



# EFFECTIVENESS

## REPORT 2019

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The Brazilian Development Bank

Rio de Janeiro, 2020

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### **Coordination**

Strategic Planning Division  
Department of Effectiveness and Economic Research

### **Technical staff**

Leonardo de Oliveira Santos  
Debora Duque Estrada de Albuquerque  
Marcio Gold Firmo  
Paulo Azzi da Silva  
Marina da Neves Bastos  
Fábio Brener Roitman  
Ricardo Agostini Martini  
André Albuquerque Sant'Anna  
Maria Eduarda Campello Gallo  
Fabio Giambiagi  
Leticia Magalhães da Costa Bhering  
Leandro Ortiz do Nascimento  
Marcus Magno Fernandes Tortorelli  
Humberto Mingotti Gabrielli  
Fernanda Amorim Ribeiro de Castro  
Victor Pina Dias

### **Editing**

President's Office  
Communication Department  
Publishing and Memory Management

### **Editorial coordination**

Sérgio Maranhão Carijó

### **Graphic design and layout**

Refinaria Design

### **Copy editing and proofreading**

Expressão Editorial

## MESSAGE FROM THE PRESIDENT

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The issuance of this fourth BNDES *Effectiveness Report* reinforces once again our commitment to transparency and the impact of the institution's actions. In this document, in addition to disclosing our results, we focus on showing how we can improve Brazilian citizens' lives. It is not enough to quantify disbursements. We must pinpoint how many small enterprises have accessed our credit lines, how much energy our support has generated and, above all, how much difference we have made in Brazil's development.

At the end of 2019, we published the Triennial Plan, in which we established our main agendas and defined a set of transformative deliveries for society. As will be seen in the next pages, BNDES repositioning is already bearing fruits. Between January 2019 and February 2020, shares of several assets were disposed of, totaling approximately R\$ 40 billion. We agree with those who value a better allocation of public resources: our focus should be on actions with the greatest potential to improve the lives of Brazilians.

We reinforce our role as a service bank for the Brazilian State, providing project structuring services for privatization in all modalities, including concessions, public-private partnerships (PPP) and privatizations. At the end of 2019, BNDES had 67 privatization projects in its structuring portfolio, with natural emphasis on sanitation projects, since about 100 million Brazilians still lack access to sewage collection service.

The disclosure of the Triennial Plan represents a clear commitment to society and this report advances in measuring the nonfinancial impact of our performance, which has to be perceived in the daily life of each of us Brazilians. That is why the effectiveness of BNDES support needs to be monitored and evaluated constantly. This principle is a fundamental pillar for the good management of taxpayer money, especially when we value the balance of public accounts combined with a sustainable development project.

Gustavo Montezano  
**President of BNDES**

# CONTENTS

<b>INTRODUCTION</b>	<b>9</b>
<b>THE BRAZILIAN ECONOMY IN 2019</b>	<b>15</b>
<b>BNDES'S EFFORT AND RESULTS ON JOB CREATION AND PRESERVATION</b>	<b>25</b>
PARTICIPATION IN GROSS DOMESTIC PRODUCT AND INVESTMENT	27
COMPOSITION OF THE DISBURSEMENT	29
NUMBER OF SUPPORTED ENTERPRISES	31
EMPLOYMENT, ADDED VALUE AND TOTAL PAYROLL	36
<b>MONITORING RESULTS OF BNDES'S OPERATIONS</b>	<b>45</b>
INFRASTRUCTURE	48
Electric power generation, transmission and distribution	49
Logistics	52
Environmental sanitation	54
Urban mobility	56
Oil and gas	57
PRODUCTION STRUCTURE	58
Agroindustry and biofuels complex	59
Planted forests and paper	60
Naval sector	61
Consumer goods, trade and services	62
Creative economy and information and communication technologies	63
Sales of capital goods	65
Exports	67

EDUCATION, HEALTH AND SECURITY .....	69
TECHNOLOGY DISSEMINATION AND INNOVATION .....	71
CAPITAL MARKET .....	73
Portfolio repositioning .....	74
Promoting best practices of governance .....	77
Operations with debt assets .....	78
Operations with investment funds .....	78
SUSTAINABILITY .....	80
Amazon Fund .....	80
STATE MODERNIZATION AND TERRITORIAL DEVELOPMENT .....	83
Municipal and state management .....	83
Cultural heritage .....	84
PRIVATIZATION AND CONCESSION .....	85
<b>EVALUATIONS OF THE BNDES'S IMPACTS .....</b>	<b>91</b>
STRATEGIC PLAN FOR EFFECTIVENESS EVALUATIONS .....	96
OTHER EVALUATIONS .....	98
EFFECTIVENESS EVALUATION REPORTS .....	99
<b>RECOMMENDATIONS .....</b>	<b>101</b>
SELF-EVALUATION OF RESULTS .....	103
EVIDENCE FROM EVALUATIONS .....	108





# INTRODUCTION



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This document is the fourth BNDES *Effectiveness Report*. The first report covered the 2007-2014 period; the second addressed the 2015-2016 biennium, and the third summarized the 2017-2018 biennium. The active disclosure of detailed information on the results of the Bank's actions results from a long process, already reported in previous documents, of greater transparency and reaffirmation of its commitment to the effectiveness of its actions.

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In the last decade, BNDES has developed a corporate project to address the subject, created a unit dedicated to monitoring and evaluation, was the subject of two operational audits of the Federal Court of Auditors (TCU) and greatly expanded transparency about its operations.<sup>1</sup>

Throughout this period, the economic and institutional context in which BNDES actions took place was marked by substantial changes. The economic cycle was characterized by an initial upward phase, with the concomitant growth of the Bank's disbursements. At a later time, there was a serious economic crisis, with an important reduction in disbursements. It should be noted, therefore, that BNDES's performance, from 2016 onwards, became quite different from that observed until the beginning of the decade. Other factors observed in the most recent period were:

- a new level of disbursements from BNDES, around R\$ 70 billion, far from the R\$ 190 billion in 2013; the adoption of the Long-Term Rate (TLP), in place of the Long-Term Interest Rate (TJLP), referencing the cost of the Bank's financing at a market rate; and
- the implementation of a new institutional strategic planning, strongly directed towards structuring projects and configuring BNDES as a service bank for the Brazilian State.

Within the scope of BNDES's strategic planning, we developed, in the second half of 2019, the 2020-2022 Triennial Plan (available at [www.bndes.gov.br/planotrienal](http://www.bndes.gov.br/planotrienal)), which defines the institution's strategic agendas for this period. Its construction process involved external elements, such as interviews with clients, alignment with government plans and interviews with advisors and internal elements, such as the development of sector diagnostics, dynamics with executives and research with Bank employees.

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<sup>1</sup> In 2018, BNDES, in partnership with the TCU, opened a consultation of civil society to collect suggestions to improve its disclosure of the details of financing and provisions to enterprises made by the Bank. There were contributions from citizens, civil servants, liberal professionals, private entities, nongovernmental organizations, the Federal Revenue, the Office of the Comptroller General, as well as other federal and financial institutions, which culminated in the launch of BNDES's transparency platform.

BNDES's strategic map now has eight strategic missions that tackle challenges of Brazilian development, guiding the institution's major agendas. They are: (i) infrastructure; (ii) production structure; (iii) education, health and security; (iv) technology dissemination and innovation; (v) capital market; (vi) sustainability; (vii) state modernization and territorial development; and (viii) privatization (public-private partnerships, concessions and privatizations). As will be seen below, much of the data presented in this report is organized according to these missions.

A crucial advancement of this strategic revision was the establishment of corporate performance indicators that translate deliveries to society provided both by credit support and by the Bank's performance as a service provider and project factory. Examples of these indicators for 2022 are structuring projects that increase by 20 million the number of people with access to sanitation and approving an increase in installed capacity of renewable energies by 2.0 GW.

Before the Bank's entire transformation, the System for Promoting Effectiveness was a fundamental piece in increasing transparency and organizational learning. This system is divided into three major layers: (i) monitoring of the output and outcome indicators of each operation or program; (ii) impact assessments; and (iii) use of information, with dissemination of data and knowledge generated throughout the process. This report responds to this last layer.

The results of this system are more palpable in this issue. BNDES different forms of action have the *ex-ante* definition of explicit output and outcome indicators, contributing to actions increasingly based on the logic of effectiveness. This report presents not only the expected results data in operations approved in 2019, but also a balance sheet on deliveries made by projects approved in previous years.

The data compiled show a bank with a strong focus on infrastructure and that already has relevant deliveries in the provision of services to the public sector.

It is also noteworthy the relevant growth of external studies made to measure the impacts of BNDES on national development. There is a clear predominance of external evaluations among those featured in this document: more than 70% of the evaluations were made by external researchers. The greater data transparency on the Bank's operations allowed independent evaluations to emerge, contributing to generate knowledge about BNDES performance and ensuring greater independence in the results found.

Besides this introduction, this report contains five more chapters. The second chapter portrays Brazil's macroeconomic context in 2019. The third chapter shows data from the Bank's efforts on disbursement, enterprises served, and jobs created or preserved. The fourth chapter presents an extensive overview of result indicators of BNDES's performance in 2019. The fifth chapter brings a brief analysis of the impact assessments produced on its performance. Finally, the last chapter concludes the report with recommendations to ensure the effectiveness of the institution's actions.



# THE BRAZILIAN ECONOMY IN 2019





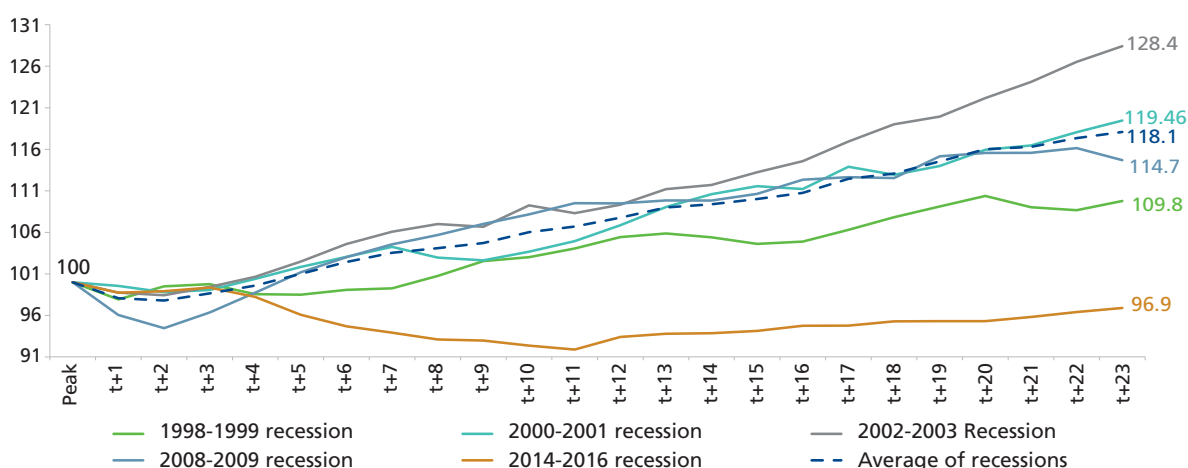
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In 2019, the Brazilian economy continued to recover from the severe recession observed in the 2015-2016 biennium, which caused Brazil's gross domestic product (GDP) to drop by almost 7% in both years. In 2019, GDP grew by 1.1%, lower than in 2017 and 2018, when it advanced 1.3%. Despite being a positive number, the result highlights the difficulty of the economy in accelerating its growth trajectory.

