2009	2010	2011	2012
Farming	3.3	3.4	3.7	6.4	5.8	7.2
Industry	2.2	2.5	3.1	5.1	4.0	4.5
Trading	0.6	0.7	1.2	1.9	1.5	1.9
Services	1.9	2.3	2.8	4.5	3.7	3.7
Total	1.0	1.2	1.6	2.7	2.2	2.4

Sources: Rais (MTE) and BNDES.

Note: Each year considered the total of companies that received any disbursements from BNDES Finame for each sector. This value was divided by the total of companies from Rais in the respective sector. Companies that did not have any registered employees during the year were excluded.

By initially analyzing the BNDES Finame per sector of company receiving support, it can be noted that the percentage of access to the product in the cattle-raising and farming sector is relatively higher than in other sectors, reaching 7.2% in 2012. In the industrial sector, participation doubled in the 2007-2012 period, going from 2.2% in 2007 to 4.5% in 2012. In trading, the increase is more significant, as the percentage of companies receiving support jumped from a mere 0.6% in 2007 to 1.9% in 2012. For services, the increase in the relative number of companies receiving support was similar to industry, reaching 3.7% of the total companies in the sector in 2012.

Table 5: Progress in the number of capital goods manufacturers receiving support from BNDES Finame in the total number of manufacturers in Brazil – 2007-2012 (in %)

DESCRIPTION	2007	2008	2009	2010	2011	2012
Capital goods industry	5.0	5.1	5.2	6.6	6.2	6.4

Sources: Rais (MTE) and BNDES.

Note: 1. Each year considered the total of accredited manufacturers that traded any piece of equipment through BNDES Finame. This value was divided by the total number of companies in the capital goods sector from Rais. Companies in divisions 25 to 30 from CNAE 2.0 were classified as belonging to the capital goods industry for comparison purposes. These divisions account for most of the activity groups that are able to credit equipment within BNDES Finame. Companies that did not have any registered employees during the year were excluded.

The BNDES Finame only supports the commercialization of domestic capital goods (BK) accredited by the BNDES, which must present a minimum national content of 60% to be accredited. Due to this condition, it is interesting to note the growth in the number of companies from the national capital goods sector that are trading products that received financing from BNDES Finame.

Therefore, it can be seen that the percentage of companies in the BK sector that traded equipment through the BNDES Finame increased during the analyzed period, from 5.0% in 2007 to 6.4% in 2012. The significant increase in BNDES Finame's participation in this sector was seen in 2010, possibly due to the launch of the BNDES PSI in 2009, which reduced BNDES Finame's financing rates to stimulate acquisition of national BK.

Table 6 presents the progress indicator for the BNDES Card's support for companies, per sector in the 2007-2012 period. This financial product, designed exclusively for MSMEs, is mainly responsible for the growing total number of companies receiving support from the BNDES in the period. Considering the total of companies receiving financing via the Card, an increase was seen in the BNDES' participation from 0.8% in 2007 to 7.2% in 2012, which is nine times higher at the end of the period. Expanding access to the Card is the most significant in the participations shown, which demonstrates the potential of the product to increase the BNDES' support for companies, particularly among micro and small companies.

Table 6: Progress in the number of companies receiving financing from BNDES Card in the total number of companies in Brazil per sector– 2007-2012 (in %)

SECTOR	2007	2008	2009	2010	2011	2012
Farming	0.4	0.5	1.1	1.7	2.5	2.7
Industry	1.4	2.0	4.6	6.8	9.1	10.1
Trading	0.8	1.2	3.1	5.0	7.3	8.5
Services	0.8	1.1	2.6	4.0	5.6	6.3
Total	0.8	1.1	2.8	4.4	6.3	7.2

Sources: Rais (MTE) and BNDES.

Note: For each year, we considered the total number of companies that received a disbursement from the BNDES Card for each sector. This value was divided by the total number of companies in Rais in the respective sector. We excluded from Rais companies that had no registered employees during the year.

In short, this section presented and analyzed the BNDES' growth from different perspectives between 2007 and 2014. In the context of growing financing, the Bank grew 12% per year in real terms, against an average growth of 3% in GDP. The BNDES' anti-cyclical efforts were highly praised, resulting in higher growth and participation of the BNDES in GDP and GFCF in 2009 and 2010, when the federal government's credit policies were focused on countering the effects of the global economic crisis. This growth, to a considerable extent, was related to the strategic goals set out by the Strategic Corporate Map for 2010-2014, whose disbursements nominally increased 51%, against 12% growth in total disbursements between 2010 and 2014. The reach of the institution (measured by the number of companies receiving support) – leveraged by the growth in MSEs receiving support from BNDES Finame and BNDES Card – also expanded: estimations indicate that, today, one in ten companies in the country has access to the Bank's resources. As expected, the percentage of micro-companies that accessed the Bank's products (6%) is still below that posted by small (17%), medium-sized (25%) and large (28%) companies, also due to easier access that larger companies have to banking institutions. Finally, this growing reach also boosted access for new capital goods suppliers to BNDES Finame.

5. IMMEDIATE RESULTS FROM INTERVENTIONS RECEIVING SUPPORT

Much like the indicators on disbursements per strategic priorities, the topics selected to help monitor and evaluate results, within the period covered by this report, are directly related to the strategic corporate goals as shown in Table 7 below.

Table 7: Structuring monitoring and evaluation topics using strategic corporate goals

STRATEGIC GOALS	MONITORING AND EVALUATION TOPICS
To expand investments in infrastructure	Energy, Logistics and Urban Infrastructure
To strengthen the competitiveness of Brazilian companies	Contribution to Production Development Structuring Corporate Capacities and Strengthening Capital Structures
To contribute to social and production inclusion To foster innovation, social-environmental sustainability and regional development	Social and Production Inclusion and Sustainability

Source: BNDES.

Data on results from interventions receiving support are organized per monitoring and evaluation topic. "Infrastructure" comprises investments in electric power, logistics and urban development. "Contribution to Production Development" is relatively broad and mainly concerns support for industry, including commercializing

machinery and equipment, which is supported by BNDES Finame and BNDES Exim. “Social and Production Inclusion and Sustainability” depicts the BNDES’ operations in efforts such as granting micro-credit, access to credit for MSEs and projects of an environmental nature. “Structuring Corporate Capacities and Strengthening Capital Structures” aims to present data on the financial support granted mainly through taking on stakes in companies and structuring investment funds.²⁰

Data presented so far on the BNDES’ efforts followed the structure previously used in the Model for Integrating Corporate Results; therefore, Sections 5 and 6 will address information on results from interventions receiving support from the BNDES, which enables analyses concerning the extent to which the institution fulfills its mission, which is to foster economic and social development.

The indicators presented in this section correspond to products and services resulting from interventions as soon as all investment has been made. Taking the example of an industrial project to implement a steel mill, financing is awarded for business expenditures in civil construction and acquiring machinery and equipment which, at the end of the project, will raise the production capacity in tons of such product. Such additional production capacity, in this case, corresponds to the immediate result indicator in accordance with the concept the BNDES has adopted.

With this, product and service indicators enable us to “tangibilize” the BNDES’ efforts stretching beyond disbursements: the resources granted to development interventions are translated, in accordance with the industry and type of support concerned, for instance, into megawatts of electric power, into tons of pulp production, into the number of farming tractors or aircraft sold, into the reforested area of the Atlantic Forest, into the number of investees that held an IPO, etc.²¹

The value of a product and service indicator, in itself, is unable to measure the sheer size of the contribution from interventions receiving support and, therefore, for each indicator for BNDES-supported projects there will also be a comparison indicator in the same unit, referring to Brazil. This procedure does not make it possible to separate the BNDES’ contribution to the achieved outcome, which is a goal covered in most impact evaluations, but it is important to quantify the immediate results. Data should be considered the first institutional endeavor to organize information of such a nature, and, evidently, they do not cover all operations carried out. Data tables are occasionally complemented by boxes containing highlights of performance in the period under review.

²⁰ As this is a cross theme, the support for innovation appears in some of the evaluations presented in Section 6, in topic “Contribution to Production Development” and “Structuring Corporate Capacities and Strengthening Capital Structures”.

²¹ As the BNDES’ operations are quite diversified both in industries and in support modalities, identifying products and services delivered follows different intervention logics which, put simply, are not presented in this Report; therefore, the focus is on presenting indicator values.

5.1 Energy, logistics and urban infrastructure

One of the major challenges Brazil faces is to carry out investments in infrastructure in accordance with the need for long-term economic growth. In this vein, there have been advances in developing regulatory frameworks and financing solutions which fostered increasing investments. As will be illustrated in the data, the BNDES plays an important role in expanding and diversifying national infrastructure aimed at improving economic efficiency and the population's well-being.

5.1.1 ELECTRIC POWER GENERATION AND TRANSMISSION

The BNDES' direct support for projects to generate electric power is made possible mainly through project finance, which consists of a financing model based on the project's expected cash flows, which will serve as a guarantee for the debt. The BNDES is a benchmark in structuring operations of this nature. It should also be highlighted that the BNDES has a credit policy to encourage entrepreneurs to issue infrastructure debentures, thus enabling fundraising in the private market.

Aiming to analyze the BNDES' contribution towards fostering investments, Table 8 below compares the participation of projects receiving financing from the Bank in terms of installed capacity for electric power (megawatts) in relation to the total added to the electric sector, as announced by the regulatory agency (Aneel).

Table 8: Participation of the BNDES' support in electric power generation – 2007- 2014

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2007 * (A)	BRAZIL: INCREASE IN INSTALLED CAPACITY BETWEEN 2007 AND 2014 (B)	BRAZIL: INSTALLED CAPACITY VARIATION (B/A)	BNDES: CAPACITY ADDED FROM SUPPORTED PROJECTS (C)	BNDES' PART. (C/B)
Hydro power plants	Megawatts	71,747	12,348	17%	12,348	100%
Thermal power plants	Megawatts	22,487	17,330	77%	6,811	39%
Wind power plants	Megawatts	142	4,746	3339%	3,011	63%
Small hydro power plants	Megawatts	2,041	3,058	150%	1,892	62%
Total generation	Megawatts	96,417	37,480	39%	24,061	64%

Sources: Aneel and BNDES.

* Amounts informed are for installed capacity at the end of 2006.

Aneel's inspection reports identified the projects that became fully operational between 2007 and 2014 per generation segment.²²

In the hydropower plants segment, the increase in energy generation capacity in the period was 17%, corresponding to 12,300 megawatts, which was fully financed by the BNDES. Thermal plants, which generate power using several types of fuel, such as coal, natural gas, and sugarcane bagasse, showed a rise of 77% in installed capacity with almost 7,000 megawatts from projects supported by the BNDES, corresponding to 39%. The most expressive increase in capacity occurred in the wind plant segments due to the low comparison basis and widespread technology. BNDES-supported projects which began operating in the period totaled 3,000 megawatts or 63% of the total. Similar participation was reached in small hydropower plants (PCHs) with almost 1,900 megawatts.

Generally speaking, the BNDES' participation in increasing the capacity to generate electric power in Brazil is important since required investments are capital-intensive and have long maturity terms. Actually, the BNDES' financing conditions, as well as the support structured through project finance, help implement most investments. It should be emphasized that the BNDES is not the only financier, and sometimes offers co-financing in conjunction with commercial banks operating in the country, multilateral credit institutions, and especially, in the last few years, infrastructure debentures.

That participation in the thermal-power plants segment, which is lower than in others, reflects the higher incentives the Bank's operational policies offer to generate renewable energies, as well as the fact that most thermal projects have imported capital goods, which can be financed using resources from abroad. While the increased capacity of renewable energy in the country in the 2007-2014 period corresponded to 54% of the total megawatts, projects to generate renewable energy that the BNDES supported represented 72% of the megawatts receiving support in the same period.

Finishing the analysis of products and services related to the electric industry, Table 9 shows the data of BNDES' participation in electric power transmission.

Table 9: Participation of the BNDES' support in electric power transmission – 2007-2014

SEGMENT	UNIT	BRAZIL: SIZE OF THE GRID IN 2007 * (A)	BRAZIL: INCREASE IN GRID BETWEEN – 2007 AND 2014 (B)	BRAZIL: GRID VARIATION (B/A)	BNDES: GRID ADDED FROM SUPPORTED PROJECTS (C)	BNDES' PART. (C/B)
Transmission	Km	87,841	37,918	43%	21,356	56%

Sources: National Electric System Operator (ONS), Ministry of Mines and Energy (MME) and BNDES.

* Amounts informed are for installed capacity at the end of 2006.

²² In hydropower plants, turbines are introduced gradually, but the option was to consider the project's full capacity. Projects receiving financial support from the BNDES were identified, as were their capacities to generate energy in megawatts.

In early 2007, the National Interconnected System was approximately 88,000 km long. From that year to 2014, it grew almost 38,000 km in new concessions for transmission lines, as well as boosters, expansions and connections of isolated systems corresponding to 7,000 km.

The transmission projects receiving financing from the BNDES totaled approximately 21,400 km, representing 56% of the increase in that period. The Bank's significant participation is due to the same factors related to generation projects: intensive long-term capital investments, which require appropriate interest rates and amortization periods as well as structuring operations via project finance.²³

5.1.2 LOGISTICS

Continuing with the presentation of data on the BNDES' contribution to infrastructure in terms of immediate results, the logistics sector is analyzed below. This sector is extremely important to the competitiveness in emerging economies, such as Brazil, as it comprises the domestic and international flows of goods and people. The logistical bottlenecks in the country are important factors in the so-called "Brazil Cost", which means inefficiency in transporting goods, with harmful impacts on prices. As in the case of electric power, Brazil has been experiencing increasing investments in logistics, due to the development of regulatory frameworks and enhancement in the support modalities for such investments.

The indicators related to interventions receiving support from the BNDES, which do not exactly comprise all operations carried out in the area, but which expressively represent this support, are presented to the segments operating airports, ports, railroads and highway concessions.

Between 2007 and 2014, investments to expand and modernize airports in Brazil were driven by hosting the FIFA World Cup, and the BNDES played an important role in implementing these projects. The segment is characterized by few private players which operate six concessions, currently accounting for 50% of all air traffic, in addition to the Brazilian Airport Infrastructure Company (Infraero), a State-owned corporation which manages the non-privatized airports.²⁴ The BNDES' support is provided through direct financing lines (BNDES Finem product) and mostly uses the project finance model.

As shown in Table 10, according to Infraero, approximately 111 million passengers passed through Brazilian airports in 2007. From 2007 to 2014, capacity expansion projects were implemented or completed meeting 52% of such demand.²⁵ Of this total, the BNDES financed projects totaling a capacity of 47.5 million passengers (82%).

²³ Implementing generation projects is related to the demand to finance transmission lines, since many of these projects require the construction of lines to connect them. This aspect was reinforced in the period with the arrival of generation projects in isolated areas in Brazil's North and Northeast regions.

²⁴ Participation in air traffic appearing in Infraero (2015).

²⁵ Projects in 13 airports were considered among those awarded to the private sector and those operated by Infraero.

Table 10: Participation of the BNDES' support in airport and ports – 2007-2014

SEGMENT	UNIT	BRAZIL: HANDLING IN 2007 (A)	BRAZIL: INCREASE IN CAPACITY PROVIDED BY ALL PROJECTS – 2007 TO 2014 (B)	BRAZIL: CAPACITY VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Airports: passengers	Millions of passengers	110.6	57.8	52%	47.5	82%
Ports: handling containers *	Thousand TEU	6,500	4,770	73%	3,400	71%

Sources: Infraero, Lafis Consultoria, National Regulatory Agency for Waterway Transport (Antaq) and BNDES.

* TEU (Twenty-foot Equivalent Unit) – container cargo capacity unit.

This significant participation in the investments in airports is due to the fact that the sector requires high long-term investments demanding the right financing conditions. To complement financing, concessionaires usually issue infrastructure debentures.

Concerning the port segment, the BNDES' support is provided through the traditional product BNDES Finem, and project finance is rarely used. According to the National Regulatory Agency for Waterway Transportation (Antaq), there was a demand to handle approximately 6.5 million TEUs in Brazilian ports in 2007. From 2007 to 2014, projects to expand capacity were implemented or completed meeting 73% of such demand. The port investment projects approved by the BNDES in this period totaled a planned capacity of 3.4 million TEUs. The equally high participation in this segment reflects the long-term financing conditions the BNDES offers and the strategic priority assigned to infrastructure in planning.

A country with such sheer dimensions, such as Brazil, requires a well-developed railway network to reduce the number of trips to distribute production to domestic and foreign markets. Accordingly, the BNDES supports investment projects to recover and construct new railroad sections, as well as the associated rolling stock. The indicators in Table 11 show the products and services in the railway segment.

Table 11: Participation of the BNDES' support in railway and highway concessions – 2007-2014

SEGMENT	UNIT	BRAZIL: INFRASTRUCTURE AVAILABLE IN 2007 (A)	BRAZIL: CAPACITY INCREASE – 2007 TO 2014 (B)	BRAZIL: CAPACITY VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Railways: length	Km	28,314	3,486	12%	1,711	49%
Railways: locomotives *	Nº of locomotives	2,332	443	19%	485	109%
Railways: wagons	Nº of railway cars	82,575	26,001	31%	15,039	58%
Highways: concessions	Km	9,888	9,575	97%	8,674	91%

Sources: National Regulatory Agency for Land Transport (ANTT), National Association of Railway Industry (Abifer), National Association of Highway Concessionaires (ABCR) and BNDES.

* The BNDES' part exceeds 100%, since not every locomotive financed in the period become operational in the period.

The railway network existing in 2007 totaled a little more than 28,000 km. Between 2007 and 2014, the projects fully or partially implemented helped add or modernize 12% of that infrastructure. Of these projects, the BNDES financed investments totaling 1,700 km or 49% of the total. The participation level is mainly due to the existence of a huge investment project, expanding the North-South stretch a further 1,400 km. This project is being carried out by Valec, which cannot receive support from the BNDES, since it is a federally-owned company.

Regarding the rolling stock, the BNDES' participation is also important; some 443 locomotives were manufactured for use in the country between 2007 and 2014, representing a 19% increase in the number of locomotives in 2007. Following the same comparison, the increase in the number of wagons was 31%. Considering the direct projects the BNDES approved between 2007 and 2014, there were 485 locomotives and approximately 15,000 wagons that received support. The participation rates of 109% and 58%, respectively, should be considered with caution. The result above 100% is due to the mismatch between the data on locomotives provided by projects receiving support (Column C) which are not yet reflected in production (Column B). Analyzing the participation in railway wagons, in turn, should take into consideration the fact that the BNDES only finances national rolling stock, and that there are other financing sources for these types of goods in Brazil.

The BNDES also supports highway concessionaires participating in segment auctions aiming to invest in existing infrastructure and improve associated services rendered. By 2007, approximately 10,000 km of highways had been awarded to the private sector in the country, an amount which almost doubled in the 2007-2014 period. The BNDES supported projects that, among other associated investments, include duplicating and modernizing 8,700 km of highways, equivalent to 91% of the total awarded. This is a long-term investment (20 to 25 years maturity) in which the availability of credit under feasible conditions is rare in the market.

5.1.3 URBAN INFRASTRUCTURE

The three main sectors considered in urban development are housing, urban mobility and basic sanitation. Public investment to implement, modernize and expand and even provide subsidies to operate a part of these services is necessary due to the socioeconomic profile of the population directly favored and the positive externalities generated.

Within this context, and due to high investments required and the long maturity period, financing agents play an important role in implementing public policies in these sectors, not only in leveraging private resources – by supporting public-private partnerships and concessions – but also in financing states and municipalities, which,

in turn, also use their own resources and the general federal budget. The most important players in financing urban development are multilateral bodies – such as the International Bank for Reconstruction and Development (IBRD) and the Inter-American Development Bank (IDB) – and the national public banks – such as the BNDES and the Caixa Econômica Federal (Caixa). Among the public banks, the Caixa is the main financier of the housing sector and shares the leadership with the BNDES in the sanitation sector. The BNDES leads financing for urban mobility – although, in the last few years, the Caixa has intensified its activities, more specifically in mobility projects carried out in host cities for the 2014 World Cup. Therefore, the indicators of BNDES' support for Urban Infrastructure, described in this section, will address the mobility and sanitation sectors.²⁶

In public policies for urban mobility, designing transport systems, as well as selecting the most appropriate means to meet the users' needs, should take several aspects into consideration. Urban mobility based on individual motorized transport is not very efficient regarding the use of space, energy and cost, besides relying on a polluting energy matrix. Saturation of the roadway system, caused by excessive individual transport, implies an increase in travel time, with repercussions for public transport by bus.

Public transport is more efficient in all the above aspects – the use of space, energy and cost, and volume of carbon emissions. Specifically, transport systems that stand out in generating positive externalities are: bus lanes (mainly those following the BRT (Rapid Bus Transit) concept, with platform-level quick boarding stations, possibility of overtaking, a monitoring system, control and information for users, etc.), and railway systems. The latter generate more positive externalities because they are less pollutant and have higher transport capacity, reliability, safety and better user information.

For these reasons, the BNDES' priority has been historically positioned in favor of public transport, especially medium and high capacity modes. The BNDES plays an important role in defining sectorial policies by participating in almost all the major subway-railway projects in the country.

The BNDES not only finances the acquisition of rolling stock – including support to strengthen the national industry by stimulating better management and technological innovation –, but also projects to implement and expand structuring transport systems – by supporting projects designed to improve accessibility, raise the standards of quality, comfort, reliability, management and monitoring transport systems, prioritizing the use of renewable fuels and clean energy. In its operational

²⁶ The analysis of the BNDES' role carried out in this section is based on the publication BNDES 60 years: sectorial perspectives, specifically in the articles on urban mobility by Herdy et al. (2012) and on sanitation by Albuquerque & Ferreira (2012).

policy, the bank seeks to favor and stimulate good practices by differentiating supporting conditions for the projects.

Tables 12 and 13 reveal the BNDES' importance in financing subway-railway transport for passengers. Of the existing railway fleet for urban transport of passengers in 2014, some 53% received financing from the BNDES for purchases or modernization in the 2007-2014 period. Concerning the reach of the network, ongoing projects in the country in the same period saw a 242-kilometer increase, of which 63% was (or is) receiving support from the BNDES.

Table 12: Participation of the BNDES' support in trains for urban railway transport – 2007-2014

SEGMENT	UNIT	BRAZIL: FLEET IN 2014 (A)	BNDES: TRAINS RECEIVING SUPPORT BETWEEN 2007 AND 2014** (B)	BNDES' PART. (B/A)
Urban railway transport for passengers: trains*	Units	771	408	53%

Sources: National Association of Passenger Railway Transport (ANPTrilhos) and BNDES.

* Includes subway, train, VLTs and monorails.

** BNDES' support for new or modernized trains

Table 13: Participation of the BNDES' support to expand urban railway transport – 2007-2014

SEGMENT	UNIT	BRAZIL: NETWORK IN 2007 (A)	BRAZIL: ONGOING PROJECTS (B)	BRAZIL: NETWORK VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Urban railway transport for passengers: expansion*	Km	878	241.6	28%	152	63%

Sources: Rio de Janeiro Subway Company (Metrô Rio), Rio Trilhos, Supervia, SP Metropolitan Subway Company, Paulista Metropolitan Train Company (CPTM), ANP Trilhos, Anuário Exame de infraestrutura and BNDES.

* Includes subway, trains, VLTs and monorails.