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According to the Brazilian Business Cycle Dating Committee (Codace) of the Getulio Vargas Foundation (FGV), the Brazilian recession began in the second quarter of 2014 and ended in the fourth quarter of 2016.<sup>2</sup> However, after 23 quarters, GDP was 3% below its level in the first quarter of 2014. This is the slowest recovery rate compared with other periods of recovery of the Brazilian economy after crises (Graph 1).

GRAPH 1. EVOLUTION OF GROSS DOMESTIC PRODUCT IN POST-RECESSION RECOVERY (INDEX NUMBER)



Source: Elaborated by the authors, based on data from the Quarterly National Accounts System of the Brazilian Institute of Geography and Statistics (IBGE), available at: <https://www.ibge.gov.br/estatisticas/economicas/contas-nacionais/9300-contas-nacionais-trimestrais.html?edicao=26998&t=resultados>. Access on: March 13th, 2020.

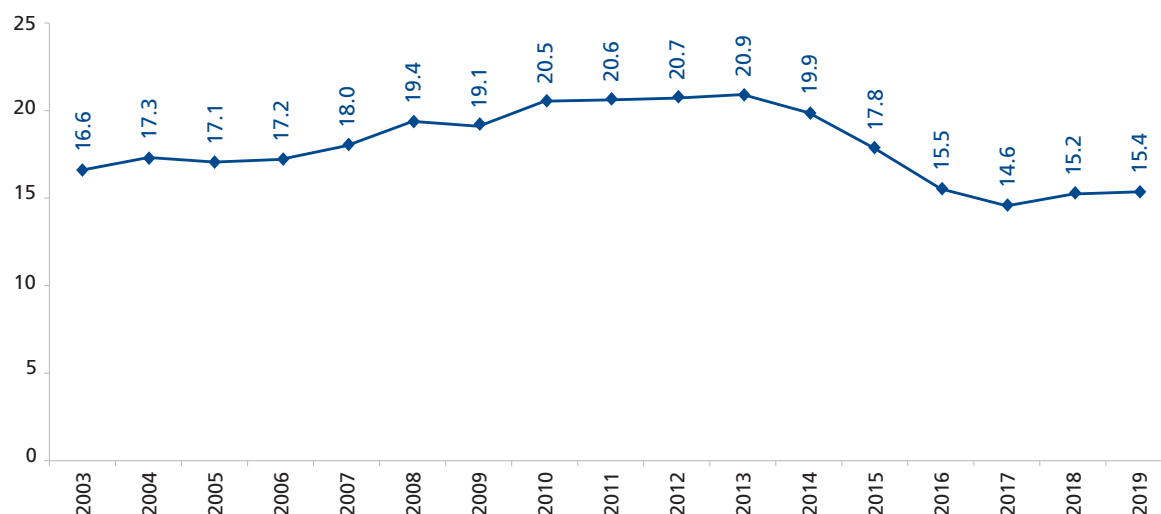
Observation: Pre-crisis peak = 100.

When analyzing the GDP main components, we found that household consumption, driven by credit and by slight improvement in the unemployment rate, continued to lead growth factors, varying 1.8% in 2019. However, we observed that there was a slowdown in relation to the rates obtained in 2017 (2.0%) and 2018 (2.1%).

Investment, after performing well in 2018 (3.9% growth), also lost momentum and slowed in 2019, growing 2.2%. Between 2014 and 2017, the cumulative drop in gross fixed capital formation (FBCF) was around 30%, and this indicator was still, in 2019, 26% lower than the pre-crisis level. With the increase observed in 2019, the investment rate, at current prices, rose again, reaching 15.4% at the end of 2019 (Graph 2), although it remained at very low levels.

2 [https://portalibre.fgv.br/sites/default/files/2020-03/comite-de-data\\_o-de-ciclos-econ\\_micos-comunicado-de-30\\_10\\_2017-\\_1\\_.pdf](https://portalibre.fgv.br/sites/default/files/2020-03/comite-de-data_o-de-ciclos-econ_micos-comunicado-de-30_10_2017-_1_.pdf). Access on: March 13th, 2020.

GRAPH 2. INVESTMENT RATE (GROSS FIXED CAPITAL FORMATION/GROSS DOMESTIC PRODUCT)  
AT CURRENT PRICES, 2003-2019 (%)



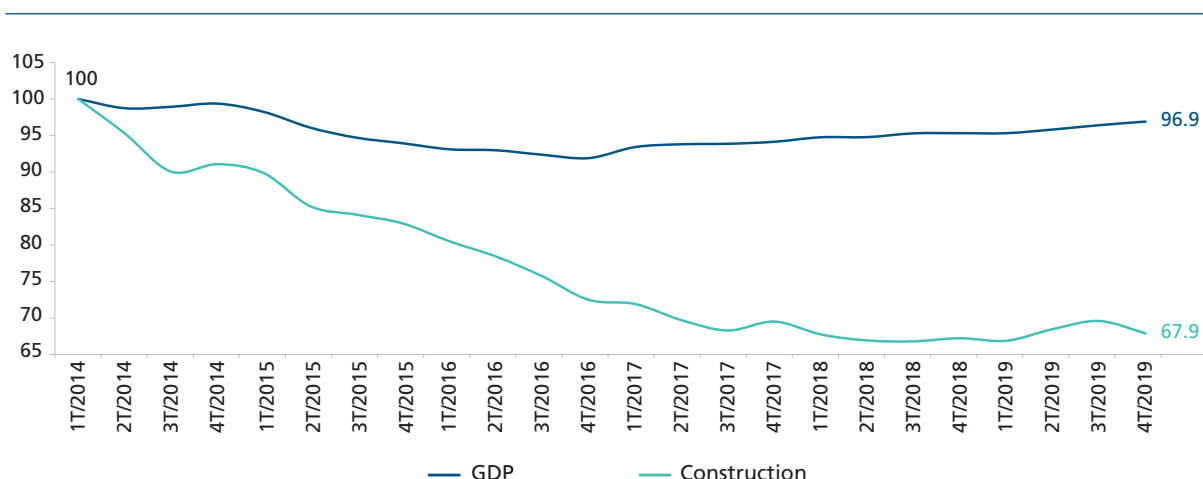
Source: Elaborated by the authors, based on data from the Quarterly National Accounts System of the Brazilian Institute of Geography and Statistics (IBGE), available at: <https://www.ibge.gov.br/estatisticas/economicas/contas-nacionais/9300-contas-nacionais-trimestrais.html?edicao=26998&t=resultados>. Access on: March 13th, 2020.

Exports, which depend to a large extent on the level of global activity, were impacted both by the trade war between the United States of America (USA) and China, and by the severe crisis in Argentina, dropping 2.5% in the year. Government spending, limited by the little growth space due to the existing fiscal restriction, contracted by 0.4%. It is the third annual negative rate for this sector after 2014.

Industry grew 0.5% in 2019, the same number observed in 2018. However, there was a significant change in the growth composition. The performance of the extractive industry, with a 1.1% reduction in the year, is negatively highlighted, while the construction sector, after five consecutive years of downturn, showed a 1.6% increase, boosted by real estate construction. On the other hand, the manufacturing industry had almost zero growth – 0.1% –, suffering the impact of the Argentinian crisis, which affected exports, especially in the automotive sector.

Graph 3 reveals that, despite the rise in 2019, construction is still 32% below its pre-recession production levels. Graph 4 shows that since the first quarter of 2014, construction has contracted in 18 of the 24 quarters. In the last quarter of 2019, a new negative value of 2.5% was obtained in the seasonally adjusted series.

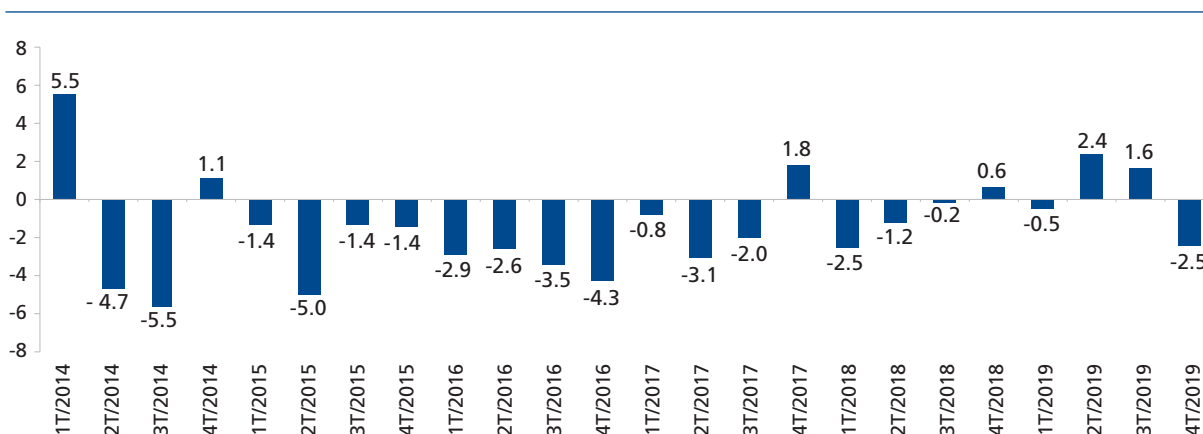
GRAPH 3. EVOLUTION OF GROSS DOMESTIC PRODUCT AND GROSS DOMESTIC PRODUCT OF CONSTRUCTION, 2014-2019 (INDEX NUMBER)



Source: Elaborated by the authors, based on data from the Quarterly National Accounts System of the Brazilian Institute of Geography and Statistics (IBGE), available at: <https://www.ibge.gov.br/estatisticas/economicas/contas-nacionais/9300-contas-nacionais-trimestrais.html?edicao=26998&t=resultados>. Access on: March 13th, 2020.

Observation: First quarter of 2014 = 100.

GRAPH 4. QUARTERLY CHANGE IN GROSS DOMESTIC PRODUCT OF CONSTRUCTION, 2014-2019 (%)



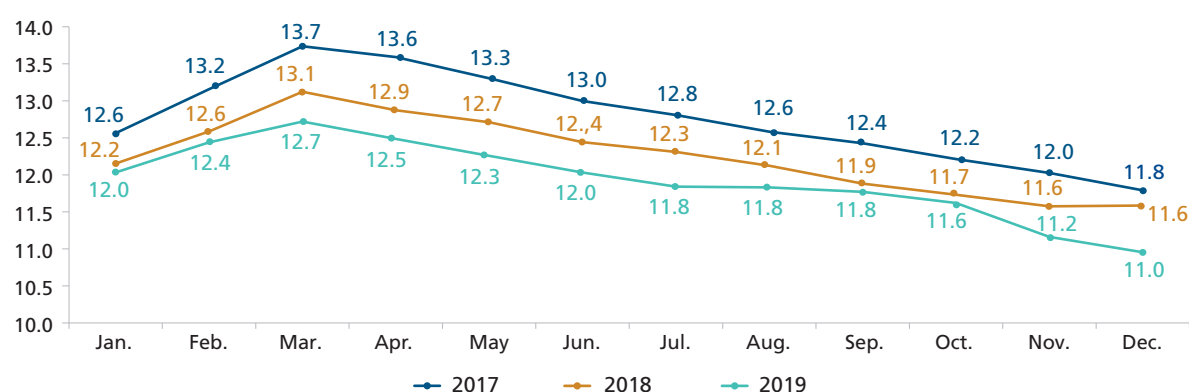
Source: Elaborated by the authors, based on data from the Quarterly National Accounts System of the Brazilian Institute of Geography and Statistics (IBGE), available at: <https://www.ibge.gov.br/estatisticas/economicas/contas-nacionais/9300-contas-nacionais-trimestrais.html?=&t=resultados>. Access on: March 13th, 2020.

Observation: Percentage change T/T-1, with seasonal adjustment.

Services, which represent 73% of the added value to the economy, rose 1.3% in 2019. As in industry, services saw a change in the growth composition in the year. The positive highlight was the information and communication services segment, which advanced 4.1%. On the other hand, transport, storage and mail activities, which are greatly influenced by the behavior of the industry, had a virtually zero result of 0.2%, following the movement observed in the manufacturing industry.

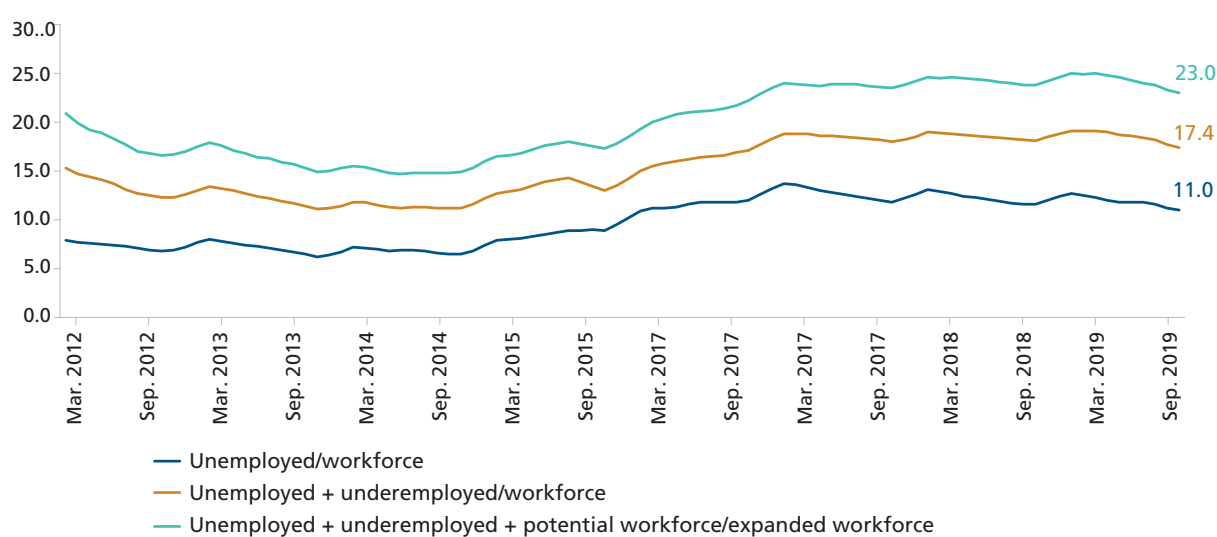
In the labor market, although the unemployment rate continues to drop, closing the year at 11.0% (Graph 5), compared to 11.6% in 2018, the broader measures – which combine under-occupancy due to insufficient hours worked with the potential workforce – still show a worrying picture. In December 2019, 23% of the Brazilian workforce was underutilized (Graph 6). Good news, however, is the improvement in job creation composition throughout the year, with increasing participation in the formal sector.

GRAPH 5. MONTHLY UNEMPLOYMENT RATE, 2017, 2018 AND 2019 (%)



Source: Elaborated by the authors, based on data from the National Household Sample Survey (Pnad) of IBGE, available at: <https://www.ibge.gov.br/estatisticas/sociais/trabalho/9171-pesquisa-nacional-por-amostra-de-domicilios-continua-mensal.html?=&t=resultados> Access on: March 13th, 2020.

GRAPH 6. INCREASED UNEMPLOYMENT RATES, MAR. 2012-SEPT. 2019 (%)

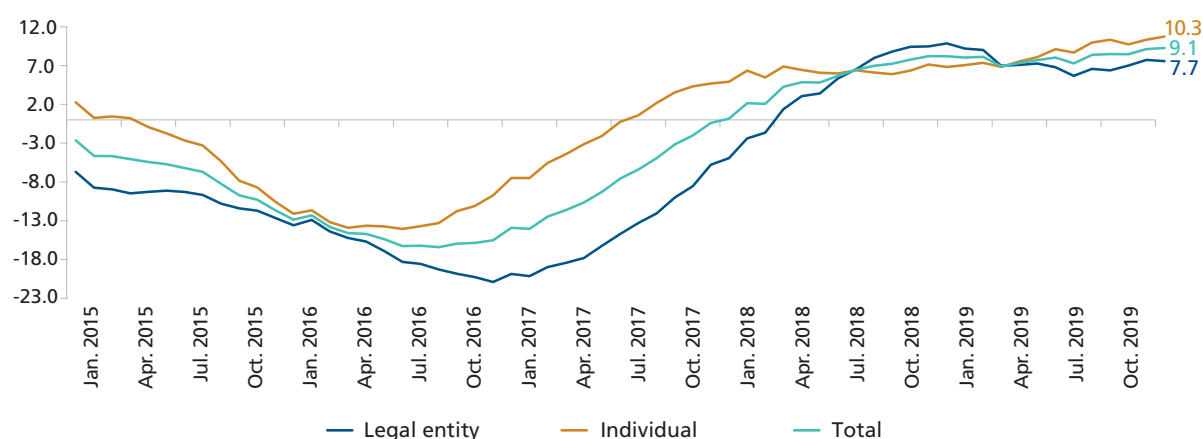


Source: Elaborated by the authors, based on data from PnadC of IBGE, available at: <https://www.ibge.gov.br/estatisticas/sociais/trabalho/9171-pesquisa-nacional-por-amostra-de-domicilios-continua-mensal.html?edicao=26737&t=destaques>. Access on: March 13th, 2020.

In 2019, credit continued to be the short-term driving force of the Brazilian economy. An analysis of the data in graphs 7 and 8 shows that the concessions continued to have some robustness, led by the concessions for individuals, which in 2019 grew 10.3% in real terms. It is also observed that credit for legal entities rose 7.7%.

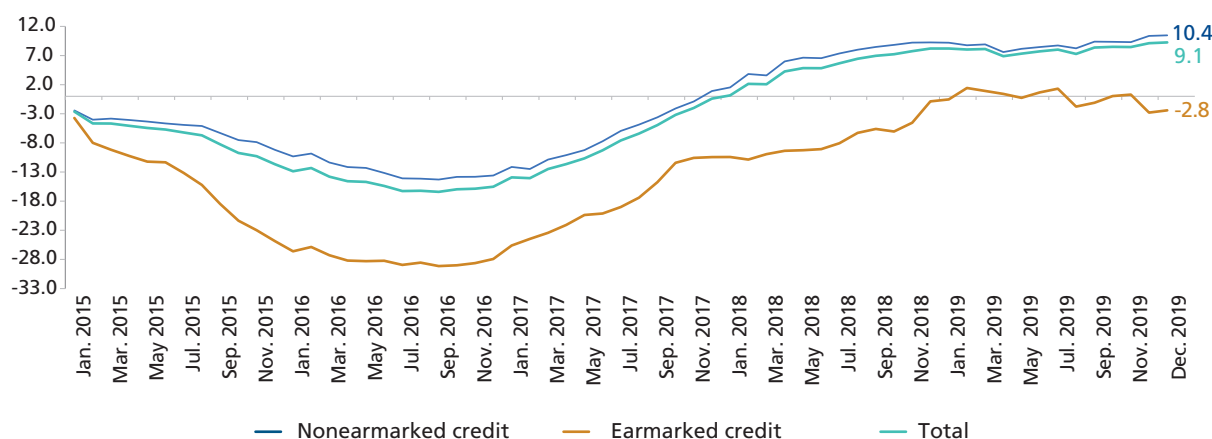
The improvement has been led by the nonearmarked segment, which increased 10.4%, while earmarked credit, for the sixth consecutive year, continued to contract, this time 2.8%.

GRAPH 7. REAL CREDIT GRANTING CHANGE: TOTAL, INDIVIDUALS AND LEGAL ENTITIES, JAN. 2015-OCT. 2019 (%)



Source: Elaborated by the authors, based on data from the Time Series Management System of the Central Bank of Brazil, available at: <https://www3.bcb.gov.br/sgspub/localizarseries/localizarSeries.do?method=prepararTelaLocalizarSeries>. Access on: March 13th, 2020.  
Observation: Real percentage change, accumulated in 12 months.

GRAPH 8. REAL CREDIT GRANTING CHANGE: TOTAL, NONEARMARKED AND EARMARKED, JAN. 2015-OCT. 2019 (%)



Source: Elaborated by the authors, based on data from the Time Series Management System of the Central Bank of Brazil, available at: <https://www3.bcb.gov.br/sgspub/localizarseries/localizarSeries.do?method=prepararTelaLocalizarSeries>. Access on: March 13th, 2020.  
Observation: Real percentage change, accumulated in 12 months.

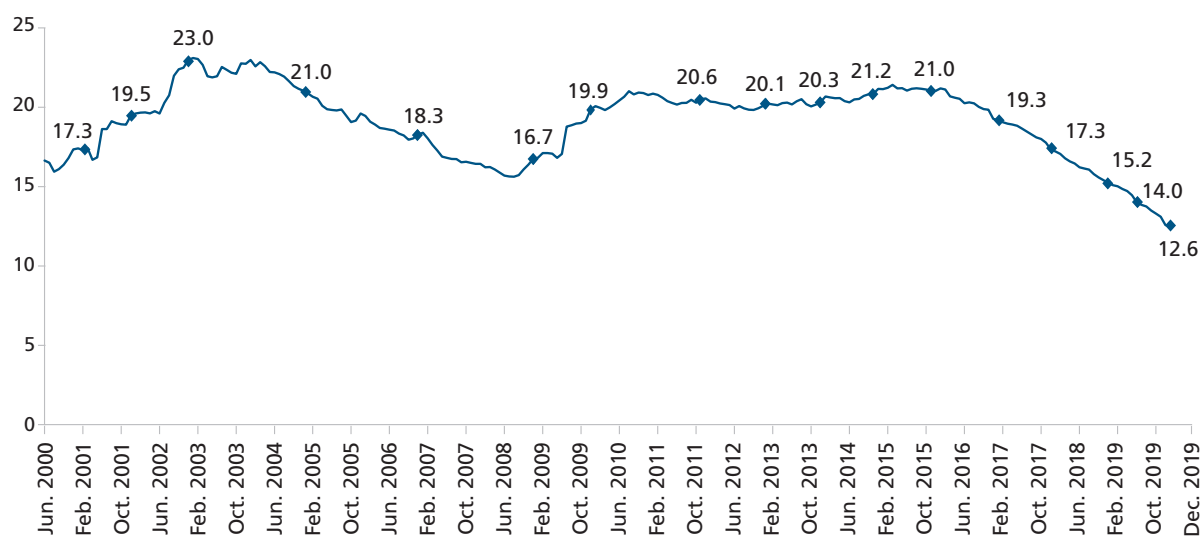
As for BNDES's performance, detailed in chapter “BNDES's effort and results on job creation and preservation,” one perceives a great influence of the macroeconomic scenario, in relation to both structure and conjuncture. The credit portfolio contracted for the fifth consecutive year, and the Bank's participation in the total credit balance reached 12.6%, the lowest value since 2000 (graphs 9 and 10).