URBAN MOBILITY PROJECTS SUPPORTED

The following are among the projects receiving support: Metrô-SP (acquiring trains, expanding Line 2, expanding Line 5, implementing Line 6, as well as Line 15 in the monorail system); CPTM-SP (acquiring trains and modernizing Line 8 stations); Metrô-RJ (operational modernization, acquiring new wagons and implementing Line 4); Supervia-RJ trains (operational modernization and acquiring new wagons); implementing the VLT system in Rio de Janeiro; Metrô-DF (acquiring subway trains and automating systems); and implementing the subway's east line and modernizing the metropolitan train in Fortaleza. In addition to these railway transport projects, the BNDES also provided support to: implement bus lanes in the BRT system in Rio de Janeiro; restructure the roadway system in the Belém Metropolitan Region; and expand the integrated transport system in the Greater Vitória Metropolitan Region.

In relation to public policies for basic sanitation, Federal Act N°. 11,445/2007, known as the sector's regulatory framework, sets forth that rendering public

sanitation services should include the water supply, sanitary sewage, urban cleaning and also handling solid waste.²⁷ Sanitation in Brazil is far from being satisfactory, especially concerning services related to collecting and treating sewage, which has been causing serious problems to the quality of water in many of Brazil's regions. Despite some progress, public policies in this sector have not yet been able to provide universal access to solutions and public services with satisfactory basic sanitation.

It is important to emphasize that the existing deficit in universalizing sanitation services in Brazil is only part of the challenge in the sector. That is because the country should also move forward in several other aspects, such as: quality services rendered (for instance, oscillating water supplies); providers' operational performance (the water loss rate is extremely high in Brazil); regulating services; planning services as well as providers' management and governance capacities, mainly public providers.

Generally speaking, sanitation in Brazil managed to overcome a series of historical institutional obstacles as of 2003, with the creation of the Ministry of Cities and, within its structure, the National Environmental Sanitation Office, whose main goal is to promote progress as soon as possible towards universalizing sanitation services. Progress was intensified in 2007, with the regulatory framework in the sector and more importance placed on planning.

In addition to institutional aspects, there is the availability of a higher volume of resources for investments, also as of 2007, with the advent of the Growth Acceleration Program (PAC). The Program not only helped loosen conditions tied to financing, but also set out resources in the General Federal Budget (OGU), and provided resources to support projects sponsored by the private sector and counter-investments from financed entities. The challenge became to implement well-developed projects so that the invested volume could increase as planned.

Within this context, the BNDES' efforts in sanitation, which were still timid at the beginning of the 2000s – due to a degree of restrictions from the public sector and the modest participation of the private sector in investments – started to intensify in 2007. Table 14 shows that, of the 49,940 liters-per-second increase in the installed capacity of sewage treatment in the country, some 28,877 liters per second (58%) were due to projects receiving support from the BNDES. Furthermore, in addition to direct financing for projects to invest in the sector, the BNDES' improved relationship with Brazilian states and State Companies for Basic Sanitation (CESBs) in the last few years has made it possible for new projects to be jointly structured through the Bank's expertise in operations implemented in the infrastructure sector.

²⁷ However, this subsection is restricted to analyzing the BNDES' participation in financing water and sanitary sewage services. Support to treat solid waste will be addressed in subsection "Social and Production Inclusion and Sustainability".

Table 14: Participation of the BNDES' Support in Sanitation between 2007 and 2014

SEGMENT	UNIT	BRAZIL: CAPACITY INSTALLED IN 2007* (A)	BRAZIL: INCREASE IN CAPACITY INSTALLED BETWEEN 2007 AND 2014 (B)	BRAZIL: CAPACITY VARIATION (B/A)	BNDES: CAPACITY ADDED FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Sewage treatment	Liters/second	71,186	49,940	70%	28,877	58%

Sources: National Sanitation Information System (Snis) and BNDES.

* Position related to late 2006.

Despite progress, the simple availability of resources was not enough to ensure that investments would be made as planned. The operational inefficiency in the sector still hinders more significant progress in providing and universalizing services. Some of these obstacles include the technical incapacity which prevents cities from fulfilling their obligations regarding the regulatory framework, in addition to the lack of financial conditions to afford the guaranties required in operations; as well as CESBs' management problems which prevent increases in investments and companies' good operational performance. Given this situation, which involves critical problems in public sanitation service providers (CESBs and cities), there is no doubt that the private sector should be a fundamental part for the solution to the problems by working mainly as a partner with the public sector, in order to overcome existing barriers more swiftly.

In this scenario, the BNDES' contribution to the sanitation sector goes beyond its operations as a financial institution in projects to expand and modernize the water supply and sanitary sewage systems. The Bank encourages service providers to improve their management and corporate governance, and it has offered to assist them in structuring projects aiming to solve the significant shortfalls in the sanitation sector in the country.

5.2 Contribution to Production Development

The topic "Contribution to Production Development" comprises different forms of BNDES' support and several industrial segments in Brazil's economy. The importance of the industry in the country's economy should not be measured solely by its participation in GDP. By consuming goods and services required for the production process, the industry boosts many other sectors. Additionally, technical progress in the industry is transmitted to sectors purchasing industrial goods. For example: the service sector benefits from the production of better computers. This chaining capacity – backwards and forwards in the production chain – makes the industry a core sector in the economy's dynamics. Furthermore, industry has a strong influence on the Balance of Payments. A competitive industry generates income through exports and makes the country less dependent on imports.

The BNDES' efforts to support industry attempt to overcome three major challenges: expanding production capacity, increasing exports and raising innovation

capacity. These goals were aligned with industrial policies in the period, the Production Development Policy from 2008 to 2010 and the Brazil Maior Plan from 2011 to 2014.

In addition to industry, the topic “Contribution to Production Development” also includes data from certain segments in the service sector that receive support from the BNDES, such as telecommunications, the culture economy, logistics hubs and shopping malls.

5.2.1 PHARMACEUTICAL INDUSTRY

The pharmaceutical industry in Brazil follows the worldwide structure: that is, it is oligopolized, focused on technological innovation and highly regulated, with the presence of multinational corporations larger than national companies.

The 2000s was a period in which the sector changed, as of the Generic Drugs Law enacted in 1999. Additionally, social mobility and epidemiological and demographical transitions contributed to a booming demand for health products and services. To make it possible to develop medicine at a local level, the country had to modernize its industrial park, bearing in mind the new standards of Good Manufacturing Practices issued by National Health Surveillance Agency (Anvisa).

The BNDES was an important partner for national companies, contributing to making it possible to invest in expanding and adjusting Brazil’s industrial park to a higher scale and better quality.²⁸ Locally-produced generic medicine made it possible to have a lower final price, thus helping increase competitiveness and expand access for Brazilian people to medicine. This also made it possible to develop medicine in Brazil by fostering Research and Development (R&D) in the country.

Table 15 shows an estimate of the number of new medicine launched in Brazil from 2007 to 2014: some 3,338. Within the same period, the BNDES approved projects to launch 501 types of medicine. This number indicates that, of all medicine released in Brazil, approximately 15% was developed in Brazil with the BNDES’ support.

Table 15: Participation of the BNDES’ support in the pharmaceutical industry – 2007-2014

SEGMENT	UNIT	BRAZIL: NEW MEDICINE LAUNCHED BETWEEN 2007 AND 2014 (A)	BNDES: MEDICINE IN PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (B)	BNDES’ PART. (B/A)
New medicine launched *	Units	3,338	501	15%

Sources: National Health Surveillance Agency (Anvisa) and BNDES.

Note: The launch data for 2013 and 2014 are estimates based on the average growth of previous years.

* For categories Incremental Innovation, Generic and Biological.

In the event the number of medicine launched by national companies were used for comparison, the BNDES’ participation would probably be higher, since multinational corporations develop their products abroad and they are also launched in Brazil. It is

²⁸This was one of the major achievements of the BNDES’ first version of Profarma, launched in 2004. For more details, see Pieroni, Machado e Oliveira (2011).

important to note that the BNDES' support made it possible for national medicine to compete with these products, frequently of higher value added.

The first stage of this process was to make it possible to locally develop and produce generic medicine, which is highly consolidated these days. This is the first level in the learning curve for Brazil's industry. These days, the challenges in this industry are mainly related not only to deepening the innovation strategy – with the development of incremental innovations that present therapeutic gains –, but also to catching up in modern biotechnology, which is a technological frontier in the sector.

5.2.2 AUTOMOTIVE INDUSTRY

The automotive industry comprises a few multinational corporations and competition is present in the differentiation of products. Vehicles are designed in the companies' research centers, and production is carried out in automakers around the world, which usually supply not only the market where they are installed, but also foreign markets.

In Brazil, the automotive sector is representative: it has a 5% share in GDP and generates many direct and indirect jobs. The sector has an important chaining effect, as it is estimated that one Brazilian real invested in production capacity generates more than one Brazilian real in purchases in the sector, per year.²⁹

The BNDES' financing for projects to expand the automotive production capacity makes it possible to earmark investments for Brazilian production by favoring exports, decreasing imports and stimulating their suppliers, in addition to fostering a rise in the industry's employment. This participation was important when foreign credit was absent, mainly in 2009 and 2010, and made it possible to promote a new cycle of capacity expansion in Brazil, based on the good perspectives for the sector and the slump in the production capacity at that time. Such a significant effort by the BNDES can be seen in Table 16.

Table 16: Participation of the BNDES' support in the automotive industry– 2007-2014

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2007 (A)	BRAZIL: INCREASE IN INSTALLED CAPACITY BETWEEN 2007 AND 2014 (B)	BRAZIL: CAPACITY VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Production of cars, buses and trucks	Thousand units	3,500	1,300	37%	727	56%
Production of tires*	Thousand units	65,882	16,107	24%	11,690	73%

Sources: National Association of Automotive Vehicle Manufacturers (Anfavea); Tendências Consultancy; National Tire Industry Association (Anip); Getulio Vargas Foundation and BNDES.

* Installed tire capacity estimated based on production and the use of the industry's installed capacity, with seasonal adjustment in December each year.

²⁹ The BNDES' estimate according to the average cost to implement one plant per produced vehicle and average participation related to purchases of parts and components at the average sale price of said vehicle.

The installed capacity in Brazil, in 2007, was 3.5 million cars, buses and trucks and almost 66 million tires. In 2014, this increased 1.3 million units (for cars, buses and trucks) and a little more than 16 million for tires. Within this period, the BNDES approved projects aimed at expanding these capacities by more than half of the total added capacity – 56% of the added total for the annual production of cars, buses and trucks, and 73% of the added total for the annual production of tires.

Another factor guiding the BNDES' operations is the effort to attract companies' research centers to develop automobile models in Brazil.³⁰ In general, the model developed in Brazil is also produced here, thus opening up an opportunity to supply locally-manufactured parts and components. Table 17 shows the models with engineering partially or totally financed by the BNDES among the 100 best-selling vehicles in Brazil.

Table 17: Participation of the BNDES' support in automotive engineering – 2008-2014

INDICATOR	2008	2009	2010	2011	2012	2013	2014
Number of models with engineering financed by the BNDES among the 100 best-selling models	1	7	10	17	25	23	24

Sources: National Association of Automotive Vehicle Distributors (Fenabrave) and BNDES.

Note: Calculation based on Fenabrave's License Plate Information Bulletins available on 4.22.2015, for classification of the fifty best-selling automobiles and fifty best-selling light commercial vehicles in Brazil.

As can be seen, the number of models with engineering financed by the BNDES increased significantly up to 2012, and since then, has maintained the same level. In 2014, of the 100 best-selling vehicles in the country, some 24 had some support from the BNDES in the period under review.³¹ Developing automotive engineering designs in Brazil opens up space for job training in the industry. The more qualified Brazilian engineers are, the more qualified the subsidiary will be to take on projects of higher complexity. Therefore, financing favors the shift of R&D activities from parent companies to Brazil, thus stimulating Brazilian innovation.

5.2.3 CULTURE

The culture sector is fragmented, with several small organizations or companies, and is largely based on intangible assets. It is important for Brazilian society because, besides employing a significant and diversified amount of labor, many times it works with symbols that are important to national culture (such as historical heritage) or it has high value added (such as the animation segment, as detailed in the box "Creative Industries").

³⁰ The BNDES' support for projects of this nature is through the BNDES' Engineering Support Program (Proengenharia).

³¹ Some of the projects supported in 2014 will be launched in 2015.

CREATIVE INDUSTRIES

Creative industries are quickly becoming an industry that is generating income and qualified employment for economies. With 25% of the audiovisual market, global invoicing of US\$ 222 billion in 2013 and above two-digit growth in the last few years, animation is an important window of opportunity for Brazil. Therefore, the BNDES Program to Develop Culture Economics (BNDES Procult) favors the development of assets that generate intellectual property rights involving the creation of new characters, brands or formats to potentially generate income, such as those derived from licensing. Through this program, the BNDES worked as a pioneer in implementing the production of the first national animation series in a commercial format for broadcast on Brazilian TV channels and abroad. These include: "Peixonauta" (TV Pinguim), broadcast in more than eighty countries, including the United States; "Meu Amigãozinho" (2D Lab), third place in the Latin America Discovery Kids' programming; "Escola pra Cachorro" (Mixer), which increased the audience for the Nickelodeon Argentina channel by 138%; and "Show da Luna" (TV Pinguim), a hit on the Discovery Kids Brazil channel with worldwide premiere in August, 2014, in the United States on the Sprout Channel.

Due to the sector's complex facets, the BNDES offers the cultural segments a diversified set of support instruments, such as financing with different conditions, but also non-reimbursable resources. Table 18 shows some of these sectors.

The BNDES' perception is that sponsorship is not enough for the culture sector; such sectors have economic potential, thus contributing to developing and sustaining their own production segments, with positive impacts on innovation and differentiation in other sectors' products and services. Thus, the BNDES seeks to stimulate and contribute to developing creative companies and creative agents by expanding and making the market more efficient, especially that with cultural goods and services that are economically sustainable and present social gains.

Table 18: Participation of the BNDES' support in the film industry – 2007-2014

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2007 (A)	BRAZIL: EVOLUTION 2007 TO 2014 (B)	BRAZIL: INSTALLED CAPACITY VARIATION (B/A)	BNDES: N° ADDED FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Films released	Units	n/a	741	n/a	153	21%
Movie theaters	Units	2,160	670	31%	323	48%

Sources: National Film Agency (Ancine) and BNDES.

n/a.: not applicable.

The lack of statistics is a difficulty highlighted by the public sector, companies and institutions working in the cultural sector, limiting the diagnosis and assessment of interventions. Based on the available indicators, the BNDES monitors the results, mainly in the film production segment and historical heritage, although its activity is more comprehensive and involves, among others, TV content as well as editorial and digital game sectors.

The BNDES has provided support for film production since 1995.³² Table 18 shows the number of national films released in Brazil from 2007 to 2014: some 741. Of this total, the BNDES supported 153, which is 21% of the total. The Bank is the second largest supporter of national films and such participation is quite important, considering that there are several sources of resources to support the segment.

However, this important role the BNDES plays is not only in film production. Despite a reasonable number of movie theaters in major urban centers throughout the country, the number of theaters is still insufficient for Brazil's population and size. With this, other financial support from the BNDES to the sector is provided by financing exhibiting facilities. In 2007, there were 2,160 film theaters, and a further 670 theaters were opened up in 2014. The BNDES' focus on this segment, in partnership with Ancine, is to build movie theaters in cities and urban zones considered a priority within "A Movie Theater near You" Program (Cinema Perto de Você). Throughout the period, the Bank approved projects to deliver 323 movie theaters, almost half of the added total. Another investment receiving support from the BNDES in this segment is the modernization of exhibiting facilities, emphasizing support to digitalize movie theaters.

Table 19 shows another segment in which the Bank is active: restoration / preservation of Brazil's cultural heritage. According to the National Institute of Historical and Artistic Heritage (Iphan), in 2014, there was a total of 1,113 protected historical landmarks. Due to the characteristics of this segment, as well as the scope of impacts and the difficulty in making the activity financially profitable, the BNDES' support is provided through non-reimbursable funds.

Table 19: Participation of the BNDES' support in historical and artistic heritage 2007-2014

SEGMENT	UNIT	BRAZIL: INVENTORY IN 2014 (A)	BNDES: PROTECTED HISTORICAL PROPERTIES SUPPORTED BETWEEN 2007 AND 2014 (B)	BNDES' PART. (B/A)
Historical and artistic heritage	Number of protected historical goods *	1,113	101	9%

Sources: National Institute of Historical and Artistic Heritage (Iphan) / Ministry of Culture and BNDES.

* Protected historical goods and landmarks refer to the inventory of monuments, urban and landscape sets, collections and art objects protected and registered by Iphan in 2014, its latest available survey. This is an indicator with little time variation.

From 2007 to 2014, the BNDES provided support to 101 registered and protected monuments, which corresponds to approximately 9% of the total of protected landmarks, making the BNDES one of the main supporters of the country's historical heritage. As of 2010, the support policy for cultural heritage started prioritizing

³² The implementation of projects of such a nature occurs through the BNDES' Program for Development of Cultural Economics (BNDES Procult) and through cinema invitations to bid selecting national feature films in several categories.

larger projects where heritage may work as a development anchor, i.e., more important projects for regional development, capable of boosting, for example, the number of visitors.

Following this guideline, the Bank seeks to associate preserving heritage with local development, so that historical monuments will be seen as important cultural assets. To assure permanent revitalization, the BNDES seeks to restore their social purpose and reintegrate such monuments with daily municipal life.

5.2.4 BIOFUELS

Sugarcane-based energy is capital-intensive, and the market structure is still fragmented, despite its recent tendency to become more concentrated. As of 2000, the sector showed a strong expansion in investments due to certain factors, such as the surge in dual-fuel engine technology (flex) and the introduction of the current regulatory framework in Brazil's electric sector.

While supporting the sector, the BNDES' strategy relies mainly on: environmental bioenergy advantages from sugarcane, the strategic nature of the fuel market, the capacity to boost internal economic development, and innovations in industrial biotechnology, which have a disruptive and across-the-board nature, and are able to boost other economic sectors.

Table 20 shows the installed capacity of sugarcane milling in millions of tons per crop in the 2007-2014 period, in Brazil. In that period, some 244 million tons were added, representing an increase of 46%. Of this total, the BNDES approved projects expecting an additional 139 million tons, i.e., some 57% of the total milling capacity added in the period.

Table 20: Participation of the BNDES' support in biofuels – 2007-2014

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2007 (A)	BRAZIL: VARIATION BETWEEN 2007 AND 2014 (B)	BRAZIL: INSTALLED CAPACITY VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Sugarcane milling capacity*	Million tons	529	244	46%	139	57%
Energy generation by biomass	Megawatts	n/a	7,825	n/a	2,805	36%

Sources: Unified Sugarcane Industry (Unica), Energy Cogeneration Industry Association (Cogen) and BNDES.

* Data from between 2007 and 2013. The installed sugarcane milling capacity was estimated from effective grinding (Unica) applying the 2013 rate of idleness.

n/a: Not applicable.

For these reasons, the Bank was one of the main supporters in the sector over the last ten years. The sector's projects have credit from different financing sources,

and the BNDES frequently appears as the main financing source complemented by other market sources.

The second indicator in Table 20 consists of energy generated by biomass. Sugarcane mills generate electric power from sugarcane bagasse and do not require an external source to make their production feasible – this is so-called energy cogeneration. Certain plants are able to generate energy surplus for sale in the national power grid, thus contributing to diversifying Brazil's energy matrix.

According to Table 20, some 7,825 megawatts of energy were generated from biomass in Brazil between 2007 and 2014. Within the same period, expectation for cogeneration in projects the BNDES approved corresponded to 2,805 megawatts, or 36% of the total generated by biomass in Brazil. Considering solely the portion from sugarcane, the Bank's participation alone would be higher.³³

SECOND-GENERATION ETHANOL

The BNDES' agenda for the sugarcane energy industry is based on the need to stimulate increases in sector competitiveness and sustainability. Therefore, the BNDES' recent endeavors attempted to maintain Brazil's sugarcane energy sector ahead of worldwide innovation and sustainable biofuel production. In the innovation field, a successful example is the Bank's support to research, develop and produce second generation biofuels (cellulosic) and renewable chemicals (biobased chemicals). Currently, the BNDES is financing the construction of Brazil's first three plants for second-generation ethanol, which will have a joint capacity of 185 million liters per year.

5.2.5 TRADE AND SERVICES

The service sector is highly fragmented and comprises large segments of economic activities, such as trade, transport, health and education. In the last decade, the tertiary sector was consolidated as the main economic sector for high and medium income economies. As a labor-intensive sector, it is often the main engine driving job generation in these countries.

In Brazil, the sector's participation in GDP reached 69% in 2013, with over 70% of registered employees, according to Rais' data. In the last few years, it has gone through an intensive modernization process, and the BNDES offers support instruments to many segments within the sector.³⁴

Today, the shopping mall segment plays an important role in the retail market in Brazil, which stretches well beyond the sale of goods or services. It saves space and scope and increases productivity. It is a key job generator, not only in commerce, but in support activities as well (such as administrative activities, security and cleaning). It is able to recover degraded areas and provide leisure infrastructure for populations in urban centers by anchoring several services, such as movie theaters and food courts.

³³ It is worth mentioning that there are difficulties to launch such energy on the grid. Economic and/or institutional factors may make producers avoid investing in cogeneration for surplus energy. Among the factors which adversely affect the economic feasibility of investments is the difficulty in connecting the plant to the distribution network. For instance, in many cases, the distance to connect to the network substantially increases required investments, thus reducing the profitability of intended business.

³⁴ Eligible items in the BNDES' policies for trade and service segments are the same for industrial segments, such as civil works, assembling facilities and equipment, but acquiring real estate is excluded.

As shown in Table 21, in 2007, shopping centers take up some eight million m² in Brazil, and the number increased up to 2013 by almost 70% (about 5.6 million m²). Within this period, the BNDES approved projects that included a further 1.2 million m², i.e., approximately 22% of the added total.

Table 21: Participation of the BNDES' support in shopping malls and logistics hubs – 2007-2014

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2007 (A)	BRAZIL: INCREASE OF INSTALLED CAPACITY BETWEEN 2007 AND 2014 (B)	BRAZIL: CAPACITY VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
<i>Shopping malls (gross leasable area)</i>	m ²	8,253,000	5,593,000	68%	1,242,898	22%
<i>Logistics hubs (gross leasable area)*</i>	m ²	5,117,000	4,482,000	88%	743,325	17%

Sources: Brazilian Shopping Mall Association (Abrasca), Colliers International and BNDES.

* Data from between 2011 and 2014.

Another segment shown in the Table is the logistics hub segment. These logistics hubs are areas for cargo handling and support facilities required to boost the growing volumes transported around the country and to help decrease the Brazil Cost because they are important links to optimize truck traffic on roads, and to provide support for port activities to ship to foreign markets.

In 2011, there were over five million m² installed in Brazil, which almost doubled by 2014, with over 4.5 million m². Within this period, the Bank approved projects to deliver almost 750,000 m², or 17% of the value added in the period.

Encouraged by rising consumerism in the last few years, these segments experienced a huge cycle of investments. The BNDES, as well as commercial banks, helped the expansion in the period. The financial market is also a source of resources available to the companies in the sector, which justifies the BNDES' participation level.

5.2.6 INFORMATION TECHNOLOGY AND COMMUNICATION (ITC)

The telecommunication sector is oligopolistic, with few companies making large-scale investments in fixed assets and innovation. In an attempt to accelerate expansion and stimulate the production of machinery and equipment, the BNDES provides support for three-year investment plans put forward by the main telecommunication operators in Brazil.