GRAPH 9. CHANGE IN BNDES'S CREDIT PORTFOLIO, 2001-2019 (%)



Source: Elaborated by the authors, based on data from the Time Series Management System of the Central Bank of Brazil, available at: <https://www3.bcb.gov.br/sgspub/localizarseries/localizarSeries.do?method=prepararTelaLocalizarSeries>. Access on: March 13th, 2020.  
Observation: Real percentage change, per year.

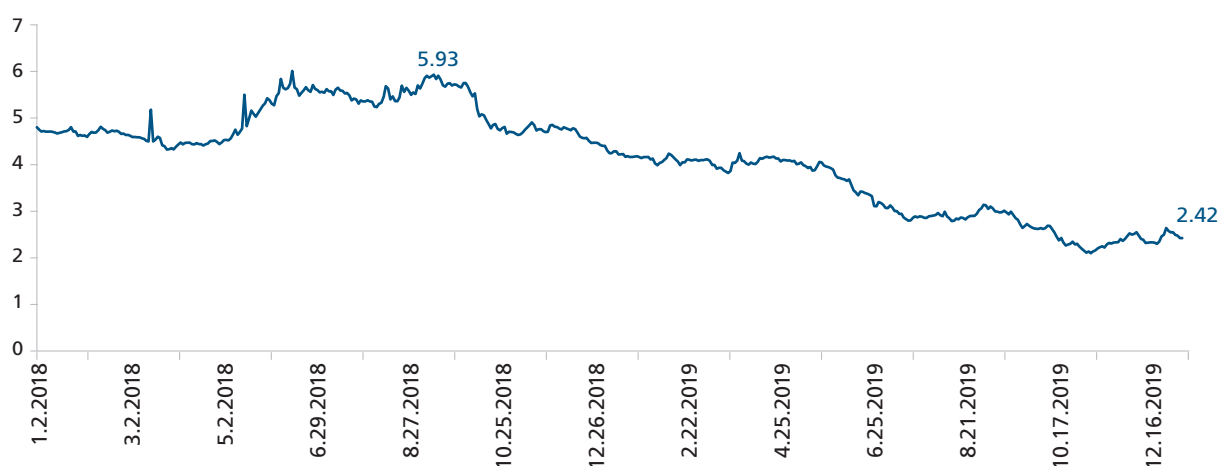
GRAPH 10. BNDES'S PARTICIPATION IN TOTAL CREDIT, JUN. 2000-DEC. 2019 (%)



Source: Elaborated by the authors, based on data from the Time Series Management System of the Central Bank of Brazil, available at: <https://www3.bcb.gov.br/sgspub/localizarseries/localizarSeries.do?method=prepararTelaLocalizarSeries>. Access on: March 13th, 2020.

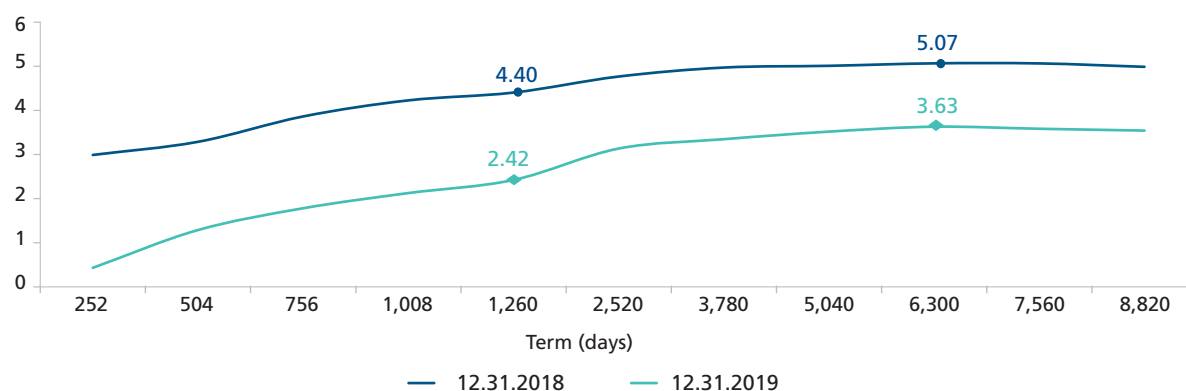
The slow economy recovery, the low level of investment and the change of focus of BNDES's operations made disbursements in 2019 total R\$ 55.3 billion, 20% less than in 2018. The reduction observed in interest rates poses an additional challenge to the Bank. A benign inflationary scenario allowed the basic interest rate to reach its historical lows, also affecting five-year interest rates (new BNDES cost benchmark), as well as the whole range of the term structure of real interest rates in Brazil (graphs 11 and 12).

GRAPH 11. INTEREST RATE ON NATIONAL TREASURY BILLS – FIVE-YEAR B SERIES, 1.2.2018-11.2.2019 (% A.A.)



Source: Elaborated by the authors, based on data from the Brazilian Financial and Capital Markets Association (Anbima). Data available for members only, at: <http://www.anbima.associados.rtm/titulos-publicos/estrutura-a-termo/tp-estrutura-termo.asp>. Access on: March 13th, 2020.

GRAPH 12. TERM STRUCTURE OF INTEREST RATES OF NATIONAL TREASURY BILLS – B SERIES (% A.A.)



Source: Elaborated by the authors, based on data from Anbima. Data available for members only, at: <http://www.anbima.associados.rtm/titulos-publicos/estrutura-a-termo/tp-estrutura-termo.asp>. Access on: March 13th, 2020.





# **BNDES'S EFFORT AND RESULTS ON JOB CREATION AND PRESERVATION**



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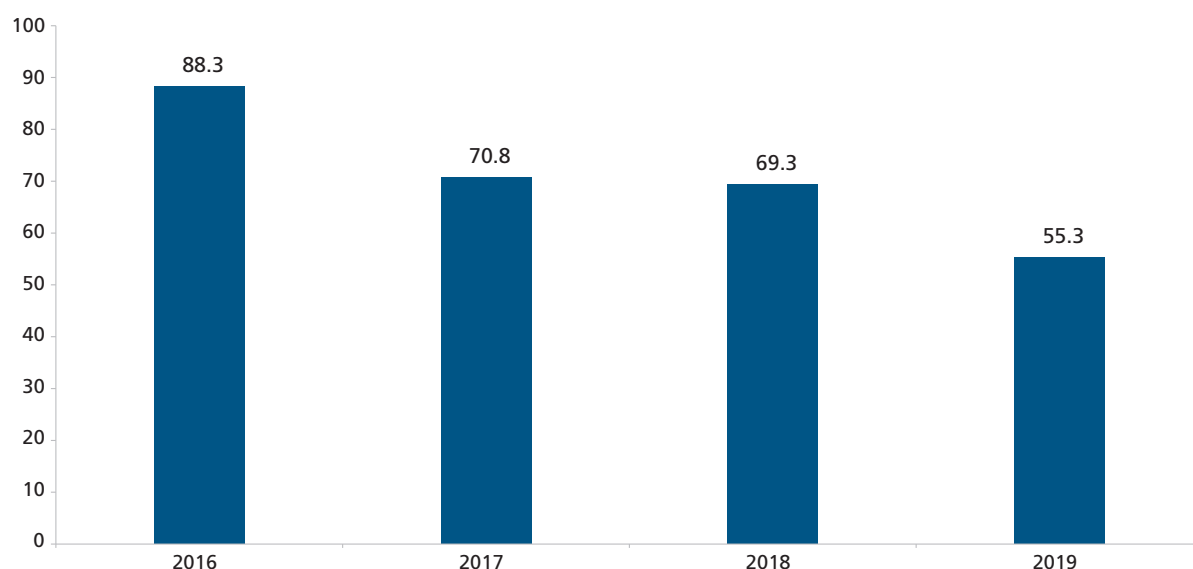
Since 2016, BNDES has been promoting a reorientation in its activities, as a result of substantial changes in the formulation of Brazil's economic policy. The economic crisis and subsequent slow resumption of growth drastically reduced the demand for investment resources. Additionally, the cost of the Bank's credit lines underwent changes with the introduction of the Long-Term Rate (TLP), approved in September 2017. Such context has shaped the results that will be presented in this chapter.

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## PARTICIPATION IN GROSS DOMESTIC PRODUCT AND INVESTMENT

Analyzing the figures for the last four years, we see a significant drop in BNDES's disbursements from 2016 to 2017, a stabilization in 2018 and a further drop in 2019. In current values (Graph 13), 2017 registered a disbursement of about R\$ 71 billion, which represents a 20% drop compared to 2016. This number changed little in 2018, when disbursements totaled R\$ 69 billion. In 2019, disbursements totaled R\$ 55.3 billion, characterizing a new annual drop of 20%.

GRAPH 13. EVOLUTION OF DISBURSEMENTS, 2016-2019 (R\$ BILLION CURRENT)

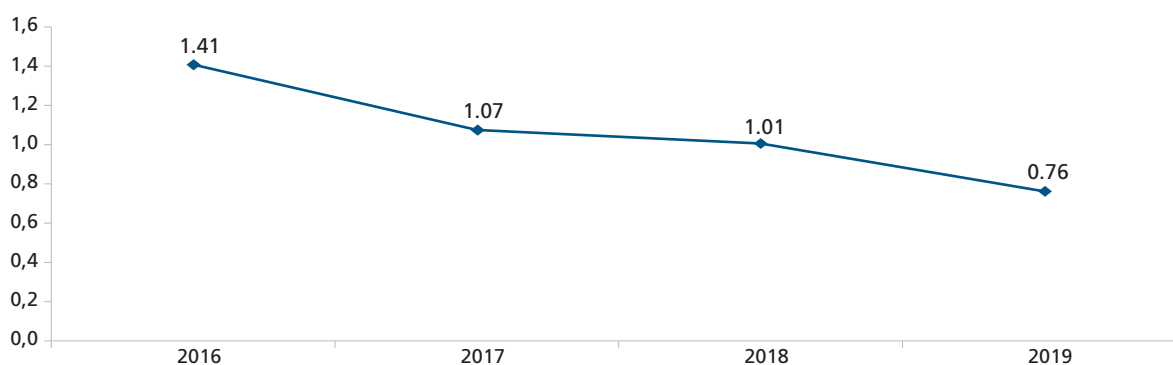


Source: Elaborated by the authors.

The reduction in BNDES's disbursements continued to alter the Bank's relative size over the period (Graph 14). In 2019, the Bank's disbursements represented 0.76% of GDP, down 24% from 1.01% in 2018.<sup>3</sup>

<sup>3</sup> The difference in the 2017 and 2018 GDP participation indicator compared to the figures reported in the 2018 *Effectiveness Report* – 1.08% and 1.02%, respectively – is due to updates promoted by the Brazilian Institute of Geography and Statistics (IBGE) in GDP estimates.