One of the investments required to develop the sector is to implement Radio Base Stations (ERB), which are a set of network devices through which mobile terminals may be registered and communicate with each other, located in communication towers for cell phones. The higher the number of Radio Base Stations, the farther the reach of the telecommunication network.

Table 22 shows that, in 2008, there were approximately 43,000 ERBs installed in Brazil. There was an increase of 80% up to 2014, approximately 34,000 ERB units expanded in the network, mainly due to new 3G and 4G technologies. The BNDES participated significantly in the expansion, approving, in the period concerned, projects that aimed at installing almost 17,000 units, or 49% of the added total.

Table 22: Participation of the BNDES' support in telecommunications – 2008-2014

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2008 (A)	BRAZIL: INCREASE OF INSTALLED CAPACITY BETWEEN 2008 AND 2014 (B)	BRAZIL: CAPACITY VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2008 AND 2014 (C)	BNDES' PART. (C/B)
Radio base stations	Units	42,672	34,150	80%	16,674	49%

Sources: TELECO and BNDES.

Note: BNDES data refer to 3G and 4G Technologies only.

MICRO-ELECTRONICS

Micro-electronics concentrates all the main features and values of electronic devices, and is increasingly present in collecting, processing, storing and transmitting data. The BNDES played a leading role in the initial construction of the micro-electronics ecosystem, having structured, financed and held a stake in the capital of Unitec Brasil, the main private investment in the sector in the country, with potential to change the profile of Brazil's electronic sector. Between 2007 and 2014, most production investments made in the sector had the Bank's support, such as Ceitec – publicly-owned company which designs and manufactures chips –; HT Micron and Smart – memory encapsulation –, among others, in an approximate total of R\$ 647 million in support for chip manufacture projects. Additionally, some 13 integrated circuit projects received support, with eight different design houses, totaling R\$ 167 million in non-reimbursable funds.

5.2.7 PETROCHEMICAL INDUSTRY

Brazil's chemical industry plays an important role in the country's industrial sector, with the fourth largest participation in GDP for the transformation industry in 2014, that is about 9.7%, outranked only by: (i) food and beverage; (ii) coke, oil byproducts and biofuels; and (iii) motor vehicles, trailers and bodies.

In 2014, the global chemical industry's annual sales were estimated at US\$ 5.2 trillion. In Brazil, the sector's sales totaled US\$ 156 billion in the same period, which makes this industry the sixth largest market in the world.

However, the chemical industry has shown increasing commercial deficits. Between 2000 and 2006, the commercial balance for the chemical sector in Brazil remained relatively stable, with an annual deficit between US\$ 6 billion and US\$ 9 billion. Since 2007, the trade deficit has gone up substantially, reaching US\$ 32 billion in 2014.³⁵

Particularly the petrochemical sector, which manufactures chemicals derived from oil or other fossil fuels, such as coal or natural gas, represents an important

³⁵ Abiquim (2015).

segment within the chemical sector in Brazil. This group of products comprises the so-called first generation petrochemicals – olefins (such as ethene and propene) and aromatics (such as benzene, toluene and xilene), and those of second generation, such as plastic resins (PP, PE, PET and PVC), surfactants and synthetic fibers etc.

In the last decade, the Bank participated in the largest investments made in the sector, including the construction of not only the Rio de Janeiro gas-chemical pole, but also new units and expansions in polypropylene (PP) and vinyl polychloride (PVC), in addition to the synthetic fiber unit being implemented in Suape (PE). The BNDES was also present in restructuring and consolidating the petrochemical industry, which resulted in the rise of Braskem, a partnership between Odebrecht and Petrobras.

The petrochemical segment's product and service indicator is displayed in Table 23 below. In 2007, the installed capacity in the country was 18.5 million tons/year, which increased 13%, by 2013. The BNDES provided support to projects which added approximately 3.8 million tons/year of capacity, i.e., 21% of the initial capacity. In this case, we chose to compare the capacity to be added by projects receiving support with the sector's capacity in 2007. As implementing projects is time consuming, most of the approved projects in the period (Column C) have not yet increased capacity (Column B).

Table 23: BNDES' support in the petrochemical industry – 2007-2013

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2007 (A)	BRAZIL: CAPACITY INCREASE BETWEEN 2007 AND 2013 (B)	BRAZIL: CAPACITY VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2013 (C)	RATIO BETWEEN CAPACITY ADDED BY BNDES AND CAPACITY IN 2007 (C/A)
Petrochemistry	Thousand tons/year	18,470	2,470	13%	3,789	21%

Sources: Brazilian Chemical Industry Association (Abiquim) and BNDES.

GREEN CHEMISTRY

The new technology to convert waste that is directly or indirectly generated while producing within farming activities has been applied to produce high value added products, such as chemical inputs for cosmetic segments, packaging, hygiene and cleaning, as well as automotive parts. Aiming to serve this sector, which is included within the concept of green or sustainable chemistry, the BNDES, in the 2007-2014 period, provided support to such projects which together represented a total increment of 432,000 tons/year in production capacity, in addition to 12 research and development projects for innovative processes to convert vegetal biomass into chemicals to replace petrochemicals.

5.2.8 FERTILIZERS

Brazil's importance as a large-scale agricultural producer in the world market makes the fertilizer sector strategic to the country, as it is essential to increasing

productivity. Consequently, Brazil is the fourth largest consumer of fertilizers, behind China, India and the United States only.

Despite its strategic importance and investments made, the internal production of fertilizers is still insufficient to meet consumption. This has caused a strong rise in imports every year. In 2014, some 79% of fertilizer consumption in Brazil was imported, corresponding to 25 million tons, which generated an approximate deficit of US\$ 8 billion in the year.

Since 2013, international prices for the main products have decreased. Between 2012 and 2014, prices dropped by approximately 20% for the main products of potassium, phosphates and nitrogenates. In addition to cyclical factors, there are structural factors restricting further development in the sector: low local availability of raw materials at competitive prices, especially potassium and natural gas minerals, as well as logistic bottlenecks and tax issues.³⁶

Table 24 shows that the increase in fertilizer production capacity in the 2007-2013 period was three million tons/year in relation to 11 million tons/year in 2007, representing a 27% increase in capacity. The BNDES' participation was important as it provided support to projects which added three million tons/year to the expected production capacity in the same period.³⁷

Table 24: BNDES' support in the fertilizer segment – 2007-2013

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2007 (A)	BRAZIL: CAPACITY INCREASE BETWEEN 2007 AND 2013 (B)	BRAZIL: CAPACITY VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2013 (C)	RATIO BETWEEN CAPACITY ADDED BY BNDES AND CAPACITY IN 2007 (C/A)
Fertilizers	Thousand ton/year	11,000	3,000	27%	2,993	27%

Sources: Brazilian Chemical Industry Association (Abiquim) and BNDES.

5.2.9 PULP

In Brazil, the two major sources of wood used to produce pulp are planted forests with pine and eucalyptus trees, representing over 98% of the produced amount. The yield from one hectare of planted eucalyptus in the country is 44 cubic meters per year, well above the closest competitor, Chile, whose yield is 25 cubic meters per year. The Brazilian advantage lies in the soil, its favorable climate and a long history of forest research and development.³⁸

³⁶ Costa & Silva (2012).

³⁷ Like in the petrochemical sector, the comparison was made with the capacity of beginning of the period according to the period of implementation of investment projects.

³⁸ Bracelpa (2011).

Using planted forests for industrial purposes is important to conserve the environment, as the trees produce the raw material, supplying the demand for paper, wood, firewood, coal for energy use and other high-consumption products without depleting natural resources.

Table 25 shows the BNDES' participation in segments of planted forests and pulp production. Between 2007 and 2014, projects to plant 2.8 million hectares of forests in Brazil were prepared for industrial purposes, of which 1.3 million came from projects receiving direct support from the BNDES, accounting for 46% participation. Other important financing sources include: regional development funds; the BNDES' onlending to accredited financial institutions; and forest investment funds (TIMOs).

Table 25: Participation of the BNDES' support in pulp and planted forests – 2007-2014

SEGMENT	UNIT	BRAZIL: PRODUCTION IN 2007 (A)	BRAZIL: ADDED CAPACITY PROVIDED BY ALL PROJECTS 2007 – 2014 (B)	BRAZIL: CAPACITY VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Planted Forests*	Thousand hectares	n/a	2,815	n/a	1,304	46%
Pulp	Thousand ton/year	11,977	7,705	64%	7,015	91%

Sources: Brazilian Paper & Pulp Association (Bracelpa), Brazilian Association of Planted Forest Producers (ABRAF), RISI Consultoria and BNDES.

* The figures for the forest segment represent the total planting in the period. Based on the production of pulp in wood panels, an estimate was made for 2013 and 2014.

Brazil has comparative advantages in pulp production and, in the period reviewed in this Report, a material fact occurred: in 2007, the sector was ranked the world's fourth largest producer behind the United States, Canada and China only.³⁹ In the last eight years, the sector's commercial balance represented approximately 21% of Brazil's commercial balance.⁴⁰ To maintain this leading role, investments in pulp production have been constant. Also according to Table 25, pulp production in Brazil in 2007 was almost 12 million tons/year, and between 2007 and 2014, projects were prepared with expected production capacity of 7.7 million tons/year, a 64% increase. The Bank financed investment projects in the same period that totaled 7 million tons/year in estimated capacity, totaling 91% participation. The BNDES financed all the greenfield projects in the period.

³⁹ Bracelpa (2013).

⁴⁰ Secretariat of Foreign Trade (SECEX).

5.2.10 OIL AND GAS

As of 2007, the resurgence of natural gas thermal-electric consumption, associated with the strong expansion in other consumption segments in the past few years, caused an imbalance in demand and supply, which, added to the political changes that took place in Bolivia, led the Brazilian government to seek alternatives for the natural gas supply.

As part of the efforts to overcome this imbalance, the BNDES provided support to implement the Bahia Regasification Terminal (TRBA) in 2013, with a capacity of 14 million m³/day. The project, combined with investments in two other terminals, represented an increase in the additional gas supply of 41 million m³/day (Table 26).⁴¹

Table 26: Participation of the BNDES' support in regasification terminals – 2007-2014

SEGMENT	UNIT	BRAZIL: ADDED CAPACITY BETWEEN 2007 AND 2014 (A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (B)	BNDES' PART. (B/A)
Regasification terminal	Million m ³ /day	41	14	34%

Sources: TRANSPETRO and BNDES.

An important event in the Oil and Gas sector was the recovery of national shipyards after a progressive decline of Brazil's shipbuilding industry, which culminated in almost fully shutting down the industry in the late nineties. Local construction was boosted and shipyards⁴² were reactivated due to: (i) growth in offshore activities; (ii) the federal government's efforts to require a minimum percentage of local content; and (iii) Petrobras' Modernization Program for Offshore Supply Vessels (Prorefam), which was created in 2001 by issuing international invitations to bid and requiring Brazilian flag ships.

The BNDES supported this resurgence by financing not only the reform of seven shipyards, but also the implementation of a large shipyard with a processing capacity of 160,000 tons/year of steel in 2007, as well as financing to acquire 124 supply vessels through the Merchant Marine Fund.

In the same period, in the oil sector, nine refineries were revamped to optimize production, to remove bottlenecks in transport infrastructure for oil and byproducts, to meet environmental regulation so as to reduce particulates in oil byproducts, and to expand plants (Revamps).

⁴¹ Portal Brasil (2014).

⁴² Sinaval (2007).

5.2.11 MINING AND STEEL

Brazil is the world's second largest producer of iron ore, outranked by Australia only. The segment accounts for a large part of total mining exports, which, in turn, represented 12.6% of Brazil's exports in 2014.⁴³

The BNDES' support for the iron ore segment mainly aims at implementing new processing units and logistics (railways, conveyor belts and others). Table 27 shows the increase in production capacity related to projects the BNDES approved between 2007 and 2014. Approved projects include a production capacity of 198.5 million tons/year, equivalent to a 58% increase compared to total production in 2007, aiming to meet the potential demand in the upcoming years.

Table 27: BNDES' support in iron ore and steel – 2007-2014

SEGMENT	UNIT	BRAZIL: PRODUCTION IN 2007 (A)	BRAZIL: PRODUCTION DIFFERENCE BETWEEN 2007 AND 2014 (B)	BRAZIL: PRODUCTION VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	RATIO BETWEEN CAPACITY ADDED BY BNDES AND PRODUCTION IN 2007 (C/A)
Iron ore	Thousand ton / year	341,840	64,610	19%	198,470	58%
Raw steel	Thousand ton / year	33,800	100	0.3%	6,700	20%
Flat steel	Thousand ton / year	15,700	-1,500	-10%	4,500	29%
Long steel	Thousand ton / year	10,200	500	5%	4,200	42%

Sources: Steel Institute of Brazil (IABr), Community Research Unit (CRU – UK), National Trade Union of Iron-based Cable and Sheet-metal Industry (SICETEL) and BNDES.

Steel is a strategic input for the country. The main consumers of steel are civil construction, automotive, and machinery and capital goods sectors, corresponding to 80% of the total demand in Brazil. In 2014, Brazil's steel industry accounted for 2% of the world's production, remaining in ninth place in the ranking led by China. These days, the steel market is characterized by oversupply and reduced margins in both Brazil and the whole world.

In 2014, Brazil reached exports of 9.8 million tons in steel products, an increase of 21%, compared to 2013. Of the country's total steel exports, in US\$ FOB value, the raw (semi-finished) steel which includes plates, ingots, blocks and billets, represented 64.4% of steel exports in 2014.⁴⁴ Table 27 shows that steel production remained relatively stable between 2007 and 2014.

⁴³ MDIC (2015).

⁴⁴ Sustainability Report (2014) and Brazil Steel Institute (2015).

Between 2007 and 2014, the Bank provided support to projects which corresponded to an increase in the production capacity of raw steel of 6.7 million tons/year (20% of production in 2007). The expected increase in the capacity for flat steel products in projects receiving support totaled 4.5 million tons/year (29% in relation to 2007) and 4.2 million tons/year for long steel products (42% in relation to 2007).

MINING PROJECTS
<p><i>A milestone in mining, in the 2007-2014 period, was Anglo-American Brasil's Minas-Rio Project, which consisted of not only implementing a mining system with an annual production capacity of 26.6 million tons of iron ore, but also building an ore pipeline, approximately 530 kilometers long to transport ore from the mine located in Conceição do Mato Dentro (MG) to the Açú Port, in São João da Barra (RJ), and constructing an ore filtration plant in the Açú Port.</i></p> <p><i>Another outstanding investment was the Vale expansion project – the S11D consisting of not only a mining plant and an iron ore processing factory with a production capacity of 90 million tons per year in Canaã dos Carajás (PA), but also building a railway line between the cities of Canaã dos Carajás and Parauapebas (PA), integrating the Vale North Logistical System. This project is being implemented and should become fully operational in 2017.</i></p>

5.2.12 CEMENT

Cement is the main raw material when building roads, bridges, ports, airports, sanitation networks and water supplies, sectors which should generate expressive demand for the product in the next few years. The consumption of cement has been consistently growing, reaching an estimated 71 million tons in 2014, despite a decrease in this growth over the last two years.⁴⁵

To meet the expected demand for the next few years, the BNDES approved projects between 2007 and 2014 which aimed at increasing the production capacity by 26,973 million tons/year, up 58% in relation to production in 2007 (46,551 million tons/year).

Table 28: BNDES' support in the cement segment – 2007-2014

SEGMENT	UNIT	BRAZIL: PRODUCTION IN 2007 (A)	BRAZIL: PRODUCTION INCREASE BETWEEN 2007 AND 2014 (B)	BRAZIL: PRODUCTION VARIATION (B/A)	BNDES: EXPECTED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	RATIO BETWEEN CAPACITY ADDED BY BNDES AND PRODUCTION IN 2007 (C/A)
Cement	Thousand ton / year	46,551	23,800	51%	26,973	58%

Sources: National Cement Industry Trade Union (Snic) and BNDES.

5.2.13 AGRIBUSINESS

Brazil's agribusiness is recognized for its competitiveness in the foreign market and accounts for large part of national exports. This is quite a diversified sector, comprising

⁴⁵ Snic (2014).

production of grains, animal protein, sugar and ethanol, dairy products, fruits, tobacco and coffee, among others. Agribusiness covers several stages of production and involves diversified players, such as major corporations, cooperatives and family farmers.

The BNDES' efforts in agribusiness reflect the sector's genuine diversity. In addition to directly financing large investment projects, the Bank, through accredited financial institutions, provides support to smaller projects and individual purchases of farming machinery and equipment. Other sources of resources for investments in agribusiness include rural savings and constitutional funds in the North, Northeast and Central-West regions.

To depict the BNDES' efforts to support agribusiness, indicators for products and services related to grain storage, as well as the slaughter of hogs and poultry were computed. These indicators do not cover all the BNDES' efforts in agribusiness, which, as aforesaid, is quite diversified.⁴⁶

Table 29: Participation of the BNDES' support in grain storage – 2007-2014

SEGMENT	UNIT	BRAZIL: INSTALLED CAPACITY IN 2007* (A)	BRAZIL: CAPACITY INCREASE BETWEEN 2007 AND 2014 (B)	BRAZIL: CAPACITY VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Grain storage	Thousand ton	121,988	27,519	23%	4,162	15%

Sources: National Food Supply Company (Conab) and BNDES.

* The position on 12.31.2006 is considered for the installed capacity of grain storage in 2007.

Grain storage is very important to properly distribute production, as it makes it possible to commercialize and transport crops under more favorable market conditions. However, the high cost to build and operate silos and warehouses, and long-term return are factors which inhibit private investments in storage. To stimulate investments, differentiated terms and interest rates are required. In this vein, the Bank has several support programs for the storage segment: the Incentive Program for Irrigation and Storage (Moderinfra); the BNDES' Incentive Program for Storage for National Grain Companies and Cooperatives (BNDES Cerealistas), created in 2008; the Cooperative Development Program to Add Value to Cattle-Raising and Farming Production (Prodecoop); the BNDES' Investment Maintenance Program (BNDES PSI); the Brazilian Program to Strengthen Family Farming (Pronaf); and the Program to Construct and Expand Warehouses (PCA), launched in 2013.

Investment projects the BNDES approved between 2007 and 2014 were aimed at an approximate increase of four million tons of static storage capacity, corresponding

⁴⁶ For example, the BNDES also provided support to the cattle slaughter segment, financing the modernization of existing plants and securities subscription operations (equity). In this case, support will be analyzed in depth, by means of the JBS case study, as presented in Section 6.4 in this report.

to 15% of the added storage capacity in the same period in Brazil, as shown in Table 29. This BNDES' participation is determined by several factors: (i) an important part of investments in storage is made by major multinational trading companies that tend to use their own capital in their projects; (ii) an important portion of investments has been made in the Central-West and Northeast regions (new agricultural frontiers), where resources are available from constitutional funds; (iii) the Program to Construct and Expand Warehouses (PCA) was launched in 2013, and it is expected to help increase the BNDES' participation in the next few years. Although the BNDES' programs may be considered complementary in expanding warehouses, they are essential to stimulate investments from cooperatives, national agricultural trading companies, agribusinesses and rural producers, especially in the regions with no constitutional funds (South and Southeast).

Table 30: Participation of the BNDES' support in slaughter of hogs, pigs and chickens – 2007-2014

SEGMENT	UNIT	BRAZIL: SLAUGHTER IN 2007 (A)	BRAZIL: INCREASE OF SLAUGHTER BETWEEN 2007 AND 2014 (B)	BRAZIL: SLAUGHTER VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Hog slaughter	Thousand heads	27,410	9,707	35%	4,504	46%
Poultry slaughter	Million heads	4,372	1,124	26%	935	83%

Source: IBGE and BNDES.

Brazil's poultry and pork market is currently dominated by two major national companies which are also among the largest in the world. Several smaller companies and cooperatives, although smaller on the international market, are important regionally in Brazil and actively participate in the foreign market through exports. Between 2007 and 2014, there was a substantial increase in the slaughter of hogs and chickens in the country, influenced by increasing exports and income.

The projects the BNDES approved aimed at increasing the slaughter capacity by approximately 4.5 million head (hogs) per year and 935 million head (chicken) per year. These figures are compared with the real slaughter variation, as there are no annual data available on the national slaughtering capacity. Such comparison should be taken into account with caution as it is sensitive to variations in the use of installed slaughtering capacity. For example: if the use of the installed capacity in 2007 was higher than in 2014, then the BNDES' participation is overestimated in expanding the installed capacity. Despite the limitation of the comparison, it is possible to state that the BNDES' participation is important in expanding chicken and hog slaughtering capacity.

5.2.14 COMMERCIALIZING CAPITAL GOODS

In addition to financing fixed investment projects, as seen so far in the presentation of immediate results indicators under the “Contribution to Production Development”, the BNDES provides supports to commercialize isolated capital goods through BNDES Finame. This traditional type of support from the Bank, among other factors, aims to strengthen the national production of capital goods by boosting competitiveness when selling such products, since financing is an important part of the final cost of goods.

Table 31 shows the annual progress of BNDES Finame’s participation in support to commercialize certain capital goods in the country. This analysis selected goods with higher value added or a group of goods considered more homogeneous which made it easier to establish the comparison indicator.

Table 31: Progress of BNDES Finame’s participation in financing support to commercialize capital goods in Brazil – 2007-2014 (in %)

CAPITAL GOODS	2007	2008	2009	2010	2011	2012	2013	2014
Trucks	40%	43%	59%	78%	55%	71%	70%	74%
Buses	52%	60%	59%	68%	61%	60%	51%	67%
Tow trucks and semi tow trucks	21%	16%	15%	27%	15%	18%	-	-
Tractors	23%	20%	25%	32%	32%	42%	-	-
Cranes	16%	16%	17%	35%	28%	38%	-	-
Silos	10%	11%	22%	39%	36%	10%	-	-

Sources: National Association of Automotive Vehicle Manufacturers (Anfavea), Annual Industrial Research (PIA/IBGE) and BNDES. Note: BNDES Finame’s data refer to the number of financed goods. The series of total units marketed in the period were obtained based on Anfavea data – total licensing for buses and trucks (2007-2014) and PIA (IBGE) – Number of units sold for other equipment in the table (2007-2012).

For trucks, BNDES Finame’s financing strongly increased over the 2009-2010 period, reaching 78% for licensed trucks if compared with Anfavea data. Such an increase should be associated with the launch of PSI in July 2009, with a strong decrease in BNDES Finame’s interest rates. For the bus segment, BNDES Finame’s participation varied between 52% in 2007 and 67% in 2014, also reaching its peak in 2010, at 68%.

As for tractors, BNDES Finame’s participation in the period went from 23% in 2007 to 42% in 2012, and rose expressively from 2011 to 2012 (ten percentage points). Financing for tow trucks and semi-tow trucks varied around a stable trend in BNDES Finame’s participation, going from 21% in 2007 to 18% in 2012.

In relation to cranes, there was a consistent increase in the period with the participation going from 16% to 38%, with a strong rise registered in 2010, going up from 17% in the previous year to 35% in that year. Financing for silos grew expressively up to 2010, reaching 39% of the silos sold. However, an intense

drop was also registered at the end of the period under review, resulting in the indicator returning to the 2007 level of 10%.