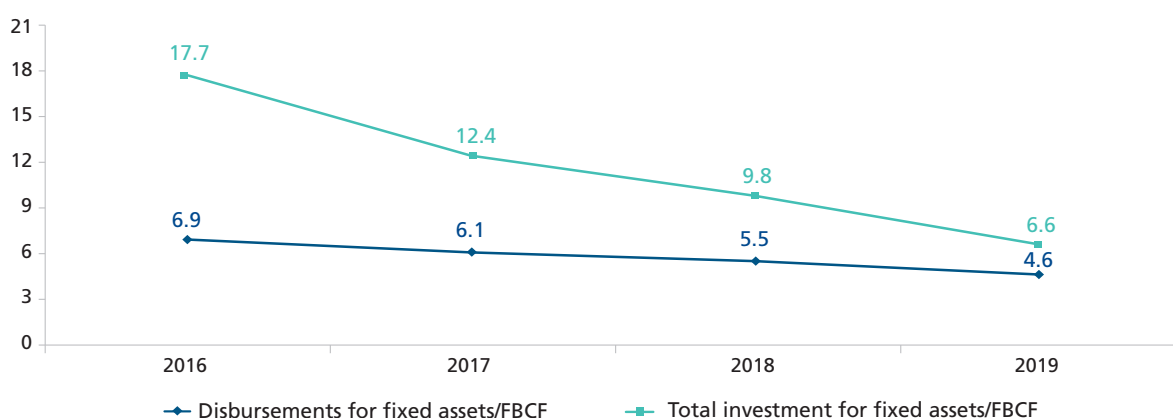
GRAPH 14. COMPARISON OF DISBURSEMENTS WITH GROSS DOMESTIC PRODUCT, 2016-2019 (%)



Source: Elaborated by the authors, based on IBGE (2019).

The indicator of BNDES's disbursements participation in FBCF financing, as shown in Graph 15, dropped from 6.9% in 2016 to 4.6% in 2019. This drop (33%) is proportionally smaller than the drop in the disbursement-GDP ratio in the same period (46%), reflecting lower investment growth rates than GDP growth rates and BNDES's repositioning in Brazil's credit market. While the Bank has been disbursing less over the past few years, disbursements are more focused on enabling fixed investments. In 2019, we estimate that 70% of the funds were allocated to fixed capital formation (R\$ 38.8 billion), while in 2018, this portion had been 63% of the total disbursed.

GRAPH 15. DISBURSEMENTS AND TOTAL INVESTMENT FOR FIXED INVESTMENTS COMPARED TO GROSS FIXED CAPITAL FORMATION, 2016-2019 (%)



Source: Elaborated by the authors, based on IBGE (2019).

Observation: FBCF values for 2018 and 2019, except residential construction, were estimated based on the total FBCF of those years and on the average between 2015 and 2017 of the residential construction share in the total investment.

The total fixed investment is formed by BNDES's disbursements and other financing funds. Considering the total fixed investment-FBCF ratio, this indicator dropped from 17.7% in 2016 to 6.6% in 2019.

## COMPOSITION OF THE DISBURSEMENT

When we observe the participation of each sector in the total disbursed by BNDES (Table 1), we notice the growth of the infrastructure sector in the last four years, reaching 44% of participation in 2019. The biggest change in 2019 compared to the previous year came from a reduction in the participation of the trade and services sector (from 17% to 11%), offset by an increase of eight percentage points in the participation of the farming and cattle raising sector (from 21% to 29%).

TABLE 1. COMPOSITION OF DISBURSEMENTS BY SECTOR, 2016-2019 (%)

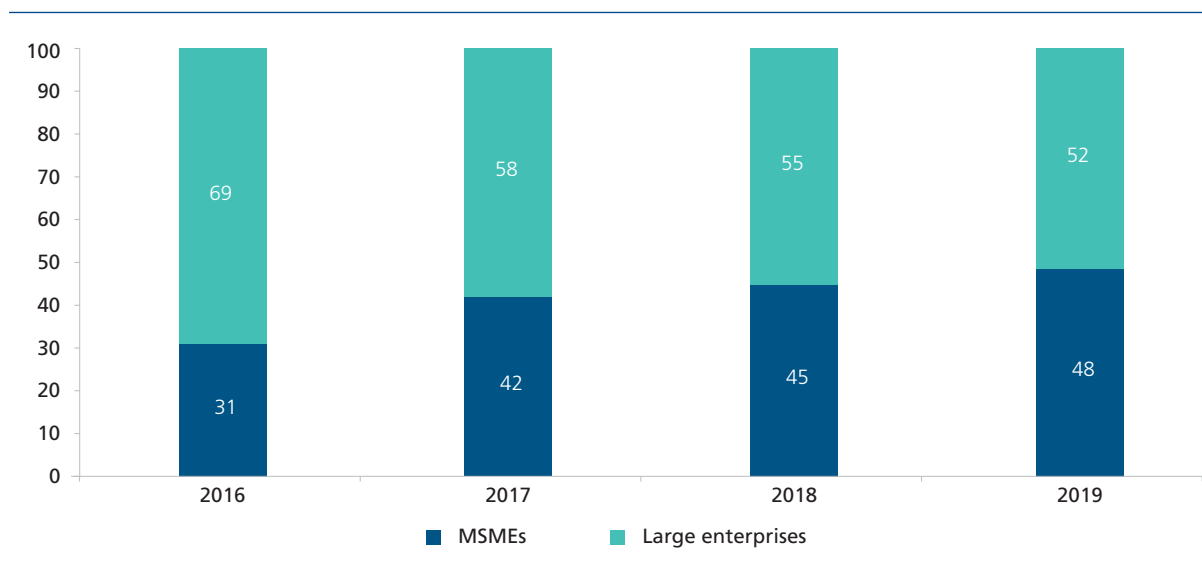
SECTOR	2016	2017	2018	2019
Farming and cattle raising	16	20	21	29
Trade and services	21	20	17	11
Industry	34	21	18	16
Infrastructure	29	38	44	44

Source: Elaborated by the authors.

The increase in the participation of the farming and cattle raising sector stands out even more in light of its participation in 2016, when it reached 16% of total disbursements. Such trajectory is mainly explained by the Bank's actions by indirect financing (carried out by accredited financial institutions) of the Program for the Modernization of the Agricultural Tractor Fleet, Related Accessories and Harvesters (Moderfrota), the Program for Construction and Expansion of Warehouses (PCA), and the National Program for the Strengthening of Family Agriculture for Fixed Investments (Pronaf Investimento). Importantly, in 2019 about 92% of disbursements for farming and cattle raising were destined to micro, small and medium-sized enterprises (MSME).

Regarding the composition of the total disbursement by size, the participation of MSMEs (Graph 16) advanced positively throughout the analyzed period, from 31% in 2016 to 48% in 2019. It also draws attention the drop in the total volume disbursed to large enterprises in nominal values, from R\$ 38.3 billion in 2018 to R\$ 28.5 billion in 2019 (26%).

GRAPH 16. COMPOSITION OF DISBURSEMENTS BY ENTERPRISE SIZE, 2016-2019 (%)



Source: Elaborated by the authors.

The regional distribution of disbursed amounts (Table 2) shows a reduction in the Southeast region's participation (from 45% to 37%), offset by an increase in the Northeast region (from 13% to 16%), and the South region (from 25% to 29%).

TABLE 2. EVOLUTION OF DISBURSEMENTS BY REGION, 2016-2019 (%)

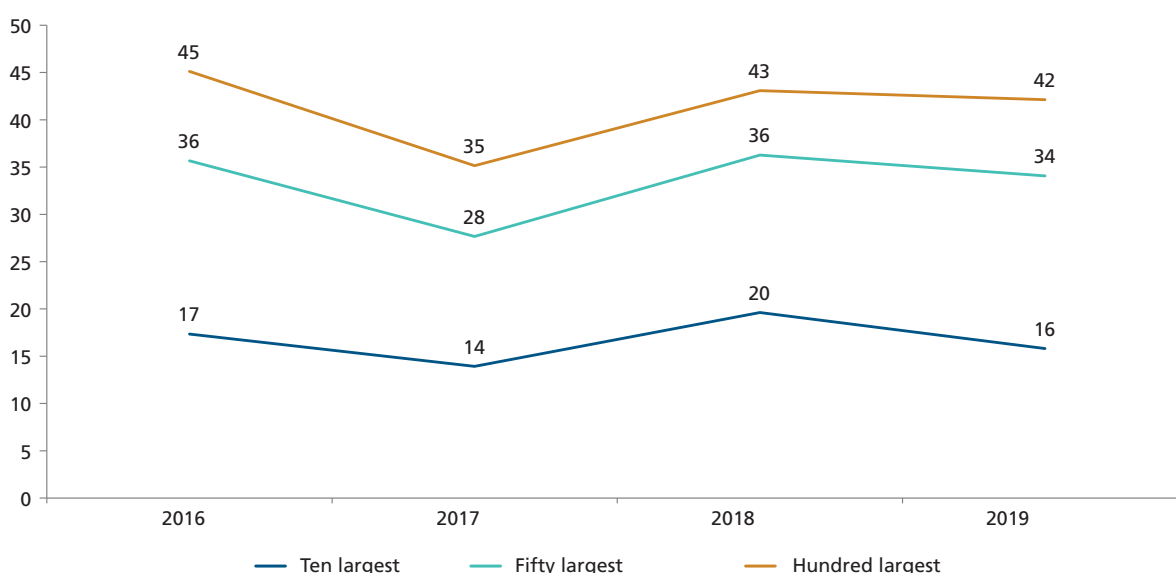
REGION	2016	2017	2018	2019
Central-West	12	12	14	13
Northeast	13	20	17	16
North	5	5	5	5
Southeast	45	38	38	37
South	25	25	26	29

Source: Elaborated by the authors.

Graph 17 represents the concentration of BNDES's disbursements in its ten, fifty and hundred largest clients in disbursement volume in recent years. The lines point to a mild downward trend, towards a greater decentralization of BNDES's credit.

In 2016, the 100 largest borrowers concentrated 45% of disbursements, compared to 42% in 2019. When comparing those same years, the drop is from 17% to 16% in relation to the ten largest clients supported. These trajectories reflect the continuity of the greater atomization of the Bank's resources and reinforce the increase in credit access for smaller enterprises.

GRAPH 17. PARTICIPATION OF CLIENTS WHO RECEIVED MORE FUNDS IN BNDES'S DISBURSEMENTS, 2016-2019 (%)



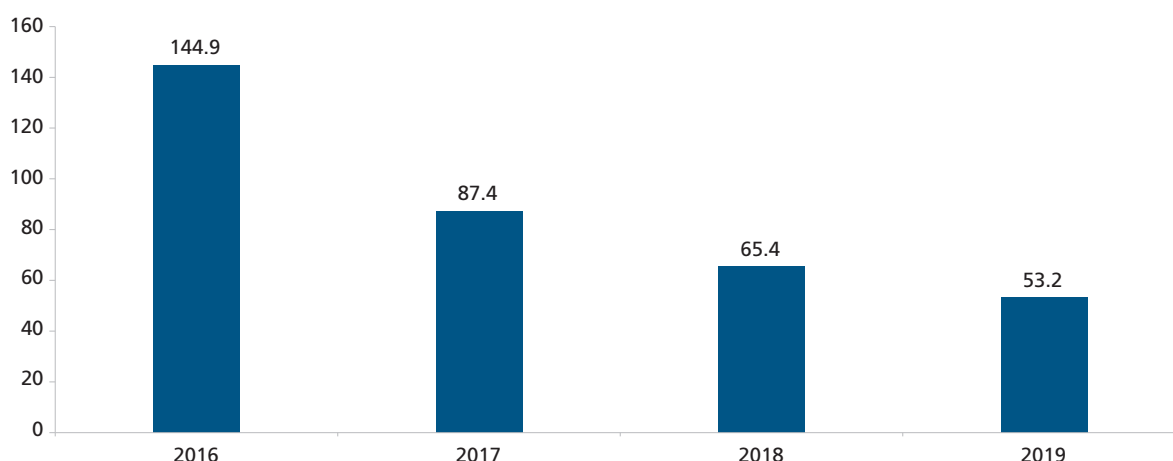
Source: Elaborated by the authors.