5.2.15 SUPPORT FOR EXPORTS

The BNDES' role in providing support for exports is similar to that of institutions in other countries, called export credit agencies, which are empowered by their governments to provide official support by means of financing, insurance and guarantees. With this, the Bank's effort enables Brazilian companies to compete in the foreign market under similar conditions to companies in other countries, which receive support from their credit agencies.

The BNDES has provided support to commercialize goods abroad since 1991, especially in Latin America countries and, more recently, Africa. In 1997, support to export engineering and construction services began. With rare exceptions (such as financing exports of aircraft, for example), these are the markets where Brazil's exports of manufactured goods and engineering services are more competitive in terms of price.

Financing through BNDES Exim Pre-Shipment and Post-Shipment Lines aims to strengthen the industry and create jobs, income and foreign reserves in Brazil. Financing production (Pre-Shipment) provides resources under terms appropriate to the production cycle of companies that will be exporting. It is represented as working capital that the exporter will use to purchase raw materials and hire labor to produce the goods to be exported. Financing commercialization (Post-Shipment) enables the company to finance its importer and receive the resources in cash, after export is proven. This support allows the company to be more competitive at an international level, with longer terms of payment, without burdening its financial structure.⁴⁷

The sectors with higher value added and that are technology-intensive, priorities for the BNDES, represent only a small portion of Brazil's foreign trade agenda, which is mostly dominated by agricultural and mineral commodities. The so-called "Group 1 of the List of Eligible Products", which includes capital goods and parts, represents approximately US\$ 30 billion exported annually against total Brazilian exports of US\$ 225 billion in 2014, for example.⁴⁸

Generally speaking, the indicators for products and services presented in this Report refer to the production capacity in several economic sectors expressed in various measurement units. The values exported by companies are understood as their exporting capacity and, therefore, are analogous to the concept of added

⁴⁷ In support to commercialize goods, the BNDES Exim Post-Shipment, the BNDES always disburses financing in Brazilian reais in Brazil to the exporter's account and upon previous proof of the export. The financing contracted is fully paid by debtors, and the default in this type of financing is virtually none. Nevertheless, the Bank has guaranties and collaterals in all loans contracted.

⁴⁸ See <www.mdic.gov.br>.

production capacity in the industrial sectors previously presented. Therefore, the value exported by companies receiving financing will be the main unit in indicators for products and services used in this Subsection.

Tables 32, 33 and 34 show Brazilian exports per segment of capital goods and parts, as well as the values exported in the support operations for exports, following the same segmentation. It can be seen that, on average, the BNDES financed 17% of Brazilian exports of capital goods and parts in the last eight years.

Table 32: Brazilian exports of capital goods per selected segments (in current US\$ million) – 2007-2014

SEGMENT	2007	2008	2009	2010	2011	2012	2013	2014
Industrial or energy generation machinery	5,712	6,612	5,515	5,858	7,002	7,949	6,813	6,684
Road or farming machinery	3,080	3,837	1,648	2,874	3,961	3,772	3,394	3,342
Buses, trucks, parts and components	12,868	14,167	8,189	12,295	15,057	13,948	13,190	10,798
Other transport equipment	5,589	6,359	4,855	5,339	5,127	5,832	5,989	6,165
Other capital goods	3,752	4,018	3,164	2,548	2,551	2,429	2,261	2,480
Total	31,000	34,994	23,371	28,914	33,697	33,930	31,648	29,470

Sources: Alice System (MDIC).

Note: Excluding oil platforms.

Table 33: Exports of capital goods receiving support from BNDES Exim per selected segments – 2007-2014 (in current US\$ million)

SEGMENT	2007	2008	2009	2010	2011	2012	2013	2014
Industrial or energy generation machinery	313	697	1,370	1,324	1,165	670	1,294	742
Road or farming machinery	349	365	541	480	505	430	623	255
Buses, trucks, parts and components	1,202	2,206	3,071	2,732	2,082	1,737	3,052	1,333
Other transport equipment	640	1,212	1,128	1,786	1,325	823	1,334	1,188
Other capital goods	271	298	327	464	39	294	142	29
Total	2,776	4,778	6,436	6,786	5,116	3,953	6,446	3,547

Source: BNDES.

Note: Excluding oil platforms

Table 34: BNDES Exim Support Share in exports of capital goods per selected segments – 2007-2014 (in %)

SEGMENT	2007	2008	2009	2010	2011	2012	2013	2014
Industrial or energy generation machinery	5	11	25	23	17	8	19	11
Road or farming machinery	11	10	33	17	13	11	18	8
Buses, trucks, parts and components	9	16	37	22	14	12	23	12
Other transport equipment	11	19	23	33	26	14	22	19
Other capital goods	7	7	10	18	2	12	6	1
Total	9	14	28	23	15	12	20	12

Sources: Alice System (MDIC) and BNDES.

Note: Excluding oil platforms.

The variation over the years illustrates the anti-cyclic role of the BNDES' support for exports. In the years when there was a private credit crunch and a subsequent recovery in Brazilian exports, the Bank's participation increased, as seen in 2009 and 2010. At the worst moment for foreign trade in the world economic crisis, participation reached 28%, but, afterwards, it bounced back closer to historical averages.

In the aircraft segment, it is possible to establish a comparison also using traded units, with and without support; Table 35 shows that the BNDES plays an important role in the sector. However, there are variations in participation which do not mean a gap in the support capacity, but rather that the market also relies on private sources of financing in the segment.

Table 35: Participation of the BNDES' support in the total of commercial aircraft exported by Embraer – 2007-2014 (in units)

INDICATOR	2007	2008	2009	2010	2011	2012	2013	2014
Delivery of commercial aircraft (A)	133	162	122	100	105	106	90	92
Aircraft receiving support from BNDES credit (B)	0	23	32	48	36	22	35	43
BNDES' participation (B/A)	0%	14%	26%	48%	34%	21%	39%	47%

Sources: Embraer and BNDES.

Table 36: Participation of exports receiving support from BNDES Exim in the total exported by the country in engineering and construction services – 2007-2013 (in current US\$ million)

INDICATOR	2007	2008	2009	2010	2011	2012	2013
Brazilian exports (A)	4,871	5,787	5,824	5,916	7,737	9,267	8,534
Exports receiving support from the BNDES (B)	595	1,043	1,432	865	1,580	1,587	1,434
BNDES' participation (B/A)	12%	18%	25%	15%	20%	17%	17%

Sources: Brazilian Central Bank (BCB) and BNDES.

In exports of engineering and construction services, the participation of the BNDES' financing is similar to the case for capital goods. According to Table 36, the values in exports receiving support every year correspond to approximately 17% of the country's total exports in the segment. The BNDES' participation is due to a part of exports of goods and services in supported projects that is not eligible for financing. Additionally, there are works by Brazilian contractors which do not receive support from the BNDES.

Although exporting engineering as well as heavy construction goods and services is internationally concentrated in just a few construction companies, it drives an extensive network of good and service suppliers, mainly small and medium-size companies with important national technological content, whose access to the foreign market is increased by means of such operations. Therefore, support for this segment creates an important distribution channel for exports from Brazilian suppliers, besides requiring national skilled labor to implement financed investments.

The following stood out among the goods exported in the period: iron and steel items, mainly pipes to build gas pipelines and water supply lines, hydraulic pumps, turbines and desalination systems, in addition to land automotive vehicles, mainly truck.⁴⁹ Among the prevailing services are consulting firms and engineering projects, warehousing, transport and insurance.

The values of Brazilian suppliers' indirect exports, as well as the number of companies that exported goods and services for engineering works receiving support from the BNDES are shown in Tables 37 and 38. In the period under review, some US\$ 2.3 billion was exported to carry out investments receiving support from the Bank, involving a total of 3,539 companies. These figures depict the connection generated by exports of services in the supplier chain, which benefits a much larger number of companies than those directly receiving support from the BNDES and contributes to Brazil's trade balance.

⁴⁹ NCM Groups 73, 72, 84 and 87.

Table 37: Values of suppliers' exports of goods and services for engineering works receiving support from the BNDES – 2007-2013 (in current US\$ million)

SUPPLIERS' EXPORTS	2007	2008	2009	2010	2011	2012	2013	TOTAL
Shipped items*	208	353	330	205	446	180	270	1,992
Contracted third party services	14	29	30	30	51	60	68	282
Total	222	382	360	235	497	240	338	2,274

Source: BNDES.

* Values referring to the actual date of shipment for releases of resources made until December 2013.

Table 38: Number of suppliers of goods and services related to engineering works receiving support from the BNDES – 2007-2013

NUMBER OF SUPPLIERS	2007	2008	2009	2010	2011	2012	2013	TOTAL
Number of suppliers of goods*	558	842	627	527	634	570	700	2,057
Number of suppliers of services	555	442	341	342	411	437	479	1,563
Total	1,102	1,271	957	860	1,029	979	1,149	3,539

Source: BNDES.

* Values referring to the actual date of shipment for releases of resources made until December 2013.

Note: The column "Total" corresponds to the number of different companies receiving support between 2007 and 2013 and, therefore, is not equal to the sum of the other columns.

5.3 Social and production inclusion and sustainability

Economic development in sustainable bases and support for efforts aimed at environmental preservation and social investments are part of the BNDES' commitment to the present and future generations. Proactively promoting sustainable development in all supported projects is the main goal of the BNDES' Socioenvironmental Policy, focusing on an integrated concept of economic, social, environmental and regional aspects.

To perform its role as an engine for sustainable development, the BNDES relies on several mechanisms, ranging from thorough analysis of social and environmental impacts of any financially supported project to financing investments to generate direct benefits in the environmental quality and to reduce social and regional inequality in the country.

Therefore, the Bank supports projects which directly improve the standards of living for the Brazilian population. Such support is offered through several financing mechanisms, with investments that: induce efforts to prevent, monitor and combat deforestation and to foster the sustainable use of natural resources in the Amazon Biome; promote production inclusion for low-income populations; seek to expand health and education services; and aim to reduce inequality and boost regional development, among other goals. The immediate results from part of the BNDES' efforts in supporting such investments are illustrated in this Subsection.

5.3.1 ENVIRONMENT

The BNDES has endeavored to continuously enhance its commitment to sustainable development, mainly fostering good practices which may contribute to responsible environmental administration. Creating the Environmental Division (AMA) in December, 2008, was the Bank's answer to the increasing importance of issues related to the environment within Brazil's sustainable development, aiming to equip the BNDES with a technical and organizational structure appropriately sized to deal with socienvironmental issues in order to further improve and expand the scope of efforts carried out by the BNDES at that time. The AMA was also created with the task of managing the Amazon Fund, which receives donations and makes non-reimbursable investments in efforts to prevent, monitor and combat deforestation and promote the sustainable use of natural resources in Amazon Biome.

Some immediate results from the BNDES' environmental support as of 2009 are shown below, highlighting the importance of the Bank's support for projects whose goal is environmental preservation.

Table 39: Participation of the BNDES' environmental support – 2009-2014

BRAZIL INDICATOR	UNIT	BRAZIL: MEASURED AREA (A)	BNDES INDICATOR	BNDES: AREA OF SUPPORTED PROJECTS (B)	BNDES' PART. (B/A)
Indigenous area in Amazon (Dec. 2014)	Km ²	1,376,478	Indigenous areas (2009–2014)	582,265	42%
Amazon conservation units (Dec. 2013)	Km ²	1,273,741	Environmental management of conservation units (2009-2014)	144,899	11%
Deforestation of atlantic forest (2011-2013)	Km ²	600	Reforestation of atlantic forest (2011-2013)	89	15%

Sources: National Institute of Space Research (INPE), Ministry of the Environment (MMA), NGO SOS Mata Atlântica and BNDES.

Federal and state protected areas (PA) and indigenous areas function to inhibit deforestation activities. In December 2010, protected areas in Legal Amazon totaled 44% of the region and 25.8% of the Brazilian territory.⁵⁰ There have been significant increases in the Amazon Fund's support for projects aimed at: (i) territorial protection; (ii) environmental management of PAs and indigenous lands; and (iii) sustainable production activities in PA and indigenous territories. This has reached some 42% of indigenous lands and 11% of the PAs in the Legal Amazon – in the accumulated total from 2009 to 2014 – as shown in Table 39 below.

⁵⁰ Veríssimo (2011).

RURAL ENVIRONMENTAL REGISTRATION (CAR)

Another important part of the BNDES' efforts to combat deforestation in the Amazon is the support to implement the CAR – an environmental management instrument making delimitation possible by geo-processing rural properties, identifying the permanent preservation and legal reserve areas for environmental recovery and monitoring. Rural producers affiliating with the CAR makes it possible to environmentally regularize properties, to access credit, and to encourage landowners' commitment to recovering degraded areas. Since the start of the Amazon Fund, the Bank has helped implement the CAR in rural properties covering a total area of 374,046 km².

Apart from the Amazon Biome, and starting with the BNDES' Atlantic Forest Initiative, the Bank uses non-reimbursable resources from its Social Fund to finance recovery projects for the Atlantic Forest in permanent preservation ciliary areas protected areas. Additionally, with reimbursable resources from the BNDES' Forest Line, the Bank provides support for reforestation, conservation and forest recovery of degraded or converted areas and the sustainable use of native areas in the form of forest management. Between 2011 and 2013, some 89 square kilometers of Atlantic Forest were reforested with the BNDES support, an area corresponding to 15% of total deforested forest in the same period – see Table 39.

Other important forms of support for environmental preservation include the projects to rationalize urban cleaning and the proper disposal of solid waste, preferably to generate energy. As shown in Table 40, the expected capacity added from projects the BNDES financed in the 2007-2014 period (28,845 ton/day) corresponds to 60% of the increased demand for final waste destination.

Table 40: Participation of the BNDES' support in removing solid waste – 2007- 2014

SEGMENT	UNIT	BRAZIL: DEMAND BY FINAL DESTINATION IN 2007 (A)	BRAZIL: INCREASE IN DEMAND BY FINAL DESTINATION BETWEEN 2007 AND 2014* (B)	BRAZIL: DEMAND VARIATION (B/A)	BNDES: EXPECTED ADDED CAPACITY OF FINAL DESTINATION FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
Solid waste	ton/day	140,911	48,308	34%	28,845	60%

Sources: Brazilian Association of Public Cleaning Companies and Special Waste (Abrelpe) and BNDES.

* The demand increase data for 2014 were not available at the completion of the Report. However, it was estimated that the increase was null (using the GDP variation as a proxy).

5.3.2 PRODUCTION INCLUSION: MICROCREDIT

Microcredit consists of granting low value loans to individuals and companies carrying out small production activities. Since it is available to those that usually have no access to the traditional financial system, microcredit is an important instrument in generating jobs and income. The BNDES operates in microcredit indirectly by financing operating agents, who offer loans to final beneficiaries.⁵¹ In addition to defining the amounts and conditions for loans, operating agents offer guidance to the entrepreneur on business planning.

⁵¹ Operating agents are also known as informed production micro-credit institutions (IMPOs).

Table 41: Participation of the BNDES' Support in Microcredit Operations – 2007-2014

SEGMENT	UNIT	BRAZIL: TOTAL OF OPERATING AGENTS CONSIDERED * (A)	BNDES: SUPPORT FOR FINAL BENEFICIARIES THROUGH OPERATING AGENTS (B)	BNDES' PART. (B/A)
Microcredit	N° of operations	2,168,780	886,770	41%
Microcredit	R\$ million**	7,073	2,716	38%

Sources: Ministry of Labor and Employment (MTE) and BNDES.

* The operating agents considered are: Oscips, credit associations for small business, credit cooperatives and development agencies.

** The amount borrowed in the period consists of the sum of current annual amounts.

In the case of microcredit, it is understood that the main delivery provided by the BNDES' efforts is to lift any credit restrictions on small business owners. This occurs regardless of how resources are used – whether to increase production capacity or for working capital. Therefore, the product and service indicator is expressed as the number of operations and in amounts loaned to the final beneficiaries, unlike most indicators for products and services presented in this Report.

PRODUCTION INCLUSION USING NON-REIMBURSABLE RESOURCES

The BNDES provides non-reimbursable resources to projects to generate employment and income across the entire country. These resources come from the BNDES Social Fund, which is constituted with a part of the institution's annual earnings. To expand its reach, the Bank works in partnership with other institutions, such as governmental agencies and private foundations. Between 2007 and 2014, some R\$ 627.5 million was invested, which means that close to 35,000 undertakings received support and some 260,000 people benefitted directly, according to estimates from partner institutions. Projects receiving support in this period were spread across more than 1,200 municipalities. It was the partnerships with other institutions that made it possible to extend operations so far. Below, in the map on the left, are the municipalities where the projects receiving support were located up to 2008, when the BNDES had no partnership with other institutions. The map on the right shows the municipalities that had projects receiving support between 2008 and 2014, within the scope of partnerships between the BNDES and other institutions.

Up to 2008



Between 2008 and 2014



Sources: BNDES and partner institutions.

Between 2007 and 2014, approximately 890,000 microcredit operations received resources from the BNDES, totaling approximately R\$ 2.7 billion in loaned amounts to final beneficiaries. These operations are compared to all those carried out by Oscips, credit associations for small business, credit cooperatives and development agencies. These are operating agents which the BNDES finances, many of which have difficulties accessing other sources of funds. The option to exclude federal

public banks (Banco do Brasil, Banco do Nordeste, Caixa and Banco da Amazônia) from the comparison was due to the fact that these banks operate the Crescer Program,⁵² which offers differentiated conditions, and which leverages the number of operations. The BNDES' participation rates – approximately 40% – show its importance for microcredit operating agents with which the Bank works.

5.3.3 SOCIAL INCLUSION: HEALTH AND EDUCATION

The BNDES' support for health and education sectors addresses several initiatives put forth by public and private sectors, including PPPs and the S System. In addition to social responsibility, the BNDES' support is founded on the understanding that, by relating to the accumulation of human capital, education and health have positive externalities for the rest of the economy and are important variables in sustainable economic growth. Nevertheless, the BNDES' participation in these sectors is less intense than in others, as they already receive large-scale budget resources due to legal obligations.

In the education sector, since 2007, the BNDES' support has increased vacancies in pre-school, elementary school and college, as indicated in Table 42 below. Although in the current scenario, there is no shortage of vacancies in elementary school, due to the ongoing reduction in children and youth populations, local investments remain necessary. This is reflected in the Bank' support to over 34,000 new vacancies in elementary education. In pre-school, which still is short in vacancies, it showed an expansion of 12% or 839,000 enrollments from 2007 to 2014. As shown in the Table, projects receiving support from the BNDES totaled almost 35,000 vacancies, equivalent to 4% of the total expansion at this level. Similarly, of the total 800,000 new vacancies at college level, approximately 15,000 are in projects receiving support from the Bank, representing 2%.

THE SENAI PROGRAM FOR INDUSTRIAL COMPETITIVENESS

The main element in the efforts in education was the support for technical courses and vocational education, one of the largest bottlenecks in the country. In 2012, the BNDES approved support for the Senai Program for Industrial Competitiveness, aiming to increase the number of skilled labor and specialized services for national industry, by expanding and modernizing its school network and institutes that render services to industry, as well as creating a new category of technological centers to foster and practice innovation. The main result is the creation of approximately 2 million vacancies in middle-school technical courses and short courses focusing on professional initiation, basic industrial learning, basic professional qualification and workers' continued education.

In the health sector, the BNDES' operations include support to increase the number of SUS beds and Non-SUS beds.⁵³ As shown in Table 43, the Bank's efforts in

⁵² For further information on the Crescer Program, see <<http://www.mds.gov.br/falemds/perguntas-frequentes/superacao-da-extrema-pobreza%20inclusao-productiva-urbana/programa-crescer>>.

⁵³ Non-SUS beds are offered by private hospitals as well as top-ranked non-profit hospitals, while SUS beds are offered by other non-profit and public hospitals.

the period, supporting projects aimed at adding some 5,600 SUS beds throughout the country, helped slow down the falling number of vacancies in the category, which dropped 34,600 units between 2007 and 2014. Non-SUS beds grew almost by 20,000 units. In this segment, the Bank supported projects helping add almost 3,000 beds, or 15% of the total launched in the period.

Table 42: Participation of the BNDES' support in education – 2007-2014

SEGMENT	UNIT	BRAZIL: ENROLLMENT / VACANCIES IN 2007* (A)	BRAZIL: ENROLLMENT / VACANCIES BALANCE BETWEEN 2007 AND 2014 (B)	BRAZIL: ENROLLMENT / VACANCIES VARIATION (B/A)	BNDES: EXPECTED ADDED VACANCIES FROM PROJECTS SUPPORTED BETWEEN 2007 AND 2014	BNDES' PART. (C/B)
Pre-school	Number of enrollments	7,016,095	839,896	12%	34,904	4%
Basic school (primary and middle)	Number of enrollments	42,189,483	-5,429,627	-13%	34,359	n/a ***
College level **	Number of vacancies	2,629,598	800,117	30%	15,640	2%

Sources: Anísio Teixeira National Institute of Educational Studies and Research (Inep) and BNDES.

* The enrollment number is related to late 2006.

** The increase in enrollment was calculated between 2007 and 2013 (last year available of the College Education Census determined by Inep).

*** Due to the drop in enrollment between 2007 and 2014, the estimate of the BNDES' participation is not applicable.

Table 43: Participation of the BNDES' support in health – 2007-2014

SEGMENT	UNIT	BRAZIL: EXISTING BEDS IN 2007* (A)	BRAZIL: DIFFERENCE IN BEDS BETWEEN 2007 AND 2014 (B)	BRAZIL: BEDS VARIATION (B/A)	BNDES: BEDS TO BE ADDED BY PROJECTS SUPPORTED BETWEEN 2007 AND 2014 (C)	BNDES' PART. (C/B)
SUS	Number of beds	353,923	-34,640	-10%	5,653	n/a **
Non SUS	Number of beds	113,573	19,632	17%	2,931	15%

Sources: SUS' IT Department (DATASUS) and the BNDES.

* The number of beds refers to late 2006.

** Due to the drop in the number of beds between 2007 and 2014, the estimate of BNDES' participation is not applicable.

It was not possible to calculate the participation of the BNDES' support in SUS beds due to the net drop in the country's indicator in the period. Concerning this drop, the Ministry of Health published a technical note showing that it was concentrated in certain categories (obstetrics, pediatrics and psychiatry, general surgery and day-hospital) and was due to substitute health services. Disregarding these categories, it is calculated that the net effect of launching and removing SUS beds in the country would have been positive (261 units) – showing the importance of the BNDES' efforts, since some 5,653 SUS beds⁵⁴ were launched using its support.

⁵⁴ <http://tabnet.datasus.gov.br/cgi/idb2012/Nota_tecnica_informativa_reducao_leitos.pdf>.

5.4 Structuring corporate capacities and strengthening capital structure

To make investments into production, companies use their own accumulated capital from profit, or third party capital through credit operations, or fundraising in the capitals market. Generally, the cost associated with using company resources is higher than the cost of third-party capital. Therefore, a well developed capitals market increases the feasibility of company investments and competitiveness gains. The BNDES, through BNDESPAR, operates as a subscriber of securities in publicly-held companies or in private companies which, in the short or medium term, may enter the capitals market.⁵⁵

BNDESPAR's operational guidelines are defined in the Equity Policy, which aims to strengthen the capital structure of Brazilian companies, foster the best management practices, governance and sustainability, develop the capitals market and create value for BNDESPAR's securities portfolio.⁵⁶

The range of sectors receiving support, sizes of companies and specific development goals in each operation are quite broad and, therefore, the selection of indicators representing the products and services receiving the BNDES' support is unique. As presented in this section and in the previous part, in general, indicators referring to the number of companies and amounts are positioned as effort. However, in the view of support through equity, they may be seen as Bank deliverables which strengthen the companies' capital structures and help implement their investment plans.