## NUMBER OF SUPPORTED ENTERPRISES

The number of enterprises that received disbursement from BNDES in a given year is also considered an indicator of effort of the performance, since the benefits with the investments to be made by the enterprises will be considered results. The drop in disbursements in 2019 was also reflected in the number of enterprises supported, according to Graph 18.



GRAPH 18. NUMBER OF ENTERPRISES SUPPORTED BY BNDES, 2016-2019 (THOUSANDS)

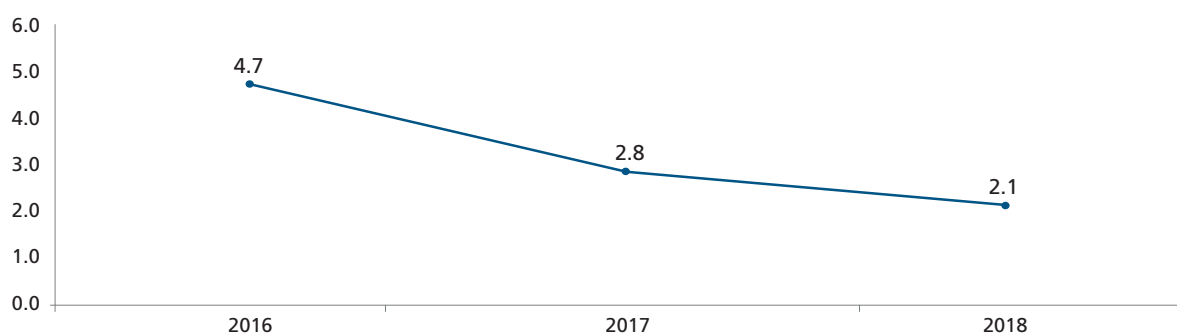


Source: Elaborated by the authors, based on internal and Rais data.

Observation: For each year, we considered enterprises that received some disbursement from any of BNDES's financial support instruments in the year. If a company has received more than one support in a given year, it is counted once in that year. However, enterprises can be counted in different years.

Approximately 65,400 enterprises, in 2018, and 53,200 enterprises, in 2019, received support. This represents a drop of 18.7%, relatively lower than that observed in disbursements in the same comparison period, which reinforces the trend of decentralization of funds in more and smaller enterprises. According to data from the *Annual Social Information Report (Rais)*, available only until 2018, the volume of enterprises supported that year represented 2.1% of all formal enterprises in Brazil (Graph 19), a drop of about 25%, denoting the loss of participation regarding the dynamics of creation and destruction of enterprises in Brazil.

GRAPH 19. COMPARISON OF THE NUMBER OF ENTERPRISES SUPPORTED WITH EXISTING ENTERPRISES IN THE ANNUAL SOCIAL INFORMATION REPORT, 2016-2018 (%)



Source: Elaborated by the authors, based on internal and Rais data.

Observation: Enterprises with no formal employees during the year (negative Rais) were excluded.

Table 3 reports the evolution of the composition of enterprises supported by BNDES, according to the Organization for Economic Co-operation and Development (OECD) firm size criteria, based on the number of employees, whose value was obtained from Rais. In 2018, 96.7% of the enterprises supported by BNDES were micro, small and medium-sized enterprises (MSME), and this proportion remained practically the same compared to 2017. However, we saw a gain in the participation of micro enterprises, from 54.3% to 59.2%, accompanied by a proportional drop in the participation of small enterprises, from 33.7% to 29%.

TABLE 3. COMPOSITION OF THE TOTAL NUMBER OF SUPPORTED ENTERPRISES BY SIZE, 2016-2018 (%)

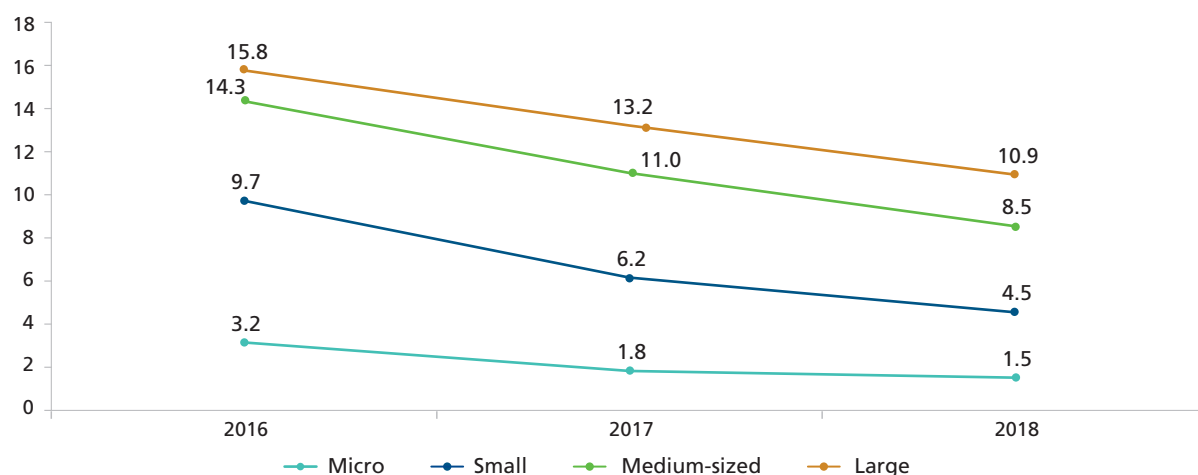
SIZE	2016	2017	2018
Micro enterprises	57.5	54.3	59.2
Small	33.3	33.7	29.0
<b>MSEs</b>	<b>90.8</b>	<b>88.0</b>	<b>88.2</b>
Medium-sized	7.0	8.8	8.6
<b>MSMEs</b>	<b>97.8</b>	<b>96.8</b>	<b>96.7</b>
Large	2.2	3.2	3.3
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Elaborated by the authors, based on internal and Rais data.

Observation: Size according to the Organization for Economic Co-operation and Development (OECD).

Just as the previous analysis shows the scope of BNDES's support in the universe of Brazilian enterprises, one can see how this scope is distributed among the sizes of enterprises (Graph 20). In 2018, there was a drop in the Bank's participation in all sizes compared to the previous year, and the variation was greater among small companies, as can be seen by the greater inclination of the graph line. In 2018, 10.9% of large Brazilian enterprises received support, while the percentage was 8.5% for medium-sized enterprises, 4.5% for small enterprises and 1.5% for micro enterprises.

GRAPH 20. COMPARISON OF THE NUMBER OF ENTERPRISES SUPPORTED BY SIZE WITH EXISTING ENTERPRISES IN THE ANNUAL SOCIAL INFORMATION REPORT, 2016-2018 (%)



Source: Elaborated by the authors, based on internal and Rais data.

Observation: Enterprises with no formal employees during the year (declared negative Rais) were excluded from Rais.

Table 4 shows the behavior of the degree of coverage, in the 2016-2018 period, of BNDES Finame client enterprises, a financing program for acquisition of machinery and equipment. This indicator compares the number of enterprises financed by BNDES Finame with Brazil's population of formal enterprises. On average, 0.5% of existing enterprises are being supported by the program. The largest coverage is achieved in the farming and cattle raising sector, with 3.1% of the formal enterprises in this sector served in 2018.

TABLE 4. EVOLUTION OF THE NUMBER OF ENTERPRISES FINANCED BY BNDES FINAME IN THE TOTAL OF ENTERPRISES IN BRAZIL BY LARGE SECTOR, 2016-2018 (%)

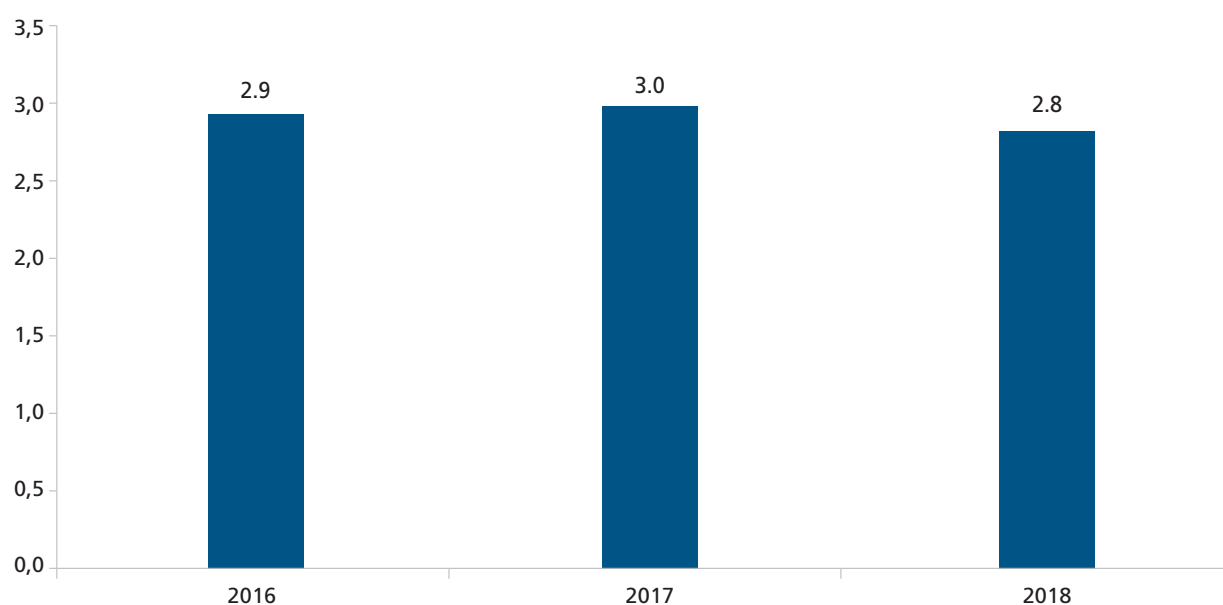
SECTOR	2016	2017	2018
Farming and cattle raising	3.0	3.2	3.1
Industry	0.8	0.8	0.7
Trade	0.3	0.3	0.2
Services	0.7	0.7	0.6
<b>Total BNDES Finame</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>

Source: Elaborated by the authors, based on internal and Rais data.

Observation: For each year and large sector, the number of enterprises that received some disbursement from BNDES Finame product lines was considered. This value was divided by the number of enterprises, by sector and year, obtained from Rais. Enterprises with no formal employees during the year (declared negative Rais) were excluded from Rais.

BNDES Finame development logic is based on supporting the trading of locally manufactured machines and equipment, by analysis and accreditation of these goods. Thus, it is important to observe BNDES's scope in capital goods manufacturers that sell their goods using this Bank's program.

GRAPH 21. EVOLUTION OF THE PARTICIPATION OF CAPITAL GOODS MANUFACTURERS SUPPORTED BY BNDES FINAME IN THE TOTAL OF CAPITAL GOODS MANUFACTURERS IN BRAZIL, 2016-2018 (%)



Source: Elaborated by the authors, based on internal and Rais data.

Observation: For each year, we considered the number of enterprises that received some disbursement from BNDES Finame. This value was divided by the number of capital goods manufacturing enterprises obtained from Rais. Enterprises with no formal employees during the year (declared negative Rais) were excluded from Rais.

BNDES Card is another financial instrument that deserves investigation regarding the number of supported enterprises, as it is aimed exclusively at smaller enterprises (MSMEs). It funds capital goods, inputs and some services, but has been showing declining performance in recent years. According to Table 5, the number of supported enterprises in 2018 represented 1.6% of all existing formal enterprises, a drop from the 2% calculated for 2017. The drop was tracked down to the industrial and trade sectors, as the participation of farming and cattle raising and services remained at the same level of 0.7% and 1.4%, respectively.

TABLE 5. EVOLUTION OF THE PARTICIPATION OF THE NUMBER OF ENTERPRISES FINANCED BY BNDES CARD IN THE TOTAL OF ENTERPRISES BY LARGE SECTOR, 2016-2018 (%)

SECTOR	2016	2017	2018
Farming and cattle raising	1.4	0.7	0.7
Industry	6.2	3.2	2.4
Trade	4.4	2.1	1.6
Services	3.0	1.5	1.4
<b>Total BNDES Card</b>	<b>4.1</b>	<b>2.0</b>	<b>1.6</b>

Source: Elaborated by the authors, based on internal and Rais data.

Observation: For each year and large sector, we considered the number of enterprises that received some disbursement from BNDES Card. This value was divided by the number of enterprises by sector and year obtained from Rais. Enterprises with no formal employees during the year (declared negative Rais) were excluded.

## EMPLOYMENT, ADDED VALUE AND TOTAL PAYROLL

To estimate the number of jobs created or preserved during the implementation phase of the supported investments, BNDES uses an input-output model for the Brazilian economy (Job Generator Model), which uses data from the System of National Accounts and the input-output matrix compiled by the Brazilian Institute of Geography and Statistics (IBGE).

The model used to generate the estimates present in this report was updated for the values of the 2015 System of National Accounts and input-output matrix, which has the advantage of generating estimates closer to the current Brazilian production structure. The fixed investment composition matrix, which distributes sector investment in demand for FBCF products, was also updated for 2015. CFTs allows estimating which sectors have their demand boosted due to the investments made by the supported sectors. In

this latest version, the Job Generator Model also estimates the generation or maintenance of added value (GDP) and total payroll (volume of wages paid) in the economy. Due to methodological updates, the results of this model are not comparable with the results disclosed in the previous effectiveness reports. We chose to present, as in the other sections of this chapter on BNDES's performance efforts, data from 2016 to 2019, to allow analyzing the evolution of results on a comparable basis.

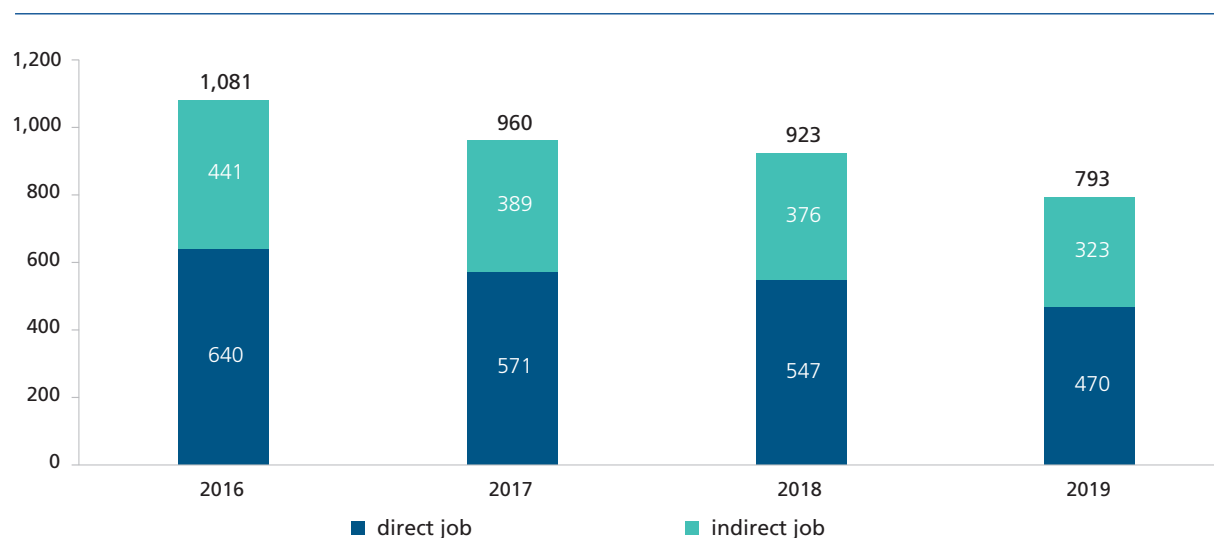
As interest falls on effects in the implementation phase of investments, only expenses with fixed investments are considered in the estimates generated for BNDES's disbursements, for example, resources for implementing and modernizing industrial units, building infrastructure and purchasing and installing machinery and equipment. Disbursements for acquisition of imported equipment and capital market operations without associated fixed investment were disregarded. Working capital associated with investment projects was considered, while nonassociated working capital operations were excluded.

Employment estimates should be interpreted as the average number of jobs required to enable implementing investments supported by BNDES. This number of jobs does not correspond to the net creation of jobs in the economy, for the model is unable to estimate which jobs would have been filled by people who were previously employed and were allocated in the implementation of investments supported by BNDES and which posts would have been filled by previously unemployed people. Thus, the concept of job created or preserved is used.

Results for the implementation phase of investments can be divided into two job types: (i) direct job, which occurs in sectors that provide FBCF products for projects supported by the Bank, such as construction industry, machinery and equipment manufacturing and technical services provided to enterprises; and (ii) indirect job, which corresponds to jobs in production chains that serve sectors directly affected by supported investments.

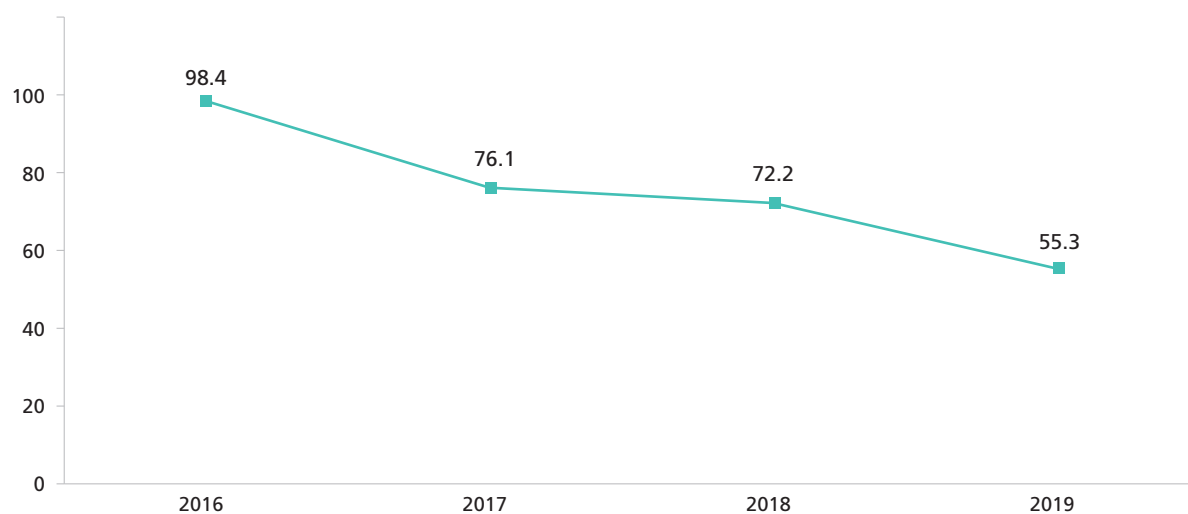
Graph 22 contains the results of the estimates of formal jobs created or preserved based on model simulations for each year in the 2016-2019 period. Graph 23, in turn, shows the behavior of BNDES's disbursements in the same period.

GRAPH 22. ESTIMATES OF FORMAL JOBS CREATED OR PRESERVED, BY JOB TYPE, ASSOCIATED WITH BNDES'S DISBURSEMENTS, 2016-2019



Source: Elaborated by the authors.

GRAPH 23. EVOLUTION OF BNDES'S DISBURSEMENTS AT CONSTANT PRICES FOR 2019, 2016-2019 (R\$ BILLION)



Source: Elaborated by the authors.  
Observation: Disbursements corrected by the GDP implicit deflator.

Analyzing the two graphs, one notes that the estimated number of jobs largely follows the evolution of BNDES's disbursements. In 2016, disbursements totaled R\$ 98.4 billion (in constant values for 2019, according to the GDP implicit deflator), and it is estimated that about 1 million workers

were associated with the implementation of investments supported by BNDES. Disbursements dropped to between R\$ 72.2 billion and R\$ 76.1 billion in 2018 and 2017, respectively, and employment results were reduced to 900,000 jobs in the same period.

In 2019, the focus of this report, disbursements of R\$ 53.3 billion created or preserved almost 800,000 jobs. The drop in the employment indicator (14%) in relation to 2018 was proportionally smaller than the actual drop in disbursements (20%) over the same period, as there was a significant increase in the portion destined for fixed investments in the Bank's total disbursements. In 2018, it is estimated that 84% of the disbursements were destined to fixed investments, while in 2019 this percentage increased to 93%.

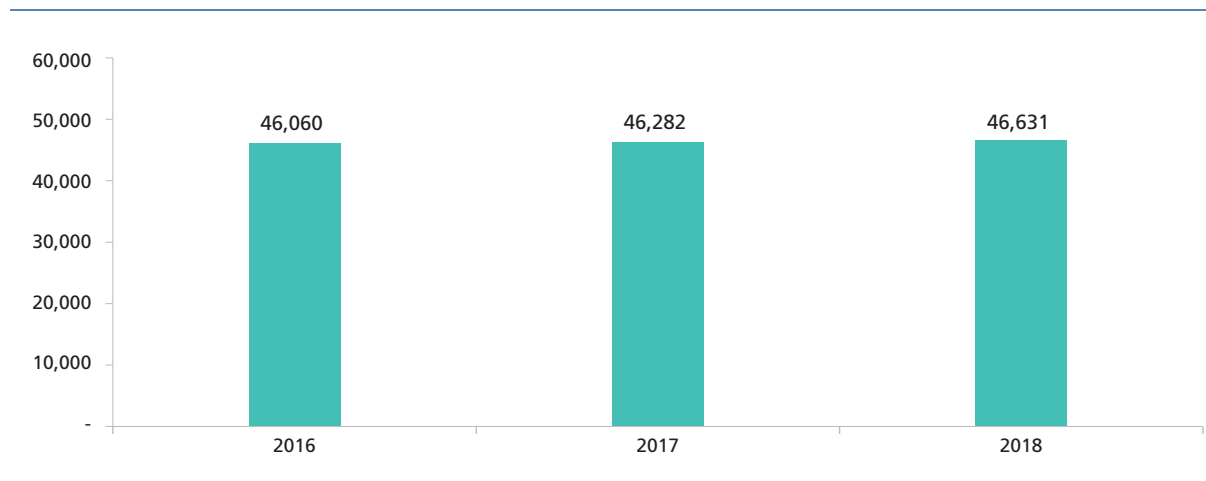
As for composition by job type, the 2016-2019 period presents great stability in the division between direct and indirect jobs, with about 59% for the former and 41% for the latter in 2019. These results present no significant changes in relation to the previous version of the model. According to the 2018 *Effectiveness Report*, the results for 2017-2018 were 57% of direct jobs and 43% of indirect jobs.

In 2019, for every BNDES R\$ 1 million applied in activities that influence employment, 15.4 jobs associated with the implementation phase were estimated, a drop from the parameter of 15.8 jobs per million calculated for 2018. In other words, if on the one hand BNDES has been allocating increasing portions of its disbursement to enable fixed investments, on the other, sectors that, when investing, demand production of more labor-intensive sectors are losing space in disbursement.