Table 44 begins the presentation of such immediate results with data on direct efforts – when the BNDES injects resources directly into companies – and indirect efforts – when beneficiaries are supplied by means of investment funds.

Considering companies traded on the stock exchange, the number of follow-ons (issuances when the company is already publicly held and has already carried out its primary offer) carried out in Brazil between 2007 and 2014 was 77, according to BM&FBovespa. Of those, some 14 were companies in BNDESPAR's portfolio representing a participation of 18%. The amount of these operations totaled R\$ 25.7 billion or 11% of the total in the country. It is understood that the BNDES' participation is important in this type of operation as most of the companies and types of operations carried out are not eligible to receive support, and the BNDES' goal is to stimulate the

⁵⁵ Financial modes and products used are diverse; for example, shares or other securities may be issued as debentures, structured investment funds, shares acquired in stock exchange or investment certificates acquired. The details on this action may be seen on the BNDES' website at <http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Apoio_Financeiro/Renda_Variavel/>.

⁵⁶ The BNDES seeks to stimulate the capital market since 1974, when it created three subsidiaries which would invest in national companies: Mecânica Brasileira S.A. (EMBRAMEC), Insumos Básicos S.A. (FIBASE) and Investimentos Brasileiros S.A. (IBRASA). In 1982, the three companies were grouped with the creation of BNDES Participações (BNDESPAR), which took over the mission to capitalize national companies and strengthen the capital market in the country [BNDES (2012)].

market by operating in keeping with its strategic guidelines. The following are focuses of efforts in equity: sectors of capital goods, technology and infrastructure, medium-sized companies and sectors/enterprises with innovative potential.

Table 44: Participation of BNDES' support in equity (traded companies and funds) – 2007-2014

BRAZIL INDICATOR	UNIT	BRAZIL: TOTAL INDICATOR BETWEEN 2007 AND 2014 (A)	BNDES INDICATOR	BNDES: TOTAL INDICATOR BETWEEN 2007 AND 2014 (B)	BNDES' PART. (B/A)
Follow-on operations for traded companies *	Number of operations	77	Follow-on operations for traded companies receiving support*	14	18%
Value of follow-on operations for traded companies *	R\$ million	241,573	Value of follow-on operations for traded companies receiving support*	25,703	11%
Registered funds (FIP and FMIEE) **, ***	Number of funds	708	Funds invested in (FIP and FMIEE) *	24	3%

Sources: BM&F BOVESPA, Securities and Exchange Commission (CVM) and BNDES.

* Not including IPOs (Initial Public Offering).

** FIP: Fund for Investment in Holdings and FMIEE: Mutual Fund for Investment in Emerging Companies.

*** The total number of recorded funds obtained from the CVM considers owned funds and recorded funds, but not those already started as fundraising was not completed.

Considering indirect efforts, approximately 700 funds were registered in Brazil between 2007 and 2014, of which the BNDES helped structure 24. In the beginning of the period, the number of supported funds was higher in relation to the total number of funds in the country, as this was still a developing market in its early stages. In recent years, the number of launched funds increased significantly, and the Bank considers it appropriate to decrease its participation since the market has matured.

Table 45 shows that the BNDES has succeeded in supporting the market segment aimed at promoting the growth of small and medium-sized companies through gradual access to the capitals market (Bovespa Mais). To be listed on the Bovespa Mais, companies should meet several corporate governance and transparency requirements, and the Bank's participation as shareholder was influential in the process. Of the eight companies listed over the last eight years, seven received the BNDES' support.

Another important goal of the BNDES in developing the capitals market refers to a company's initial public offering (IPO). Between 2007 and 2014, the BNDES assisted 16 IPOs for companies in its portfolio (directly and indirectly invested), 15% of the total on the stock exchange. Given the high degree of difficulty in getting a company to launch its capital, which involves, in addition to improving corporate governance and transparency, the choice of favorable moments to launch securities on the market, the BNDES' contribution to this type of operation has been materially effective in the last eight years.

Table 45: Participation of the BNDES' support in equity (Bovespa Mais, IPOs and debentures) – 2007-2014

BRAZIL INDICATOR	UNIT	BRAZIL: TOTAL INDICATOR BETWEEN 2007 AND 2014 (A)	BNDES INDICATOR	BNDES: TOTAL INDICATOR BETWEEN 2007 AND 2014 (B)	BNDES' PART. (B/A)
Total number of companies listed on Bovespa Mais	Number of companies	8	Companies receiving support listed on Bovespa Mais	7	88%
Total number of companies that held an IPO	Number of companies	110	Companies receiving support which held an IPO	16	15%
Total number of operations in convertible debentures*	Number of operations	26	Operations to subscribe convertible debentures issued by companies receiving support *	17	65%
Value of operations with convertible debentures*	R\$ million	8,606	Value injected into subscribing convertible debentures issued by companies receiving support *	5,185	60%

Sources: BM&FBOVESPA and BNDES.

* Debentures registered at CVM – non-registered private operations are not considered.

Finally, the last two indicators on the Table concern debenture issuances, medium and long-term debt securities issued by companies to finance their projects. Considering issuances of convertible debentures, of the 26 operations carried out between 2007 and 2014, BNDESPAR participated in 17 which meant approximately R\$ 5.2 billion in an issued total of R\$ 8.6 billion. The high participation rates (65% in number of operations and 60% in amounts) demonstrate the BNDES System's initiative to develop the capitals market. Simple debentures such as those issued for infrastructure projects are not included in the calculation.

6. EFFECTS OF INTERVENTIONS RECEIVING SUPPORT

Moving on to another stage in the Model for Integrating Corporate Results, presented in Section 3, we can comprehend the scope of effects analysis. For the BNDES – as well as for all development banks – effects analysis represents a challenge and is the ultimate goal of its operations. It is a challenge as the outcomes expected from interventions are beyond the Bank's control and are theoretically related to the delivery of products and services. Experience in implementing and assessing previous public policies in the country and in the world should provide enough evidence to justify support for projects (which deliver products and services) aimed at generating certain results.

Effects analysis is also the result not only of the BNDES' efforts, but is also due to other factors or policies that alter reality and affect the expected outcome. For

instance, the BNDES implements sectorial programs offering support for industrial companies' investments aimed at, among other goals, increasing productivity and competitiveness. As it happens, competitiveness is affected by several elements within the macroeconomic context, such as growth in GDP and how commercially open a market is, as well as other public policies, including tax exemptions and staff training programs. The absence of manageability concerning effects analysis and the existence of other influencing factors make the task of properly evaluating the outcomes of an intervention or a set of interventions anything but trivial.⁵⁷

Certain effectiveness studies are capable of attributing the results achieved to BNDES support and isolating how the outcomes affect the performance of certain variables of interest. Others resort to contribution models which emphasize the progress of results based on a logical connection between implementing interventions and effectiveness. Regardless of the method used, evaluations should be useful in obtaining knowledge on the outcomes and information which can be used in decision making to improve the support design.⁵⁸

This section presents reviews on the effects evaluations produced so far by the BNDES' monitoring and evaluation system, of which some seek to attribute causality to supported interventions and others employ contribution models for expected results. The following are presented: the subject evaluated, that is, what intervention, program or product is being studied, the methods used to develop the evaluation and the main results found. Studies may be consulted in full by accessing the links available in the Effectiveness Section on the BNDES' website.⁵⁹

Exercises to monitor effects, which consist of systematically calculating certain effects indicators for MSMEs and for large-scale industrial companies receiving support, are also present in this section; such calculations were made feasible due to the availability of secondary data on Brazilian companies, that is, Rais (MTE) and PIA (IBGE).

6.1 Energy, logistics and urban infrastructure

6.1.1 LOCAL OUTCOMES FROM HYDROPOWER PLANTS

Building hydropower plants is a frequent topic of debate that goes beyond the issue of generating energy for the country. On one hand, the argument is that there are huge environmental and social costs when building these projects; on the other hand, the argument is that such projects could drive local development by

⁵⁷ Assessments using statistical methods enabling the isolation of the public policy portion on the effects are usually known as impact assessments. On the other hand, studies relying on qualitative techniques to analyze effects are considered generically effectiveness assessments.

⁵⁸ Ideally studies of such nature should start from previous assessment questions which would cause the selection of most adequate methods to answer them. The combination of qualitative methods with quantitative methods (triangulation) is considered a good practice to produce sound conclusions on the reached effects and their causes; however due to restrictions in time, resources and specialization in specific techniques, the studies using triangulation are not very common.

⁵⁹ The studies mentioned in the report but not yet published will be timely included in the BNDES webpage.

increasing employment, income and municipal tax collection. However, the debate lacks systematic information on the local effects from building power plants; many arguments, on both sides, are based on a few historical and exhaustively assessed cases, often restricted to specific metrics.

In an attempt to systematically evaluate the local effect of building power plants on economic indicators, an evaluation was conducted by applying the same methodology to quantify the outcomes generated by each plant built as of the second half of the 1990s using the BNDES' financial support. This study was prepared by the PUC-Rio Climate Policies (NAPC), a Climate Policy Initiative (CPI) office in Brazil in partnership with the BNDES.⁶⁰ The analysis focuses on two economic indicators: municipal GDP and employment, obtained using IBGE and Rais data.

The scope of the analysis comprises municipalities with areas flooded by power plant reservoirs with more than thirty megawatts of installed power (UHEs) and which received BNDES financing (the approval date for the credit operation was 1994). The list of UHEs includes 57 projects, of which 55, according to Aneel data, involve flooding areas in 261 municipalities.⁶¹

The municipalities affected by UHEs that did not receive support from the BNDES were excluded from the analysis, that is, treatment or control units were not included.⁶² Municipalities affected by more than one UHE, regardless of their construction date, were also excluded from the analysis to simplify the interpretation of results. According to such criteria, some 54 municipalities that were affected by UHEs receiving support were excluded from the analysis together with 17 projects. With this exclusion, the sample is restricted to 207 municipalities affected by 38 UHEs. Construction of half of these UHEs started in the period covered by this report. Since some of the analyzed indicators cover a period in which the number of municipalities varies, the municipalities have been converted into minimum comparable areas (AMCs).⁶³ To simplify, AMCs are geographic regions appearing throughout the analysis period making it possible to include municipal indicators in time. The 207 treated municipalities have been converted into 109 AMCs.

In relation to the adopted methodology, it is worth mentioning that the evaluation of effects of building a UHE presents major methodological challenges. Technically, the problem arises from the fact that implementing projects, much like what happens in many economic and social phenomena, is not random; on the contrary, the regulator's

⁶⁰ Assunção, Costa and Szerman (2014). The study is in progress and when completed it will include results from social and environmental indicators in addition to other economic indicators; the aim is to improve the understanding on the key elements of these effects in order to provide inputs to managers and policy makers.

⁶¹ Two projects (UHE São Roque and UHE Serra da Mesa) were excluded from the analysis for reasons of data availability. Some UHEs are still under construction and their reservoirs have not yet been flooded: these are UHEs Batalha, Belo Monte, Colíder, Garibaldi, Ferreira Gomes, Jirau, Santo Antônio do Jari, São Domingos, Simplicio and Teles Pires. For these UHEs, except for Belo Monte, the Instituto Acende Brasil estimate was used for the areas which will be flooded. For UHE Belo Monte, the flooded area taken into account included the municipalities of Altamira and Vitória do Xingu.

⁶² Most of these municipalities were affected by UHEs built prior to the period of the analysis; another 14 UHEs were also identified as built in the period of analysis, but which did not receive support from the BNDES.

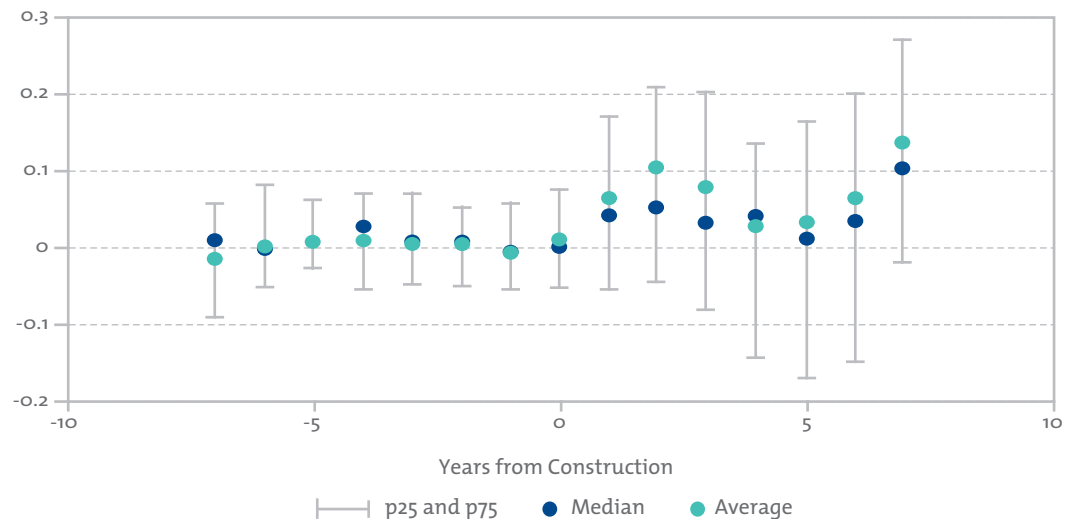
⁶³ Reis et al. (2004).

decision to build a UHE takes into account the social, environmental and economic costs as well as the benefits. Additionally, more favorable locations to build a UHE may be intrinsically different from less propitious sites. The central problem is what is called counterfactual, that is, simulating a situation that represents what would have happened to the locations with UHEs if the projects had not been built.

The study used the synthetic control method, indicated for applications such as evaluating UHEs effects. This method, which employs an optimization algorithm, consists of building a control unit using a combination of several untreated units. For each municipality affected by a UHE, the algorithm attributes weights to municipalities which were not affected by UHEs in order to build a “synthetic” municipality which is similar to the affected municipality in some aspects, with the most important being the variable of interest. To make the method more reliable, it only considers the municipalities in the same state where the affected municipality is located – except in the North Region, which was treated as one single state.

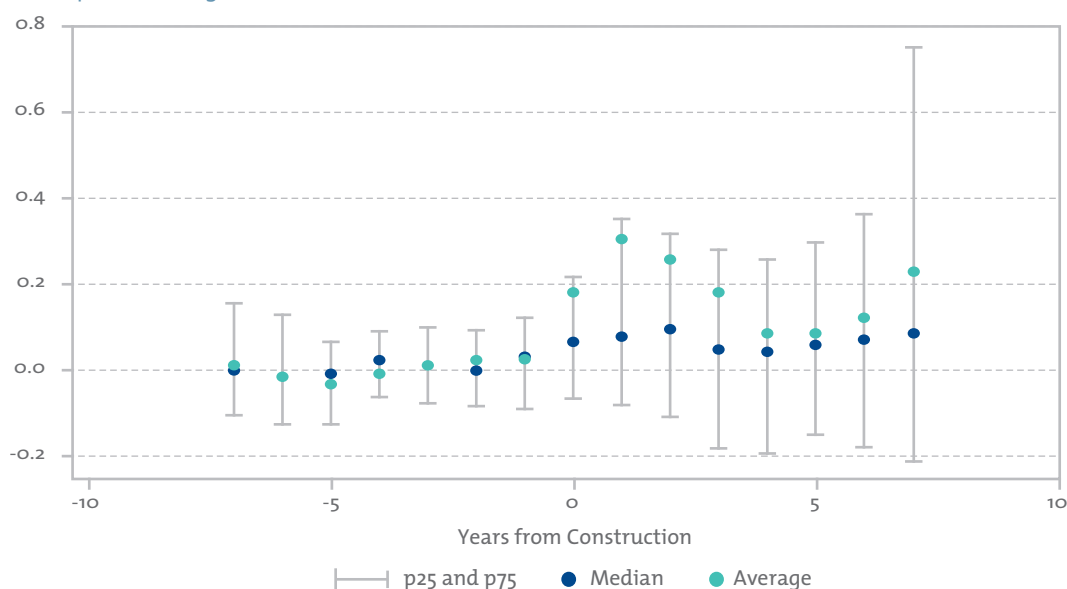
The synthetic control method was applied to each affected municipality at each moment throughout the span of the project. With this, for each municipality, we have the effect from building the UHE at different points in time referenced to the year building started. The results for the municipal GDP and formal employment are presented in charts 11 and 12; estimates are obtained for each of the municipalities affected by the UHEs – the charts show the distribution of effects with percentiles 25, 50, 75 and the average. Due to the breakdown of the sample, the results cover a period extending from seven years prior to building the UHE to seven years after construction began. Estimates are made with variables in log and, therefore, are interpreted in terms of percentage.

Chart 11: Distribution of effects from building UHEs on Gross Domestic Product in treated municipalities (in log)



Source: NAPC/PUC-Rio.

Chart 12: Distribution of effects from building UHEs on the number of registered jobs in treated municipalities (in log)



Source: NAPC/PUC-Rio.

There are two very important aspects associated with the projects. First, the fact that there is significant variation in the UHE effects on municipalities. Despite representing systematic behavior, the estimated effects are quite different. This result has important implications, especially on development policies and on mitigating adverse impacts from hydropower plants. Particularly, such differences recorded in the results corroborate the view that investments in hydropower plants are unique, and taking into account the specificities of each project and region is fundamental.

The second aspect is that, despite the heterogeneity, there is a typical pattern associated with UHEs. The two variables considered show similar behavior suggesting an important alteration in economic activity at the local level on two occasions: first, there is a cycle of approximately five years, which corresponds to the construction period in most cases, when effects on economic activities intensify and then cool off. The second occurs five years after building has started, when effects on economic activities increase again. This may be associated with the moment UHEs become fully operational, which means the municipality will begin receiving financial compensation for use of water resources.

The effect on the GDP, on average, reaches 10% in the second year after construction has started. Such effects drop until the fifth year, and from then on, it increases again reaching almost 15% in the seventh year after construction. The effect on employment is even more expressive with an average growth of approximately 30% in the first year. Although median results are lower, they display the same pattern, that is: greater effects at the beginning of construction and when operations begin (when the municipality starts receiving financial compensation).

6.2 Contribution to production development

6.2.1 EVALUATION OF PSI⁶⁴

The BNDES' Investment Maintenance Program (PSI) was launched in July 2009 aiming to contain the drop in investments in the Brazilian economy as a result of the 2008 international financial crisis. The PSI sub-programs related to commercializing capital goods consisted of altering the then-current conditions for financing in the BNDES Finame products, focused on acquiring machinery and equipment manufactured in Brazil by offering more advantageous conditions.

From a theoretical viewpoint, the program should be understood as a decrease in the final price of capital goods (price of the goods plus the financing cost). Therefore, the PSI represents an incentive in the microeconomic plan for agents (Brazilian companies) to allocate more resources to invest within this context.

Based on the aim of the program, the BNDES evaluated the PSI's impact to verify its effects in boosting investments to the Brazilian economy. For this, it estimated the PSI's impact on current investments made by industrial companies receiving financing during the first phase of the program, which lasted until June, 2010.

The strategy used to estimate the impact sought to deal with the bias related to the participation in the program, which is broadly discussed within the context of evaluation using non-experimental data.⁶⁵ To deal with this, the econometric methods normally present in the program evaluation literature were used. These methods compare units participating in the program with those that are not – Propensity Score Matching and Difference-in-Differences with Matching. In turn, these are able to compare companies that receive PSI support with those that do not. The databases used were: (i) PIA (IBGE) from 2007 to 2010; and (ii) information on financing within the scope of BNDES PSI – Phase 1, 2009-2010.

The results showed a positive and statistically significant impact of the PSI on current investments made by industrial companies receiving financing for both years in the period under review. It was concluded that, in 2009, the impact on the program's investment reached an approximate average amount of R\$ 352,000 per company receiving support – a number representing an addition of 40% in relation to what would occur if there were no PSI. In 2010, this amount dropped to R\$ 272,000 – representing an expansion of 28%. This result was extremely robust, since it has been achieved by employing several specifications from the methods applied, and even after the most rigid control over selection bias.

⁶⁴ Available at: <http://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes_pt/Galerias/Arquivos/conhecimento/efetividade/additionality_of_countercyclical_credit.pdf>.

⁶⁵ For further details on this discussion and the methods used in the study, see Heckman et al. (1997).

By projecting this average impact on all companies in the industrial sector receiving support from phase one of the PSI, the total amount of investment added to the Brazilian economy was R\$ 2 billion in 2009 and R\$ 5 billion in 2010.

6.2.2 EVALUATION OF BNDES PROFARMA⁶⁶

The BNDES' Healthcare Industry Support program (BNDES Profarma) was the first operational program to be evaluated within the BNDES' Monitoring and Evaluation System.⁶⁷ Created in 2004 in accordance with the Industrial, Technological and Foreign Trade Policy – which set forth the guidelines related to: production efficiency, foreign trade, innovation and technological development for industry, with the pharmaceutical industry as one of the strategic sectors – aimed to support national capital pharmaceutical companies, which would leverage the consolidation of technological content of medicine produced in Brazil.

The evaluation was conducted after structuring the Logical Framework for BNDES Profarma's phase one (2004-2007) and involved a sample of respondents from 63% of the 19 companies receiving support in this period. Its aims were established in four components:

- i. Expand production capacity – by expanding industrial drug plants. This component included 25 operations with nationally-owned companies.
- ii. Adjust the plants to meet regulatory standards – by modernizing plants, adapting them to Good Manufacturing Practices. This component included 20 operations.
- iii. Prepare companies for innovation – by financing expenditures in Research and Development (R&D). This component included 12 operations.
- iv. Strengthen companies receiving support – through mergers and acquisitions (M&A). This component included two operations.

It was expected that, by employing these four components, it would be possible to strengthen the effectiveness of the national pharmaceutical industry.

Table 46: Indicators for products and services in components 1 and 2 of BNDES Profarma's Logical Framework

INDICATOR	2004	2005	2006	2007	2008	2009	2010
Production capacity installed (in million units / year)	931.1	1,106.4	1,211.9	1,674.6	1,920.4	2,015.4	2,171.5
Percentage of certified plants among those receiving support (one year lag)		89%	78%	84%	92%	87%	88%

Source: Sample of companies evaluated.

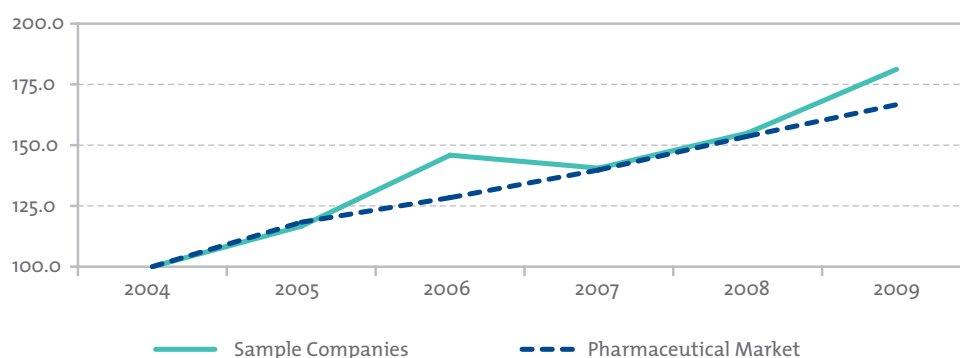
⁶⁶ Available at: <http://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes_pt/Galerias/Arquivos/conhecimento/bnset/set3309.pdf>.

⁶⁷ Pieroni, Pereira and Machado (2011).

As shown in Table 46, which shows the program's immediate results, it is possible to see that, from considering the contribution analysis, the program achieved the expected results for components 1 and 2: the installed production capacity more than doubled in this period and companies that took on good manufacturing practices remained high.

Chart 13 also shows satisfactory results for effects: turnover for companies receiving support increased by 80%. In all these indicators analyzed in the study, the performance of sample companies was higher than the sector's average.

Chart 13: Turnover for sample companies of BNDES Profarma's evaluation and for the pharmaceutical market (base year 2004 = 100)



Sources: Sample companies and Pharmaceutical Product Industry Trade Union (Sindusfarma).

Although R&D expenditures as a ratio of the net operating revenue after sales have increased by 50% in companies receiving support, the perception is that the BNDES' contribution was partial. This is due to the fact that fixed income instruments turned out to be limited as inducers of investments in innovation, especially those with higher risk. The new version of the program reinforced performance for innovation, especially in developing biological medicine.

The fourth component presented performance below expectations, due to the small number of operations, which made it impossible to establish a relationship between the M&As that took place and any resulting stronger business.

6.2.3 EVALUATION OF PROSOFT⁶⁸

The Program to Develop the National Software and IT Services Industry (BNDES Prosoft) was created in 1997 to foster the segment, focusing on strengthening national companies. In its current version, Prosoft has two operating aims:

- i. Prosoft Company: Financing investments and business plans for software and information technology service companies, headquartered in Brazil; and
- ii. Prosoft Commerce: Financing the acquisition, in the domestic market, of software and correlated services developed in Brazil.

⁶⁸ Available at: <http://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes_pt/Galerias/Arquivos/conhecimento/bnset/set3809.pdf>.

Prosoft Company was evaluated in 2013 for renovation. A Target Group (GA) was established for evaluation, comprising product software (SW) or software service (SSW) companies receiving support, with operations that were classified as eligible between 2006 and 2007, and which had no previous relation with the program. The Comparison Group's (GC) companies are similar, with operations classified as eligible between 2009 and 2010.⁶⁹ In both cases, companies' operations were approved at the BNDES. Table 47 displays the profile of the selected companies.

Table 47: Profile of sample companies selected to the BNDES Prosoft's evaluation

DESCRIPTION	GA	GC
Selected Companies	10 SW + 8 SSW	7 SW + 9 SSW
Surveys Answered	7 SW + 5 SSW	7 SW + 6 SSW
Turnover (2006) – average	R\$ 21 million	R\$ 26.4 million
Turnover (2006) – median	R\$ 14.1 million	R\$ 8 million
Number of employees (2006) – median	88	50

Source: Medrado & Rivera (2013).

Table 48 shows the indicators used to compare the two groups of companies established using the program's logical framework. Differences in performance are seen in the indicators between 2006 and 2011.

Table 48: Progress in the performance indicators in Prosoft company's evaluation

LOGFRAME GOALS	INDICATORS	GA	GC
National companies strengthened, larger and internationalized	Progress in Turnover (Median of Annual Individual Growth in Percentage Points)	18.3	16.1
	Progress in Registered Employment (Median of Annual Individual Growth in Percentage Points)	11.0	15.9
	% of Companies Leading M&As	41.7	23.1
	Progress in % of Undergraduate Employees (Median of Annual Growth in Percentage Points)	5.0	2.8
	Progress in % of Personnel in R&D (Average Individual Growth in Percentage Points)	5.8	1.5
	Progress in Turnover per Employee (Median of individual growth in percentage points)	9.0	1.2

Source: Medrado & Rivera (2013).

Comparisons between the two groups showed that the following indicators presented higher performance among the target-group companies: progress in annual turnover; percentage of companies that led M&As; increase in the percentage of undergraduate employees; average increase in percentage of

⁶⁹ It is understood that the GA received treatment upon receiving financing resources at the beginning of the period, whereas there was no time to observe the maturity of the investments for the GC companies. It is believed that the groups are homogenous, as both comprise companies whose requests for financing were analyzed and approved. Additionally, only companies with similar cost profiles were selected (software product firms and software service companies), while companies intensive in hardware and lower skilled labor were excluded (e.g. call/contact centers).

employees in R&D; and progress in turnover per employee. However, the relative progress in the number of registered jobs was lower in GA companies. Therefore, it is possible to conclude from the evaluation that Prosoft contributed to positive performance, in several aspects, in the companies assessed.

6.2.4 EVALUATION OF BNDES' SUPPORT TO PRESERVE COLLECTIONS⁷⁰

Documents in memorial collections maintain the memory of a certain place related to a certain period of time. They are important elements to reconstruct any country's history. This memory "may be preserved in a huge number of different ways, including books, files, archives and works of art. Any and all trustees of such collections are responsible for safeguarding and preserving this knowledge, which actually belongs to society".⁷¹

The BNDES, which recognizes culture as a strategic and dynamic sector, both from economic and social points of view, is also a partner of the Brazilian organizations that guard such collections in the mission to preserve and restore them. Through its Collection Preservation Program, the BNDES has systematically provided support to the sector since 2004, mainly through invitations to bid using non-reimbursable resources, totaling an invested amount of over R\$ 100 million.

The BNDES' support may be provided in three modalities: (a) urgency interventions, of an exclusively curative nature; (b) preventive interventions, avoiding damage to collections; and (c) sustainability interventions, to strengthen the custody institutions in order to assure their collections are preserved in the long term.⁷² Several institutions received this support, ranging from museums and archives to libraries, both public and private.

With these curative, preventive and sustainability efforts, the BNDES expects the direct outcome to be the recognition of preserved collections as important cultural assets for national memory, prioritizing the regional de-concentration of restorations, since most projects come from the South and Southeast regions. The indirect outcomes expected are: new investments deriving from the Bank's support; increased joint efforts, experiences and resources between such institutions; and strengthening memorial institutions.

Support for the collection sector was evaluated using the Logical Framework methodology, according to the BNDES' Monitoring and Evaluation System guidelines.⁷³ All 112 projects awarded through invitations to bid were surveyed, and 42 answers were returned, that is, a 38% sample of the total.

⁷⁰ Available at: <http://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes_pt/Galerias/Arquivos/conhecimento/revista/rev4101.pdf>.

⁷¹ Balbi, Zendron and Marcelino (2014, p. 11).

⁷² Curative efforts aim to stop advanced deterioration, including restoration and hygienization. Preventive efforts aim to avoid physical deterioration and loss of information in collections, and include cataloguing and acquiring equipment for environmental management (dehumidifiers and air-conditioners) and security systems. Sustainability efforts, in turn, include scanning collections and developing IT systems to share the collections receiving support.

⁷³ Balbi, Zendron and Marcelino (2014).

Results for the indicators were quite satisfactory. The number of visitors has tripled since the Bank's support, and the number of virtual access almost doubled, which proves that the public's perception of the cultural importance of those collections receiving support has improved. In relation to prioritizing regional decentralization, the quality of projects from the North, Northeast and Central-West regions improved, which is vital for these regions to increase participation in the future.

Regarding indirect outcomes, results were also satisfactory. New investments leveraged by implementing the BNDES' project were listed, including 14 training courses/workshops, 14 exhibits, 11 awards, eight books published, in addition to cultural or educational efforts, articles and seminars.

In an attempt to increase joint efforts, experiences and resources between custody institutions, the 2010 invitation to bid introduced the possibility of support using the anchor modality. Until then, the only possible modality was individual, in which the projects were submitted to the BNDES separately. The new modality allows one single application to gather and submit a set of projects in a group or in a network, with a broader scope and with more than one custody unit involved, making it more complex and complete. By way of example, we can mention a university with collections in libraries, archives and museums. Instead of submitting its projects individually, it is possible to group them in one single operation. The anchor modality requires bidders to coordinate efforts in all stages of the project, thus upgrading the exchange of experience and learning.

Seventy-eight anchor projects were submitted in that bid, applying for R\$ 250 million in resources, and five projects (R\$ 16 million) were approved. These figures indicate the repressed demand for projects of this size, and the organizations' capacity to get mobilized, even in the short term.

Finally, the last indirect outcome was to check if institutions had been strengthened. For that, two indicators were analyzed: participation of anchor projects in the total number of applications; and improvements in the institutions' capacity to publicize their activities.

Participation of anchor projects reveals strengthening by involving different collections and institutions in a set of efforts of higher value and complexity, requiring greater commitment both to developing the project and to long-term preservation. The value of this indicator was 30%, showing high participation – progress that should be monitored in the next invitations to bid. Institutions tripled the number of efforts to publicize their collections, with strong presence in print (88% of the institutions indicated appeared in print) and television (55% of the projects ran on air).⁷⁴

⁷⁴ Efforts to publicize the institution's role and efforts include participation in fairs, exhibits and congresses, promoting seminars and workshops, to name a few.

6.2.5 MONITORING INDICATORS ON INDUSTRY EFFECTS

In addition to evaluations, the BNDES gathers effects indicators to monitor the performance of industrial companies receiving financial support. In this case, the focus is on large industrial companies, since the others are monitored with MSMEs indicators (see Section 6.3).

Comparing an indicator between companies receiving the BNDES' support and those that are not makes it possible to verify whether there are differences between the two groups concerning characteristics from before receiving support and afterwards. If companies receiving support present distinct progress from the others after having received financing, this is not necessarily a result of support from the BNDES. Companies receiving support should show differences from before receiving financing and such pre-existing differences should be visible in the performance of the two groups. Nevertheless, monitoring does not make it possible to conclude whether the different progress between the companies receiving and not receiving support is truly a result of support from the BNDES or whether it is due to the two groups being different prior to financing. Still, monitoring is useful because it makes it possible to establish the profile of the companies receiving support, to verify patterns in their paths over time, and to pinpoint the need for further analysis using specific evaluation tools. Such evaluation, in its turn, can make it possible to reach a conclusion concerning the cause-effect relationship between the BNDES support and the performance.

The source of the data is PIA Empresa (IBGE), which encompasses all segments of extraction and transformation industries. Calculations for indicators involve only the companies that are surveyed every year.⁷⁵

Indicators are calculated for companies that the BNDES classifies as medium-large or large. In 2014, this classification applied to companies with gross operating revenue (ROB) above R\$ 90 million. With the variables researched in PIA Empresa, it is possible to calculate each company's ROB. This is used to select companies not receiving support that, according to the Bank's criteria, would be classified as medium-large or large.

The BNDES' so-called non-automatic operations are considered, i.e., operations above R\$ 10 million between 2007 and 2011, which the Bank is responsible for analyzing.⁷⁶ Within the non-automatic operations, the most used financing product is financing for fixed-investment projects (BNDES Finem), but there is also export financing (BNDES Exim) and support through equity (BNDES Capitals Market).

As the disbursements to a project may take place in more than one year, it is necessary to adopt a definition for the year of support. The year of support is when

⁷⁵ Those are companies with thirty or more employees and with gross sales revenue above a certain level (in 2011, such level was R\$ 9.94 million).

⁷⁶ There are certain financial instruments that are exceptions to this general rule enabling direct operations below R\$ 10 million in the analyzed period in the table (the limit now is in R\$ 20 million).

the last disbursement to the project is made. With this, the projects from some companies that were evaluated were approved in years prior to 2007, but the last disbursement was only made sometime between 2007 and 2011.

For most indicators, monitoring starts in the year before the year of support. It is assumed that, at the time, the effect indicator had not yet been affected by the BNDES' support. In the case of the investment indicator, this assumption is probably not valid and, therefore, monitoring starts two years prior to the year of support. For all indicators, the monitoring period is three years, and the same group of companies is monitored for that period.

Indicators are calculated for the years of support between 2007 and 2011 in accordance with the definition above. Since PIA Empresa for 2013 was not available at the time this Report was prepared, it was not possible to finish monitoring the companies receiving support in 2012.⁷⁷

Since the BNDES is a federal government instrument to implement public policies, the metrics in industrial policies are sought to monitor the performance of companies receiving support from the BNDES. The industrial policy considered is the Brazil Maior Plan, which covers the period between 2011 and 2014. The goals defined in the Plan are used as a reference to build effects indicators to be monitored, requiring only an adjustment since the Brazil Maior Plan's goals are expressed in macroeconomic terms and the indicators are calculated at a company level. For instance: the goal to increase the participation of Brazilian exports in foreign trade suggests monitoring the exported amount per company.

Six indicators are calculated: (i) personnel engaged; (ii) value of industrial transformation; (iii) labor productivity; (iv) participation of value added; (v) exports; and (vi) investment. Indicators are expressed in current values, that is, they are not deflated.

The average is calculated at two different moments for each indicator. The average can be seriously affected by the presence of companies that are too different from the others. For example, in case there is a much larger company than all others, this company can raise the average in such a way that it becomes a biased portrait of the situation for most companies. Therefore, the calculation of the average excludes 5% of the companies receiving support, of which 2.5% have the lowest indicator values and 2.5% have the highest indicator values. The same exclusion is used to calculate the average for companies not receiving support.

Indicator variation in the period is also measured in addition to the averages for indicators. For some indicators, the most appropriate measurement is the percentage variation and not the absolute variation. As it happens, some companies have

⁷⁷ It is only possible to calculate the investment indicator for companies receiving support in 2012.

extreme percentage variations and this ends up distorting the average; therefore, the option was to calculate the median of the percentage variation.

Table 49 presents the indicator for engaged personnel, considering paid personnel connected to industrial production on December 31. Before the support, the average for engaged personnel among companies receiving support is substantially higher than among other companies. To analyze the indicator's progress, the median for the percentage variation in engaged personnel is calculated between the previous year and the year following support. In general, this median is higher among companies receiving support than for those that do not, but the difference between the two groups is statistically significant only in 2008 and 2010. Therefore, for companies receiving support in these two years, there is evidence that the increase in engaged personnel is higher than that recorded in companies not receiving support.

Table 49: Progress in employee numbers in large industrial companies – 2007-2011 (in number of employees)

	N° OF COMPANIES	AVERAGE FOR INDICATOR IN T-1	AVERAGE FOR INDICATOR IN T+1	MEDIAN FOR PERCENTAGE VARIATION BETWEEN T-1 AND T+1	
t = 2007					
Companies receiving support	72	2,408	2,808	12.0%	
Companies not receiving support	2,478	537	608	9.4%	
t = 2008					
Companies receiving support	79	3,010	3,367	9.6%	*
Companies not receiving support	2,757	525	549	2.2%	*
t = 2009					
Companies receiving support	92	1,804	1,892	4.7%	
Companies not receiving support	3,100	492	550	7.0%	
t = 2010					
Companies receiving support	95	3,620	4,261	17.2%	**
Companies not receiving support	3,045	507	577	10.2%	**
t = 2011					
Companies receiving support	90	3,084	3,390	7.6%	
Companies not receiving support	2,599	623	661	3.4%	

Source: PIA Empresa (IBGE).

Notes: Tables structured by the BNDES. Asterisks indicate that the percentage variation median is statistically different among companies receiving support and those that do not. (*) indicates statistical significance at 10% and (**) indicates statistical significance at 5%.

Table 50: Progress in the industrial transformation value in large industrial companies – 2007-2011
(in current R\$ million)

	Nº OF COMPANIES	AVERAGE FOR INDICATOR IN T-1	AVERAGE FOR INDICATOR IN T+1	MEDIAN FOR PERCENTAGE VARIATION BETWEEN T-1 AND T+1	
t = 2007					
Companies receiving support	72	584.9	785.0	34.8%	*
Companies not receiving support	2,475	74.6	97.9	23.7%	*
t = 2008					
Companies receiving support	79	530.8	539.1	14.0%	
Companies not receiving support	2,752	72.6	84.2	12.8%	
t = 2009					
Companies receiving support	92	528.3	556.2	15.5%	
Companies not receiving support	3,096	74.6	89.0	16.6%	
t = 2010					
Companies receiving support	94	777.4	1,131.3	35.1%	
Companies not receiving support	3,043	73.1	97.5	28.4%	
t = 2011					
Companies receiving support	89	1,012.1	1,135.0	21.2%	
Companies not receiving support	2,598	103.7	123.8	13.8%	

Source: PIA Empresa (IBGE).

Note: Tables structured by the BNDES. Asterisks indicate that the percentage variation median is statistically different among companies receiving support and those that do not. (*) indicates statistical significance at 10%.

The industrial transformation value (VTI) is the focus in Table 50. Defined as the difference between the gross value of industrial production and the cost of industrial operations, the VTI measures value added using industrial activity. Prior to support, companies receiving support show an average VTI higher than other industrial companies. The growth rate median between the pre-support and post-support year is generally higher among companies receiving support. Since the difference between the two groups is significant from a statistical point of view only in 2007, there is evidence that, in this year alone, companies receiving support showed higher growth in the VTI.

The labor productivity indicator shown in Table 51 is defined as the ratio between the industrial transformation value and paid personnel connected to industrial production. Prior to support, average labor productivity among industrial companies receiving support is higher than in those that do not. The average of productivity variation between the pre-support and post-support year is not statistically different between the two groups of companies for the entire period under analysis. Consequently, there is no evidence of difference between the progress in labor productivity for companies receiving support and other companies.

Table 51: Progress in labor productivity in large industrial companies – 2007-2011 (in current R\$ thousands)

	N° OF COMPANIES	AVERAGE FOR INDICATOR IN T-1	AVERAGE FOR INDICATOR IN T+1	AVERAGE FOR VARIATION BETWEEN T-1 AND T+1
t = 2007				
Companies receiving support	72	257.4	281.1	23.7
Companies not receiving support	2,475	199.4	251.6	52.2
t = 2008				
Companies receiving support	79	216.4	211.0	-5.4
Companies not receiving support	2,752	197.3	221.5	24.2
t = 2009				
Companies receiving support	92	333.8	377.4	43.6
Companies not receiving support	3,096	212.8	244.4	31.6
t = 2010				
Companies receiving support	94	309.6	368.5	58.9
Companies not receiving support	3,043	204.8	274.5	69.8
t = 2011				
Companies receiving support	89	426.7	482.5	55.7
Companies not receiving support	2,598	242.4	296.5	54.1

Source: PIA Empresa (IBGE).

Notes: 1. Tables structured by the BNDES. 2. The variation average is not statistically different between the two groups at significance levels lower than or equal to 10%.

Table 52 shows the indicator for participation of value added. This indicator is defined as the ratio between the value of industrial transformation and the gross value of industrial production. It measures participation of value added by the company in its final product. Prior to support, the indicator average is higher among companies receiving support. As of 2008, the average variation in the indicator between the pre-support and post-support year is lower among companies receiving support. However, there is no statistically significant difference between the two groups as to the progress in the indicator for value added participation.

Table 52: Progress in participation of value added in large industrial companies – 2007-2011 (in %)

	N° OF COMPANIES	AVERAGE FOR INDICATOR IN T-1	AVERAGE FOR INDICATOR IN T+1	AVERAGE FOR VARIATION BETWEEN T-1 AND T+1
t = 2007				
Companies receiving support	72	44.41	45.53	1.12
Companies not receiving support	2,475	39.18	38.95	(0.23)
t = 2008				
Companies receiving support	79	46.44	47.13	0.68
Companies not receiving support	2,752	38.48	40.39	1.91
t = 2009				
Companies receiving support	92	42.60	42.74	0.14
Companies not receiving support	3,096	38.70	40.63	1.93
t = 2010				
Companies receiving support	94	41.68	40.97	(0.71)
Companies not receiving support	3,043	40.11	41.16	1.05
t = 2011				
Companies receiving support	89	46.49	45.98	(0.51)
Companies not receiving support	2,598	40.30	40.47	0.17

Source: PIA Empresa (IBGE).

Notes: 1. Tables structured by the BNDES. 2. The variation average is not statistically different between the two groups at significance levels lower than or equal to 10%.

Table 53 shows the export indicator expressed in Reais because it is calculated by multiplying the company's sales revenue (in Reais) by the proportion of its sales to the foreign market. The indicator is calculated only for companies with positive exports

in the three years they are monitored. Prior to support, companies receiving support show a much higher average export volume than other companies. As of 2008, the median for the percentage variation between the pre-support and post-support year is higher among companies receiving support. As the difference between the two groups of companies is not statistically significant, there is no evidence that exports from companies receiving support would grow more than those that do not.

Table 53: Progress in exports from large industrial companies (in current R\$ million) – 2007-2011

	N° OF COMPANIES	AVERAGE FOR INDICATOR IN T-1	AVERAGE FOR INDICATOR IN T+1	MEDIAN FOR PERCENTAGE VARIATION BETWEEN T-1 AND T+1
t = 2007				
Companies receiving support	55	469.8	461.6	-0.3%
Companies not receiving support	1,604	54.9	63.4	11.1%
t = 2008				
Companies receiving support	68	397.8	420.9	1.2%
Companies not receiving support	1,716	52.8	50.9	-4.1%
t = 2009				
Companies receiving support	69	850.3	1,142.6	6.2%
Companies not receiving support	1,852	48.7	51.7	-1.3%
t = 2010				
Companies receiving support	69	818.6	1,203.6	27.0%
Companies not receiving support	1,773	43.8	56.9	22.1%
t = 2011				
Companies receiving support	69	1,309.9	1,810.6	25.2%
Companies not receiving support	1,616	58.2	72.3	15.5%

Source: PIA Empresa (IBGE).

Notes: 1. Tables structured by the BNDES. 2. The percentage variation median is not statistically different between the two groups at significance levels lower than or equal to 10%.

The investment indicator reported in Table 54 is defined as the sum of acquisitions, improvements and a company's own production for fixed assets. This

indicator is different from the others because monitoring starts two years before the year of support. The calculation of the investment indicator is done only for companies with positive investments in the three years they are monitored. In the two years prior to support, average investment is substantially higher among companies receiving support. To analyze the progress in investment, the percentage variation is calculated between the support year and two years prior to it. There are statistically significant differences between the medians for the two groups of companies in 2007 and 2012. There is evidence that investments grow more for companies receiving support in those years than for those that do not.

Table 54: Progress in investment in large industrial companies – 2007-2012 (in current R\$ million)

	N° OF COMPANIES	AVERAGE FOR INDICATOR IN T-2	AVERAGE FOR INDICATOR IN T	MEDIAN FOR PERCENTAGE VARIATION BETWEEN T-2 AND T	
t = 2007					
Companies receiving support	67	90.6	156.5	48.4%	*
Companies not receiving support	2,206	9.9	15.6	17.5%	*
t = 2008					
Companies receiving support	70	115.7	176.2	64.2%	
Companies not receiving support	2,382	9.2	18.4	40.6%	
t = 2009					
Companies receiving support	83	129.7	92.3	-3.9%	
Companies not receiving support	2,637	10.5	12.7	0.0%	
t = 2010					
Companies receiving support	80	182.4	212.8	-3.5%	
Companies not receiving support	2,513	13.4	15.1	6.4%	
t = 2011					
Companies receiving support	76	194.1	307.4	34.5%	
Companies not receiving support	2,121	13.1	21.6	41.7%	
t = 2012					
Companies receiving support	165	134.7	176.2	29.7%	**
Companies not receiving support	2,198	1.6	17.4	5.0%	**

Source: PIA Empresa (IBGE).

Notes: Tables structured by the BNDES. Asterisks indicate that the percentage variation median is statistically different among companies receiving support and those that do not. (*) indicates statistical significance at 10% and (**) indicates statistical significance at 5%.

In short, analyzing large-scale industrial companies reveals that indicators for employed staff members, the industrial transformation value, and investment grew more in companies receiving support than those that did not. On the other hand, there is no evidence of any difference between the path of companies receiving support and those that did not when considering indicators for labor productivity, the stake in value added, and exports. To verify the cause-effect relationship between support from the BNDES and the performance recorded in these variables, evaluation must be carried out. As explained above, it is not possible to conclude whether the progress in companies in these variables is the result of support from the BNDES or due to other factors.

6.3 Social and production inclusion and sustainability

6.3.1 EVALUATION OF THE BNDES CARD⁷⁸

In 2011, the BNDES conducted a study to evaluate the impact of the BNDES Card on formal employment in companies that used the Card between 2008 and 2009. The BNDES Card is a financial product aimed at companies with annual turnover of up to R\$ 90 million, which is the cut-off limit for companies to be eligible in the Micro, Small and Medium-Sized Enterprises (MSME) segment, according to the BNDES' size criteria. The product is used to finance the acquisition of services, goods and nationally-manufactured industrial inputs, which should be previously accredited at the Bank and on the list of eligible products.

The BNDES Card was designed to provide specific access to credit for the MSMEs segment, such as expanding access to credit at lower cost and swifter financing. Based on this, for companies, the Card has a pre-approved revolving credit limit which may be up to R\$ 1 million by issuing bank. Issuers are BNDES-accredited financial institutions in charge of analyzing Card applications and, thus, accountable for the operation risk and for issuing the Card.⁷⁹

Analyzed as a public policy, the BNDES Card may be seen as a product aimed at reducing financial restrictions that the MSMEs segment faces in Brazil and, therefore, it has the potential to help companies in this segment grow by reducing costs associated with financing for their operations. Based on this, the study aimed to answer two questions: (i) Does the BNDES Card affect the growth of the MSMEs' formal employment? (ii) Is such a result different between the sizes of companies?

To answer these questions, the evaluation was based on the following methodological strategy. First, company growth was measured in terms of progress in registered employment using the Rais' data for the 2007-2009 period. The method of Difference-in-Differences was used to identify the impact on that variable, comparing the path of registered employment in companies that were issued the

⁷⁸ <http://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes_pt/Galerias/Arquivos/conhecimento/revista/Rev3601.pdf>.

⁷⁹ Additionally, to be eligible for the Card, the companies must be in compliance with tax and social requirements.

Card in 2008 and that used it in that year with the path of those companies which had the Card but did not use the credit limit in the respective period (used as counterfactual path in the method).

The results of the empirical analysis brought forth evidence of positive and statistically significant impacts from using the Card on registered employment in financed companies. The estimates showed an increase of approximately 8% in registered employment at the end of the year among companies that used the Card in 2008, and an increase of almost 10% in late 2009, in relation to the companies that were issued the Card in 2008 but did not use it.

Analysis per size showed that the impact was positive and significant only in the micro business segment for both intervals of measured effects. The estimates for the impact on this group of companies were substantially higher than that on other groups. In late 2008, the micro companies that used the Card showed a variation in registered employment approximately 10% higher than those that did not use it. At the end of 2009, this impact went up to 13%.

This evidence suggests that using the Card to finance smaller companies may have impacts on generating registered employment in the economy, or on companies registering employees, an issue which should be further investigated in the future.

6.3.2 EVALUATION OF MSMES SUPPORT INSTRUMENTS IN BRAZIL⁸⁰

According to the IDB,

Incomplete, imperfect, and asymmetric information hinders SMEs' access to financing and business consulting. Since information constraints hamper banks' risk assessment of SMEs, SMEs – particularly those investing in growth and innovation – have difficulty accessing credit.⁸¹

Based on such diagnosis, the IDB provides supports to MSMEs through several types of interventions, aiming to correct the market gaps that compromise the development of MSMEs throughout Latin American and the Caribbean.

In an attempt to verify the effects of such multidimensional support for MSMEs, the IDB, in 2014, conducted an impact evaluation to compare the effects of different types of support for MSMEs in Brazil. For this, the strategy used data on support offered to smaller companies by different Brazilian institutions, due to the fact that they have programs similar to those at the IDB. This study involved several Brazilian institutions that have historically cooperated in implementing support programs for MSMEs: the BNDES, the Brazilian Agency for Industrial Development (ABDI), the

⁸⁰ Available at: <https://publications.iadb.org/bitstream/handle/11319/6683/SME_BRIK_English.pdf?sequence=1>.

⁸¹ BID (2014, p.VIII).

Brazilian Agency for Promotion of Exports and Investments (Apex), the Brazilian Northeastern Bank (BNB), the Financier of Studies and Projects (Finep), the National Institute of Metrology, Quality and Technology (Inmetro) and the Brazilian Support Service for Micro and Small Business (Sebrae).

Evaluation aimed to compare and check the impact from the following types of support for MSMEs: credit; business consultancy; innovation; fostering exports, and agglomeration (support for local production systems). In addition to comparing the impact from each intervention separately, estimates were made concerning the effects from a combination of several types of support on variables, such as employment, wages, patent and trademark registration and on the value of exports, in order to check the existence of synergies between the interventions.

The evaluation used data from industrial companies with fewer than 250 employees, IBGE and OECD criteria for smaller companies. The databases used were Rais from 2001 to 2012, containing micro data on company wages and employment; data from the National Patents Office (INPI) on the registration of marks and patents associated with Brazilian industrial companies; and data from the Foreign Trade Office (Secex), consisting of information on companies' export values. The estimates for impacts from the types of analyzed support were based on a fixed effects model using the available panel of firms. Before this, pairing techniques based on the Propensity Score were used. The treated and non-treated groups were paired based on the characteristics identified.

The results showed that, in general, credit support is the only intervention with positive and statistically significant impact on all variable results, besides causing the highest positive impact on employment and wages. Participating in credit programs also resulted in significant gains in export amounts and trademark registration. Note that, among the analyzed credit programs, the BNDES Card was responsible for most of the samples of companies receiving support.

In relation to the other types of support, the results of the study show that export programs generate a significantly positive impact on the value companies export, on employment and on registration of trademarks and patents. Participating in an innovation program, however, did not affect wages and employment, but had a positive impact on the range of export values. Finally, estimates suggest that support for agglomeration alone has no positive impact on the variables analyzed in establishments that participated in such programs.

On the other hand, in the analysis of combined interventions, it was noted that the positive impact on employment through support for business consultancy is still greater if combined with credit support. Combining export and credit support programs generates a higher increase in the export value than that obtained individually from credit.

Therefore, in all types of support, with the exception of support for agglomeration, results showed a positive impact on at least one of the variables analyzed. Furthermore, the existence of synergy gains was evident in combinations of support programs for MSMEs, which reinforces the need to coordinate such public policies.

6.3.3 MONITORING INDICATORS ON MSMEs' EFFECTS

The BNDES monitors the effects of MSMEs receiving financial support. Indicators describing the aspects of employment in MSMEs are calculated by using data from Rais, a database containing information on the workforce from all registered companies in Brazil.

As mentioned in Section 6.2.5, monitoring effects indicators is aimed at describing the performance of companies receiving support, but it is not possible to conclude that this performance is the result of support from the BNDES or from other factors. The main aim of monitoring is to identify issues that should be the object of evaluation.

The focus of calculations lies in companies receiving support, which, according to the criteria adopted by the BNDES, are classified as MSMEs. Since it is not possible, according to the BNDES' criteria, to know the size of companies that did not receive support, we opted to maintain only companies with fewer than 250 employees in the database.⁸² Companies receiving support in the analysis are those that, besides having fewer than 250 employees, the BNDES classifies as MSMEs.

The BNDES' support for MSMEs is mainly offered in the automatic indirect modality, when an accredited financial institution conducts the analysis of the operation. Therefore, the following analysis is restricted to operations in this modality. Companies receiving support are monitored for three consecutive years: the year prior to the financing year, the actual financing year and the year following that. The aim is to analyze variations in indicators over these three years, that is, the indicators are related to companies present in Rais for three consecutive years.⁸³

Indicators are calculated for MSMEs receiving support between 2007 and 2011. Indicators related to companies receiving support in 2012 require the identified Rais 2013, which was not available at the time this Report was prepared.

It is important to mention that indicators are not calculated for the total number of companies receiving support and which the BNDES classifies as MSMEs. There are at least two reasons for this: one is that part of the companies classified by the BNDES as MSMEs have 250 or more employees. Additionally, there are companies receiving support that do not have the available indicator in Rais in a certain year.⁸⁴ Even though, it is possible to calculate the indicator for at least 70% of the MSMEs receiving support.

⁸² This is the cut-off used by the IBGE and the European Union to separate micro, small and medium-sized companies from others. Additionally, the database is restricted to companies with employees.

⁸³ The only exception is the indicator for employing MSMEs.

⁸⁴ In some cases, a company has information to calculate an indicator but not for another. Therefore, the number of companies analyzed is not the same for all indicators in a given year.

Five indicators are calculated: (i) employment; (ii) employing MSMEs; (iii) salaries; (iv) education, and (v) staff turnover. The first two indicators focus on the number of jobs, while the last three investigate the quality of jobs.

The employment indicator shown in Table 55 consists of the number of employees on December 31. Compared to other companies with up to 250 employees, those receiving support from the BNDES have, on average, more employees before the support.⁸⁵ As of 2009, the number of MSMEs receiving support increased and there was a change in their profile with a decrease in the average size of companies. Throughout the analyzed period, more than half of the MSMEs receiving support showed an increase in the number of employees between the pre-financing and post-financing year, which did not occur among companies not receiving support.⁸⁶ It proves that employment in MSMEs receiving support increased more than in MSMEs that did not.

Table 55: Progress in employment indicator in MSMEs – 2007-2011

	N° OF COMPANIES	AVERAGE FOR INDICATOR IN T-1	AVERAGE FOR INDICATOR IN T+1	MEDIAN FOR PERCENTAGE VARIATION BETWEEN T-1 AND T+1	
t = 2007					
Companies receiving support	31,270	24.1	29.5	16.7%	***
Companies not receiving support	1,424,708	8.9	9.6	0.0%	***
t = 2008					
Companies receiving support	39,964	24.3	28.2	13.3%	***
Companies not receiving support	1,477,380	9.0	9.5	0.0%	***
t = 2009					
Companies receiving support	76,481	19.3	23.0	14.3%	***
Companies not receiving support	1,529,414	8.9	9.5	0.0%	***
t = 2010					
Companies receiving support	125,464	18.0	21.2	12.5%	***
Companies not receiving support	1,567,801	8.6	9.3	0.0%	***
t = 2011					
Companies receiving support	167,335	17.0	19.0	7.1%	***
Companies not receiving support	1,637,374	8.7	9.0	0.0%	***

Source: Rais (MTE).

Note: Tables structured by the BNDES. Asterisks indicate that the percentage variation median is statistically different among companies receiving support and those that do not. (***) indicates statistical significance at 1%.

The employment indicator is calculated only for companies with employees for three consecutive years. To know the number of companies that no longer have employees (or do not record them in Rais) over these three years, we calculate

⁸⁵ This result is the same when we compare companies in the same sector (industry, trade and services).

⁸⁶ Although not shown in the table, the average percentage variation in the number of employees is also significantly higher among MSMEs receiving support.

the indicator for each employing MSME. Presented in Table 56, the indicator for employing MSMEs is defined as follows: within the universe of MSMEs with employees in the year under analysis and the prior year, we calculate the percentage of companies with employees in the following year. This percentage is significantly higher among the MSMEs receiving support than among those that do not.

Table 56: Progress in the indicator for employing MSMEs – 2007-2011

	Nº OF COMPANIES	PERCENTAGE OF MSMEs WITH EMPLOYEES IN T+1 AMONG THE MSMEs WITH EMPLOYEES IN T-1 AND T	
t = 2007			
Companies receiving support	32,693	96.4	***
Companies not receiving support	1,608,365	88.7	***
t = 2008			
Companies receiving support	41,714	96.4	***
Companies not receiving support	1,664,862	88.8	***
t = 2009			
Companies receiving support	80,167	95.9	***
Companies not receiving support	1,717,047	89.2	***
t = 2010			
Companies receiving support	132,001	95.4	***
Companies not receiving support	1,769,457	88.7	***
t = 2011			
Companies receiving support	176,112	95.3	***
Companies not receiving support	1,838,810	89.1	***

Source: Rais (MTE).

Note: Tables structured by the BNDES. Asterisks indicate that the percentage is statistically different among companies receiving support and those that do not. (***) indicates statistical significance at 1%.

The salaries indicator is analyzed in Table 57. Expressed in current values, the salaries indicator is defined as the average for salaries⁸⁷ in December among the company employees engaged in major groups 4 to 9 in the Brazilian Occupation Classification (CBO) 2002.⁸⁸ Considering the pre-financing year, salaries are, on

⁸⁷ Salaries for each employee are adjusted to contracted hours (we calculate what the salary would be if the number of contracted hours were 44) and to the minimum salary established by minimum wages.

⁸⁸ This restriction excludes officers, managers and employees in positions requiring higher levels of competence from the calculation.

average, higher in companies receiving support than in the others. The difference between the two groups is greater in 2007 and 2008, and decreases as of 2009. MSMEs receiving support show, on average, higher growth in salaries than the others. This difference is statistically significant at 1% in 2010 and 2011. Therefore, for MSMEs receiving support in these years, there is evidence that average salaries grow more than in companies that do not receive support.

Table 57: Progress in the salaries indicator in MSMEs – 2007-2011

	N° OF COMPANIES	AVERAGE SALARIES IN T-1 (R\$)	AVERAGE SALARIES IN T+1 (R\$)	AVERAGE FOR PERCENTAGE VARIATION BETWEEN T-1 AND T+1	
t = 2007					
Companies receiving support	30,416	721.3	868.7	24.1%	*
Companies not receiving support	1,324,209	628.4	746.7	23.4%	*
t = 2008					
Companies receiving support	38,937	770.9	934.0	25.0%	
Companies not receiving support	1,372,039	674.2	810.5	24.8%	
t = 2009					
Companies receiving support	73,894	787.8	956.2	25.2%	
Companies not receiving support	1,417,424	738.4	887.6	25.0%	
t = 2010					
Companies receiving support	121,220	848.1	1,039.0	25.9%	***
Companies not receiving support	1,447,859	799.5	969.2	25.2%	***
t = 2011					
Companies receiving support	160,932	908.6	1,129.3	27.6%	***
Companies not receiving support	1,508,928	875.8	1,078.9	27.2%	***

Source: Rais (MTE).

Note: Tables structured by the BNDES. Asterisks indicate that the percentage variation average is statistically different among companies receiving support and those that do not. (*) indicates statistical significance at 10% and (***) indicates statistical significance at 1%.

The indicator for education levels in a company consists of the percentage of employees that completed high school, calculated among employees engaged in the major groups 2 to 9 of CBO 2002.⁸⁹ Table 58 shows that there is a change in the profile of MSMEs receiving support concerning education levels. In 2007 and 2008, companies receiving support, before financing, posted a lower percentage of

⁸⁹ This restriction excludes officers and managers from the calculation.

employees that had completed high school than the others. The difference between the averages of the two groups decreased as of 2009 and virtually disappeared in 2011. In the comparison between the pre-financing and post-financing year, MSMEs receiving support show a higher increase in the percentage of employees that had completed high school than that recorded by the other companies. The difference between the variations of the two groups is statistically significant.

Table 58: Progress in the education indicator in MSMEs – 2007-2011

	N° OF COMPANIES	AVERAGE PERCENTAGE OF EMPLOYEES THAT FINISHED HIGH SCHOOL IN T-1	AVERAGE PERCENTAGE OF EMPLOYEES THAT FINISHED HIGH SCHOOL IN T+1	AVERAGE VARIATION BETWEEN T-1 AND T+1	
t = 2007					
Companies receiving support	31,047	43.0	48.1	5.0	***
Companies not receiving support	1,394,021	45.4	49.4	4.0	***
t = 2008					
Companies receiving support	39,707	45.9	51.0	5.1	***
Companies not receiving support	1,445,627	48.2	52.2	4.0	***
t = 2009					
Companies receiving support	75,790	50.1	55.2	5.2	***
Companies not receiving support	1,495,700	51.0	54.9	3.9	***
t = 2010					
Companies receiving support	124,236	52.9	57.7	4.8	***
Companies not receiving support	1,531,806	54.0	57.5	3.5	***
t = 2011					
Companies receiving support	165,445	56.7	61.0	4.3	***
Companies not receiving support	1,598,781	56.5	59.8	3.3	***

Source: Rais (MTE).

Note: Tables structured by the BNDES. Asterisks indicate that the average variation is statistically different among companies receiving support and those that do not. (***) indicates statistical significance at 1%.

Table 59 reports the staff turnover indicator; this is calculated as follows: taking the minimum among hired employees (first job or reemployment) and dismissals (terminated by employer or resignation) in the year and dividing it by the average of number of

employees over the year.⁹⁰ The indicator expressed in percentage can be interpreted as the proportion of jobs in which there was replacement during the year. Before financing, MSMEs receiving support presented a higher staff turnover than the others. The difference between the two groups' averages increases after financing, since the variation for companies receiving support is significantly higher than for those that do not.

Table 59: Progress in the indicator for staff turnover in MSMEs – 2007-2011

	N° OF COMPANIES	AVERAGE STAFF TURNOVER INDICATOR IN T-1	AVERAGE STAFF TURNOVER INDICATOR IN T+1	AVERAGE VARIATION BETWEEN T-1 AND T+1	
t = 2007					
Companies receiving support	31,270	35.1	41.4	6.4	***
Companies not receiving support	1,424,708	27.8	31.7	3.9	***
t = 2008					
Companies receiving support	39,964	38.4	39.4	1.0	
Companies not receiving support	1,477,380	29.6	30.1	0.5	
t = 2009					
Companies receiving support	76,481	41.5	42.8	1.3	***
Companies not receiving support	1,529,414	32.4	32.6	0.2	***
t = 2010					
Companies receiving support	125,464	38.7	43.1	4.4	***
Companies not receiving support	1,567,801	30.9	33.6	2.7	***
t = 2011					
Companies receiving support	167,335	42.3	41.9	-0.4	***
Companies not receiving support	1,637,374	33.3	32.3	-1.0	***

Source: Rais (MTE).

Note: Tables structured by the BNDES. Asterisks indicate that the average variation is statistically different among companies receiving support and those that do not. (***) indicates statistical significance at 1%.

Summarizing, evidence shows that MSMEs receiving support register higher growth in employment, average salaries and the proportion of employees that have finished high school than that recorded by companies not receiving support. The proportion of companies that still have employees is also higher among MSMEs

⁹⁰ The calculation of the annual average of number of employees takes into account the final positions in the 12 months of the year.

receiving support. It may be interesting, by means of evaluation, to further investigate the reasons behind the increase in staff turnover among MSMEs receiving support.

6.3.4 EVALUATION OF THE AMAZON FUND⁹¹

The Amazon Fund is an initiative by the Brazilian government which was formally created in 2008, aimed at helping reduce greenhouse gas emissions from deforestation and forest degradation primarily in the Amazon Biome. Managed by the BNDES, the Fund receives donations and provides non-reimbursable support to structuring projects directly presented to the Bank, or to projects selected in public invitations to bid that the fund runs itself or through partner institutions. To receive support, projects should be aimed at solid efforts that demonstrate their potential to help reduce deforestation and forest degradation.

In accordance with the guidelines in the Sustainable Amazon Plan (PAS), the Plan to Prevent and Control Deforestation in the Legal Amazon (PPCDAM) and the State Plans to Prevent and Combat Deforestation, the Amazon Fund, since it was created, has monitored and evaluated its results, highlighting the evaluation in the 2013 Activity Report.⁹² This report reviews the performance in indicators selected within the Logical Framework for both the Fund as a whole, and for the fifty individual projects approved up to 2013. Of this total, some 33 were being implemented and three had been completed, with disbursements totaling over R\$ 220 million.

The Logical Framework for the Amazon Fund was consolidated in 2010 and guides the Fund's monitoring and evaluation activities and its projects. It is structured according to one general aim: "Reduce deforestation together with sustainable development in the Amazon region" and four specific aims: 1. Activities that maintain the forest standing are economically attractive in the Amazon biome (sustainable production); 2. Governmental efforts adjust man-made efforts to meet environmental legislation (monitoring and control); 3. The Amazon biome area has undergone land-use planning; and 4. Science, technology and innovation efforts contribute to the recovery, conservation and sustainable use of the Amazon biome (scientific and technological development).

The indicator for Component 1 (sustainable production) is the production of vegetal extraction in the states that are part of the Legal Amazon, and the result was a 50% increase from 2009 to 2012 both in quantum (tons) and value (Reais).

Component 2 indicators (monitoring and control) are the quantities of: (i) state environmental agencies; (ii) decentralization agreements with municipalities; and (iii) environmental permits or licenses granted. All of them presented an increase

⁹¹ Available at: <http://www.amazonfund.gov.br/FundoAmazonia/export/sites/default/site_en/Galerias/Arquivos/Relatorio_Atividades/RAFA_Virtual_English_2013.pdf>

⁹² BNDES (2013).

with emphasis on the decentralization agreement (500% increase in 2009-2013 period) and permits granted (100% in the same period).

Component 3 (territorial ordering system) is monitored through the indicator for the area within the Legal Amazon states with Ecological-Economic Zoning (ZEE). The variation from 2009 to 2013 was 109%, increasing the area of the Legal Amazon covered by zoning from 17% to 35%.⁹³

Finally, the indicator for Component 4 (scientific and technological development) is the number of patents applied for or received in the Legal Amazon states which, from 2009 to 2012, increased 6.5%. In relation to the general aim, there was a 22% fall in deforestation between 2009 and 2013, with a slight increase in GDP participation of the Legal Amazon states compared to country's GDP, rising from 8.04% in 2009 to 8.38% in 2011.

These figures corroborate the idea that the Amazon Fund has effectively helped reduce deforestation and indicate how such reduction is made possible. Several other players contribute to this aim, but the Fund's contribution seems to be very clear, especially when we look at the different products or services that the Fund's projects have delivered, which include workshops and training courses for sustainable production activities, strengthening environmental agencies for monitoring and control, consolidating conservation units for management plans, and purchasing equipment to provide support to researchers and technicians in R&D activities.

6.4 Structuring corporate capacities and strengthening capital structures

This sub-section of the Report summarizes the main results from case studies on effects from the BNDES' operations through equity. The three companies studied were JBS (animal protein sector), TOTVS (software sector) and Tupy (foundry sector).⁹⁴ The selection of companies was an attempt at addressing the sectoral diversity of the Brazilian economy as well as the different aims the BNDES pursues, such as internationalization and increasing investments in R&D. These companies are leaders in their sectors, and have received capital injections and signed shareholders' agreements with the BNDES.

The study methodology involved reviewing the literature, conducting interviews with the target company and other private or public agents related to the case, as well as a survey of primary and secondary data. Case studies also reviewed company

⁹³ All ZEE phases need to have completed with a minimum scale of 1:250.000.

⁹⁴ These studies were carried out between March and October 2014, through a partnership with the Center for Strategic Studies and Management in Science, Technology and Innovation (CGEE), a civil association connected to the Ministry of Science, Technology and Innovation (MCTI) which selected and deployed researchers: JBS – John Wilkinson (CPDA/UFRRJ); Totvs – Paulo Tigre (IE/UFU); and Tupy – Germano Mendes (IE/UFU). The BNDES, in turn, provided information on the companies studied and facilitated access.

competence according to the Enterprise Assessment Methodology (MAE) developed by the BNDES. There, the company's intangible capitals are grouped into seven different categories: financial, corporate governance, socio-environmental, strategic, relations, processes, innovation and human resources.⁹⁵

The Bank's efforts through equity mechanisms aim to strengthen the capitals market by means of operations in the Novo Mercado and Bovespa Mais, publicizing the concept and stimulating company to maintain corporate governance, expanding demand and liquidity in securities, as well as contributing to democratizing and consolidating the companies' capital structure. In addition to operating with companies that are already publicly-held, the Bank also works towards helping new companies enter the capitals market.

The aim of BNDESPAR investing in companies should be to provide support to Business Plans in keeping with the BNDES System's priorities, and this involves, among others: modernization and expansion, M&As aimed at consolidating the competitive position of Brazilian companies, inserting and strengthening companies in the foreign market, business restructuring by improving the capital structure of companies receiving support, as well as innovation.

At JBS, the BNDES helped internationalize the company (which became the largest animal protein company in the world) and required (as a contractual obligation) improvements in socio-environmental and governance practices in its production chain. At TOTVS, the BNDES provided support to consolidate the management software sector, which turned the company into the sixth largest in the world in its segment. Meanwhile, at Tupy, the Bank helped restructure, increase and internationalize the company which became the world's largest manufacturer of engine blocks and heads. Studies attempted to denote the impact of the BNDES' support on the growth of these companies, both from the viewpoint of development and competencies, as well as through performance indicators, and even analyzing the impact of such growth in their sectors and society.

The case studies showed the BNDES' long-term vision and willingness to take risks as an investor. At JBS, internationalization was seen as very risky by the market, due to the amount of resources and the long term for investments. The BNDES' support for the company involved three injections between 2007 and 2009, totaling R\$ 5.64 million, which made it possible to implement a strategy to internationalize and diversify the company within a context of crisis, in which many meatpacking companies filed for bankruptcy in Brazil and around the world.

At TOTVS, the BNDES' investment in company capital, in 2005, with an injection of R\$ 40 million, made it possible to maintain national control when it left the foreign fund

⁹⁵ Almeida & Braga (2014).

Advent and to purchase Logocenter. The initial public offering, the first in the national software sector, occurred in 2006, and made it possible to purchase RM Sistemas. Sector consolidation was completed by merging with Datasul, the second largest in the country, in 2008, which received BNDES support to the tune of R\$ 200 million through convertible debentures and took the company to the sixth position in its segment in the world.

At Tupy, five financial injections took place between 1991 and 2007, totaling US\$ 116 million⁹⁶, helping the company not only restructure in the 1991-2002 period, but also grow, and strengthen its strategy in the 2003-2012 period. This also made it possible for internationalization (with the purchase of Mexico Cifunsa and Technocast), and to launch a new public offer, moving into the Novo Mercado, as of 2012.

Concerning corporate competence, in addition to financial support, companies highlighted the BNDES' contribution to improving corporate governance and considered it a "seal of quality" in its relations. After receiving support, the three companies are now commercialized on the *Novo Mercado* (maximum level of governance at BM&FBovespa). This result endorses prior evidence indicating that the companies in BNDESPAR's portfolio have better corporate governance than others.⁹⁷

Even at JBS, which was already listed in that segment, governance improved with the new shareholders' agreements, including: creating the Statutory Audit Committee, Financial and Risk Management Committee and Sustainability, among other actions taken. The company's socio-environmental capital and relations were strengthened. As for strategic capital, at Tupy, competence was improved, which is the result of demands from BNDES and Previ, which share company control. At first, in the nineties, subsidiaries not related to the company's core competence were sold off as they were not part of the foundry sector. The company's administrative structure was also simplified. As of 2000, strategic planning has been structured and changes have been made to the pricing model, which fostered recovery of margins and upped Tupy's investment capacity. At TOTVS, innovation capital and processes were strengthened, which resulted in increased R&D initiatives due to the BNDES' support, and also via credit, which reinforced the company and the technological content of its operations.

To evaluate the companies' performance after receiving support from BNDESPAR, certain variables of interest were surveyed according to the aim of support. These are: financial turnover, employment, exports and internationalization, as well as investments in R&D. In all companies, there was expressive growth in turnover after the BNDES' support, surpassing the average growth recorded in their sectors and the company's growth before support. The companies' growth was accompanied by a substantial increase in personnel.

⁹⁶ The amount is in US Dollars due to high inflation in the 1991-1994 period.

⁹⁷ Zorman (2012).

As for exports and internationalization, JBS and Tupy were successfully internationalized. In 2013, JBS was the most internationalized Brazilian company⁹⁸, and, in 2014, it was the largest national exporter. Tupy secured 67% of its revenues abroad in 2013. TOTVS, however, was not so successful in its efforts, and its revenues from abroad account for less than 3% of the total.

In more traditional sectors, JBS' and Tupy's investments in R&D are not so expressive. However, Tupy, in 2004, was awarded the Finep Award for Technological Innovation, for developing production technology and control, which, together with its efforts in machining, explain the higher operational margins than in other foundry companies. At TOTVS, R&D investments are quite important and have maintained a growing trend since 2006, increasing from 9% to 13.3% in revenues, which shows an expressively higher effort than the sectorial average in Brazil.⁹⁹

Case studies evaluated the impacts of BNDESPAR's support for companies on the sector and society. In sectorial terms, JBS increased governance of its production chain, which resulted in reducing illegal slaughter from 30% of the total in 2007 to 9% in 2014. At TOTVS, the company disseminated technology for MSEs, setting an example by going public and thus prompting other companies in the sector to follow suit, including Linx and Senior Solutions. It also stimulated competition with foreign multinational corporations, which increased their development efforts in Brazil. At Tupy, due to the sheer market power of automotive plants, the company's growth resulted in few qualitative changes in the sector. In broader terms, the company took advantage of new investment opportunities in the capitals market, as well as higher exports and employment, due to growth in the companies.

The BNDES provided support to companies with bold investment projects and injected the right amount of resources at the right time to make them feasible. In this process, it helped boost competence, such as innovation and socio-environmental commitment, as well as company growth, besides developing the capitals market. In late 2014, tradable shares on the free float market reached 72% of the total at TOTVS; 33.1%¹⁰⁰ at Tupy, and 22%¹⁰¹ at JBS.

However, as development is a moving target, new challenges appear when companies receiving support tend to grow. At JBS, a major challenge is to consolidate its diversification strategy and increase margins. TOTVS seeks to further its internationalization strategy, which has moved slower than expected. At Tupy, there is an opportunity to give socio-environmental aspects a competitive edge. As a shareholder and a development institution, the Bank is paying close attention to such opportunities.

⁹⁸ Classification according to ranking by Fundação Dom Cabral [FDC (2013)].

⁹⁹ According to Pintec [IBGE (2011)], the R&D/income ratio in the sector for developing customizable software was 1.15%.

¹⁰⁰ Telos (Embratel Social Security Foundation), which is not part of the control group, has more than 10.5% of the capital.

¹⁰¹ BNDESPAR and Caixa which are not part of the control group have, respectively, more than 24.6% and 10.1% of the capital.

6.5. Generating or maintaining jobs¹⁰²

One of the BNDES' main responsibilities is to provide financing to increase installed production capacity in Brazil. With this, the Bank finances investment projects put forth by Brazilian companies which involve, in many cases, constructing or expanding production plants, purchasing machinery and equipment, as well as rendering associated services, including project engineering or assembling capital goods.

It is possible to expect that, within these activities, impacts would affect employment by generating or maintaining jobs, due to the economic boost brought about by financed investments. In this vein, impacts on employment in the economy should be positive, and should be seen at different times in relation to making such investments, namely:

- i. Initial investment phase: when workers are required, especially in civil works, machinery and equipment building, and services provided to companies to "build" the project; and
- ii. Operational investment phase: occurring investment has been made, when the workforce can be employed in the company that received financial support, as a result of higher installed production capacity, for instance.

In an attempt to estimate a possible result from such financial support on employment in the economy during the initial investment phase, the Bank uses an input-output model based on official data from the IBGE's System of National Accounts – called the Employment Generation Model (MGE).¹⁰³

It should be emphasized that the estimated number of jobs resulting from MGE simulations does not correspond to the net jobs generated in the economy, and these are not causal estimates on employment. The results of the model estimates should be interpreted as the volume of employment required to make it possible to increase production in the sectors where demand has increased as a result of acquisitions of goods and services due to investments receiving the BNDES' support.

Incorporating the IBGE's Input-Output Matrix into the model that provides the intersectoral structure for intermediate consumption in the economy makes it possible to measure, in a disaggregated way, possible chained outcomes from generated/maintained jobs. Three types of employment are analyzed:

- i. Direct employment: that occurring in the sector whose final demand has increased, that is, mainly in civil construction, manufacture of machinery and equipment, and services rendered to companies;

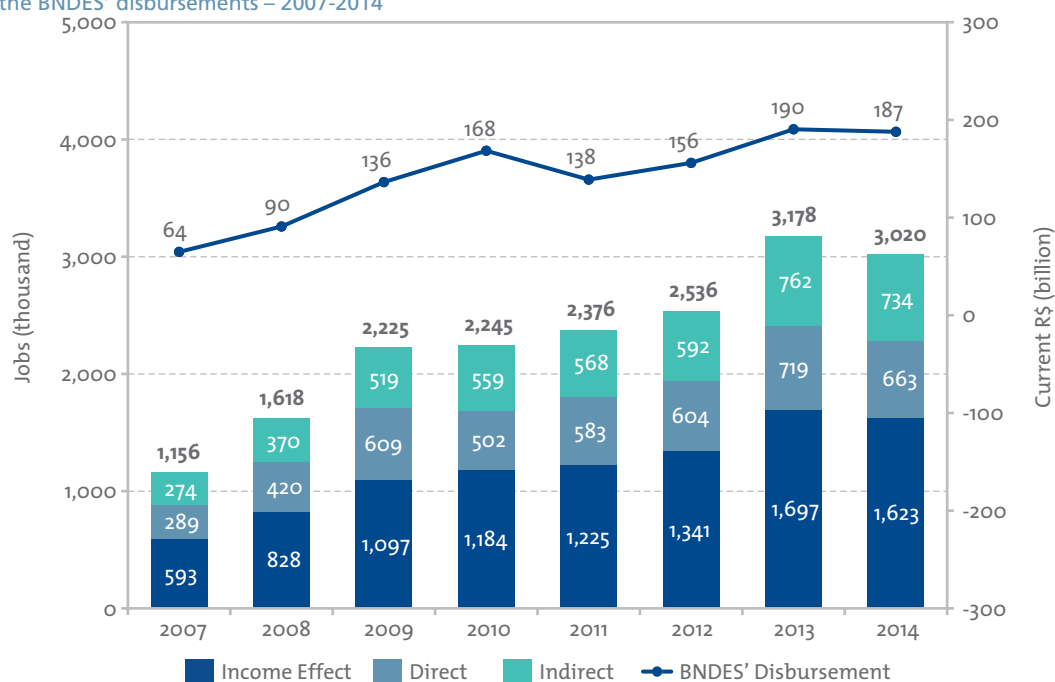
¹⁰² Available at: http://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes_pt/Galerias/Arquivos/conhecimento/livro_brasil_em_transicao/Brasil_em_transicao_cap25.pdf.

¹⁰³ For further details on MGE methodologies and hypotheses, see Najberg & Ikeda (1999).

- ii. Indirect employment: corresponds to jobs in production chains serving the sectors directly affected by the increase in demand; and
- iii. Income-effect employment: consists of estimated jobs due to increased consumption which is the result of direct and indirect employees spending their income, mainly in sectors producing basic consumer goods or providing basic consumer services (meals, clothing, services provided to families etc.).

Chart 14 presents the results of estimates for generated or maintained registered jobs in the economy associated with the BNDES' disbursements, obtained through MGE simulations for each year in the 2007-2014 period.¹⁰⁴

Chart 14: Estimates for generated or maintained registered jobs, per type of employment, associated with the BNDES' disbursements – 2007-2014



Sources: System of National Accounts (IBGE) and BNDES.

The MGE estimates for generated or maintained registered jobs associated with the projects receiving support from the BNDES expressly increased during the 2007-2014 period. The estimated values constantly rose from 2007 (approximately 1.2 million jobs) to 2013 (approximately 3.2 million jobs) and suffered a minor decrease in 2014. The variation in this indicator is highly correlated to the behavior of the Bank's disbursements.

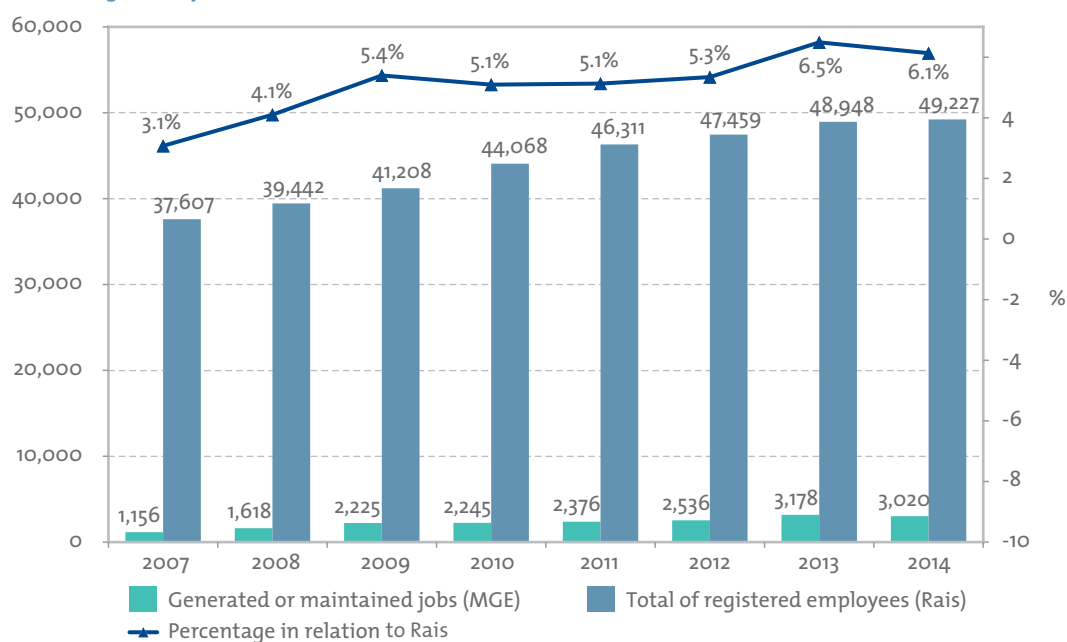
The magnitude of job estimates, as well as the breakdown regarding the type of employment, still depends on what sectors in the Brazilian economy have seen

¹⁰⁴ The calculation considers resources that increase the final demand in sectors during initial investments and which have the potential to influence employment. For example, expenditures on imported equipment and working capital dissociated from investment projects are excluded.

their final demand increase during initial investments that received support from the BNDES. The sectors most actively driven by initial investments receiving support are: civil construction, machinery and equipment manufacture, manufacture of automobiles, buses and trucks, manufacture of parts and other vehicles, as well as services rendered to companies, which corresponded, on average, to 80% of the final demand in the 2007-2014 period.

Analysis of the breakdown of MGE job estimates per type (direct, indirect and income-effect) presents stability throughout the period. Approximately little more than half the estimated jobs come from income-effect, that is, associated with the result from employed workers spending their income on consumer goods. Direct and indirect employment each represent approximately one fourth of total estimated employment, with indirect employment slightly less representative in the total.

Chart 15: Progress in the participation of the employment estimates related to BNDES' disbursement in Brazil's registered jobs – 2007-2014



Sources: Rais (MTE) and BNDES.

Note: The value of Rais employment in 2014 is a prediction based on registered employees in Caged (MTE) data. The blue line "Percentage in relation to Rais" was obtained using the ratio between generated or maintained jobs (MGE) resulting from the BNDES' disbursements and the total number of registered employees (Rais).

To have an idea of the magnitude of MGE job estimates, Chart 15 shows the progress in the ratio (in percentage) between job estimates stemming from the BNDES' disbursements and the number of registered jobs in Brazil, using Rais' data.¹⁰⁵ Note that such percentage virtually doubled in the period in Chart 15,

¹⁰⁵ It is important to note that we are comparing a flow variable (MGE job estimates) with an inventory variable (Rais registered jobs), solely to get an idea of the magnitude of estimates.

going from 3.1%, in 2007, to 6.1%, in 2014, as a result of the increase in the BNDES' involvement as a source of resources for Brazil's production system in that period.

7. BALANCE AND PERSPECTIVES

This Effectiveness Report compiled the first information produced in a structured form by the BNDES' Monitoring and Evaluation System. Indicators for results and evaluations were presented, reflecting delivered products and services and outcomes caused by the Bank's efforts in different sectors, sizes of clients and operational modalities. Producing such information sought to generate knowledge on the impacts of the BNDES' operations, aiming to enhance them and optimize results, in addition to assuring more transparency in the way public resources are used.

Developing the BNDES' Monitoring and Evaluation System was based on the aims outlined in the Strategic Corporate Planning and more specifically on the perspective of sustainable and competitive development, because such perspective is conceptually connected to the results from interventions receiving support from the Bank. Bearing in mind this connection, the BNDES' Model for Integrating Corporate Results explained the logical chaining of the Bank's vision to achieve its strategic priorities (measured through disbursements and number of companies receiving support) with the results (measured using indicators for products and services, and for effects) in each of the defined aims: (i) expanding investments in infrastructure; (ii) inducing Brazilian companies to strengthen their competitiveness; (iii) contributing to social and production inclusion, and (iv) promoting innovation, socio-environmental sustainability and regional development.

Producing and organizing this information, which sought to show the results of the BNDES' operations and its contribution to fostering sustainable and competitive development of the Brazilian economy, reveal the advances made over the last few years in building an institutional environment that is suitable to conduct monitoring and evaluation. It may be considered that the Bank made significant progress concerning the increase in its operations' "evaluability", with expected results more clearly explained. Additionally, there were major institutional advances in operating divisions and senior administration. Considering the human capital aspect, one of the main elements is the ongoing training for the BNDES' employees, so that the best monitoring and evaluation practices can be applied, and to open up channels for fertile debate on results with the different stakeholders of the Bank.

However, there are still improvements to be made in conducting the BNDES' monitoring and evaluation. In relation to evaluation, several efforts need to be

made to produce a higher number of studies, considering the existing resources. In this vein, new cooperation agreements can be made to conduct joint evaluations with partner institutions, besides calling on other institutions or researchers to carry out external evaluations.

In relation to monitoring immediate results indicators, information should be systematically surveyed as soon as projects are received by the BNDES. Producing timely information makes it possible to quickly verify whether the immediate deliverables from interventions will help achieve strategic aims, in relation to expected results, thus collaborating with Strategic Planning management.

The challenges that the BNDES will face over the next few years are: contributing to the new round of concessions, boosting support for urban infrastructure and energy – emphasis on renewable energies – and contributing to the development of the long-term private market by issuing debentures. Furthermore, the focus will be maintained on the priorities outlined in the strategic planning, which include support for MSMEs, innovation, optimizing socio-environmental policies and reducing regional inequalities. Within this context, progress of the BNDES' Monitoring and Evaluation System should make it possible to better identify, organize and present more analyses on results from the Bank's efforts and, hence, systematically check whether they are in accordance with its strategy.

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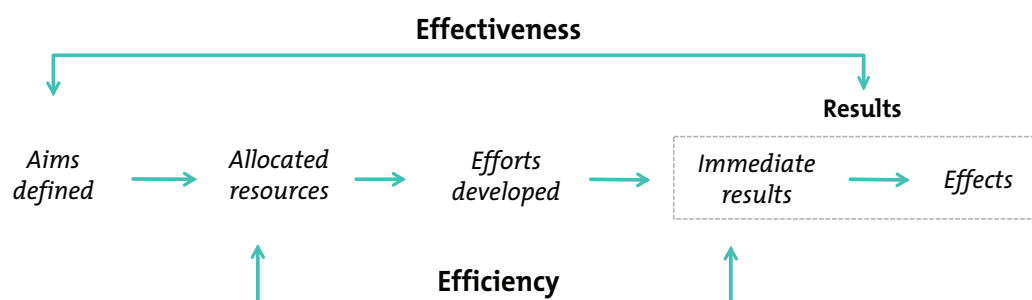
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ANNEX I. MONITORING AND EVALUATION CONCEPTS USED BY THE BNDES

Monitoring and evaluation analyses are a relatively new field of knowledge in the academic community and in development, when it comes to disseminating and applying concepts and analyses to public policies in Brazil. Consequently, institutions and researchers adopt different terminology which means conceptual definitions used by the BNDES in its Monitoring and Evaluation System need to be presented. The terms 'efficiency' and 'effectiveness' permeate the language of all strategies and instruments for monitoring and evaluation. The diagram below illustrates the relationship between such concepts:

Chart 16: Concepts of efficiency and effectiveness



Source: Adapted from TCU (2010).

The concept of efficiency comes from the notion of optimizing human and financial resources: the relationship between the deliverables (products and services) generated by an activity, and the costs of inputs used to produce them within a certain period of time, maintaining quality standards.

Effectiveness is the degree that results are achieved within a certain period of time, regardless of costs involved. The concept of results concerns not only the intervention capacity to deliver products and services (immediate results), but also the effects achieved. Immediate results analyses are not only the simplest, but also the most common and the most disseminated type of analysis of an intervention conducted by development agencies. Effects analyses aim to check whether there have been quantitative and qualitative changes in the target population which could be attributed to the evaluated program; it concerns the reach of intended results in the medium and long term.¹⁰⁶

Monitoring and evaluation of programs are terms defined to designate formal technical procedures to follow up on programs, and they are focused on analyzing efficiency and effectiveness, aimed at enhancing interventions.

Monitoring is understood as observing and maintaining constant records of activities and expected results from an intervention. It involves constantly and meticulously observing how the intervention is implemented by calculating quantitative and qualitative indicators. The monitoring process may indicate occasional deviations in relation to pre-defined aims and provide help for corrective action. Monitoring records are a product per se and one of the most important sources of information in the evaluation process.

Evaluation is an analysis, through systematic examinations, of the extent to which the aims of the intervention were achieved and what the causes were. Whatever the reason for evaluation, the main expected result is the production of information to help better decision-making. While monitoring aims to find out what is happening, evaluations seek information on what occurred and what caused the recorded effects or impacts, whether they were expected or not.

An evaluation cycle incorporates a full analysis of a certain intervention: the stage prior to implementing the intervention (ex-ante evaluation), the implementation and operation stage (monitoring and evaluation), as well as the analysis of results (ex-post evaluation).

In brief, monitoring and evaluation are analytical processes coordinated between one another and preferably with the institution's strategic planning. These processes are complementary to the extent that monitoring indicators provide more synthetic and timely information on the intervention, while evaluations provide more analytical information, seeking to identify causality between the intervention and the results.

¹⁰⁶ There is also the concept of sustainability, which favors an approach that integrates technical, environmental, economic, social and institutional aspects for development, which brings about change in the territory, the sector and in people's standards of living, and which continues throughout time.

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