In recent years, the labor market has been characterized by the maintenance of high unemployment rates and low job creation. Graph 24 shows that between 2016 and 2018 (Rais last available year), 571,000 jobs were created in Brazil, an 1.2% increase over the total formal workforce. BNDES's financing of investments boosts the economy and generates jobs and income, helping to soften the recession. However, the drop in the Bank's disbursements in recent years resulted in a lower result of estimated jobs. Thus, the participation of estimated jobs during the implementation of investments dropped from 2.3% in 2016 to 2% of the total number of people formally employed in 2018.

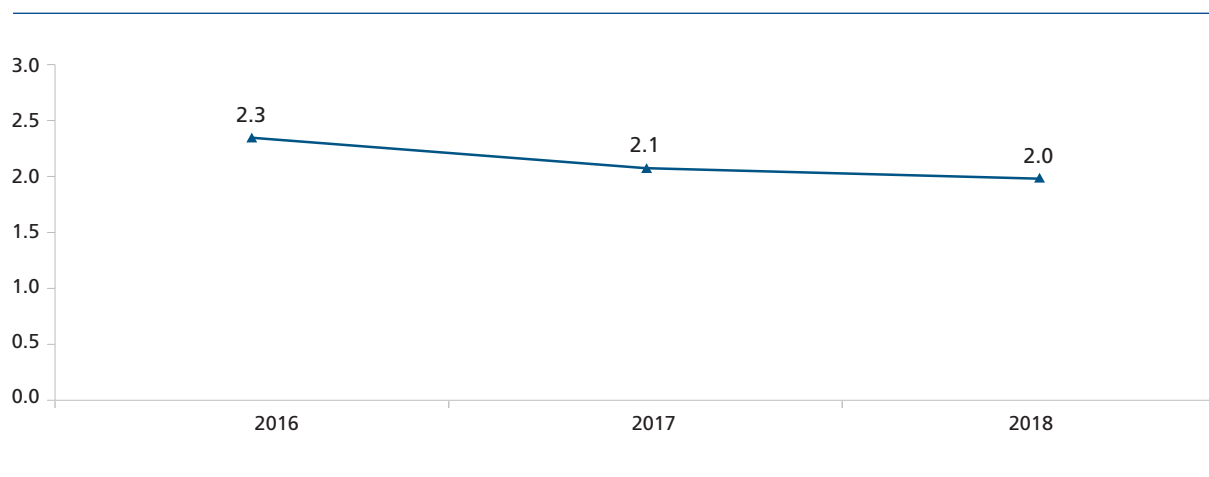


GRAPH 24. SUPPLY OF FORMAL JOBS IN BRAZIL ACCORDING TO RAIS, 2016-2018 (THOUSANDS OF JOBS)



Source: Elaborated by the authors.

GRAPH 25. PARTICIPATION OF EMPLOYMENT ESTIMATES OF BNDES DISBURSEMENTS IN BRAZIL'S FORMAL EMPLOYMENT SUPPLY, 2016-2018 (%)



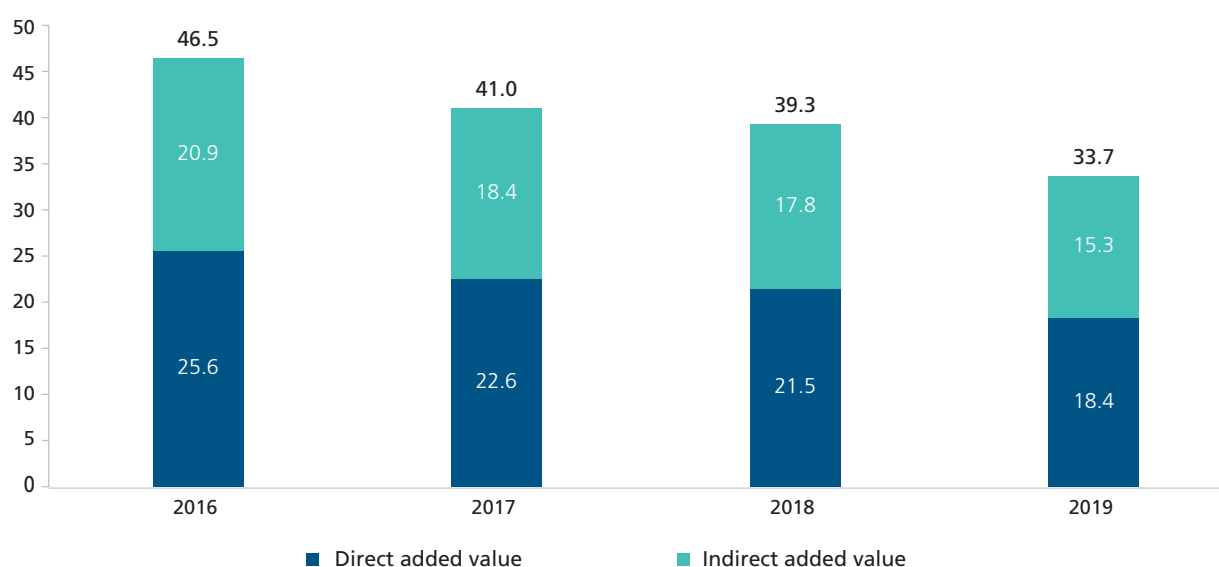
Source: Elaborated by the authors.

Mechanisms of input-output modeling can also be used to estimate effects on other macroeconomic variables. As stated earlier, the updated version of the Job Generator Model estimates the effect of BNDES on the volume of added value and total payroll of the economy. It should be emphasized that, as with employment, the estimated values of added value or total payroll do not mean net gains for the economy, for *a priori*, the additionality of BNDES's credit is unknown; in other words, the portion of investments that would not occur in the absence of the financial instrument. This issue is addressed in depth by the so-called impact evaluations, presented in the chapter "Impact evaluations on BNDES."

Added value consists in the creation of value that each sector or production stage promotes while producing a good or providing a service, in relation to the previous costs. The sum of all added value of an economy is also known as GDP, from the perspective of supply.

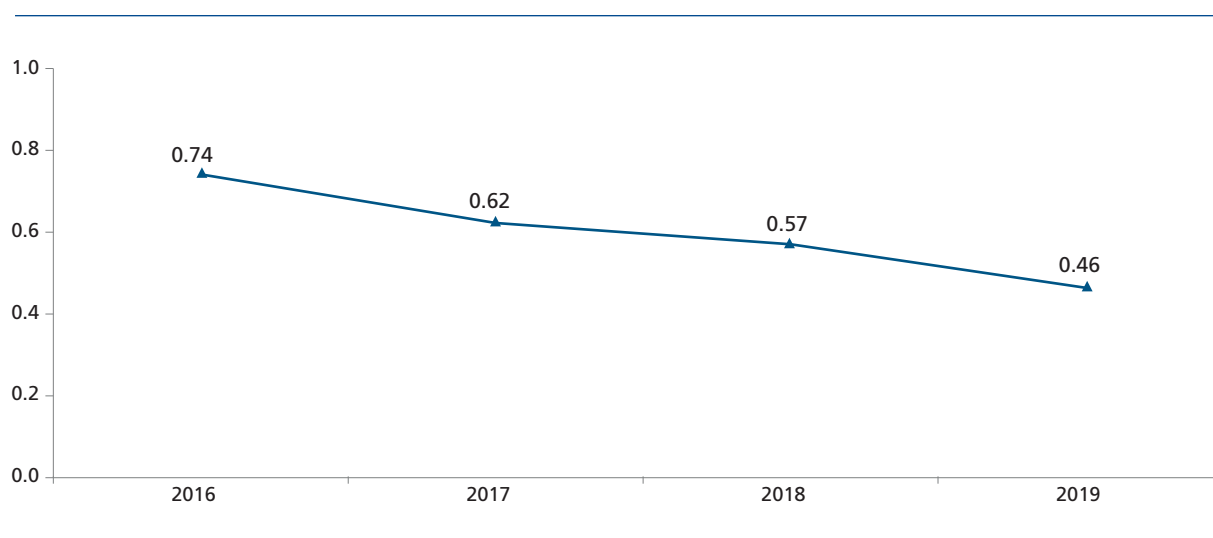
Graph 26 presents the estimates for added value. Following the downward trend in disbursements, the results of added value generated or maintained by investments supported by BNDES during the implementation phase show downward behavior over the 2016-2019 period. For 2016, it is estimated that R\$ 46.5 billion of added value has occurred within the scope of investment implementation activities, while this indicator reaches R\$ 33.7 billion for 2019. The composition of added value between what is estimated to have been generated by the activities directly influenced by the implementation and what comes from sectors impacted indirectly had no relevant changes between 2016 and 2019. In 2019, 55% of the estimated added value occurred in directly impacted activities and 45% in indirectly impacted activities. Also in 2019, for every R\$ 1 million disbursed by BNDES in financing fixed investment expenses considered in the model, R\$ 0.65 million of added value was generated or maintained. Finally, as shown in Graph 27, these estimates of added value represented 0.46% of all Brazilian GDP in 2019.

GRAPH 26. ESTIMATES OF ADDED VALUE ASSOCIATED WITH BNDES'S DISBURSEMENTS, 2016-2019 (R\$ BILLION)



Source: Elaborated by the authors.

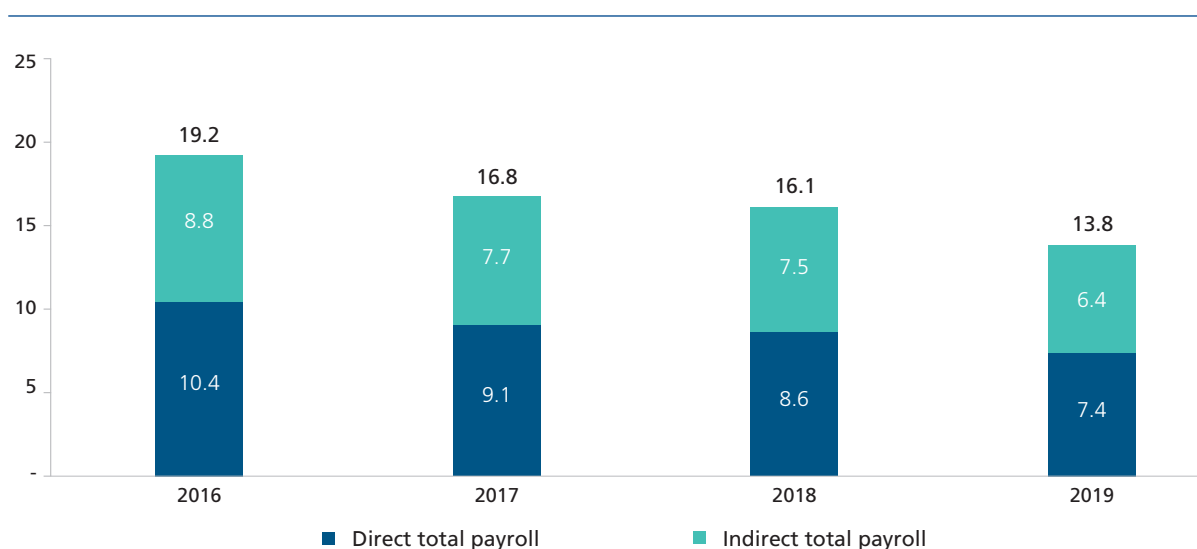
GRAPH 27. COMPARISON OF ESTIMATES OF BNDES'S DISBURSEMENTS ADDED VALUE WITH GROSS DOMESTIC PRODUCT, 2016-2019 (%)



Source: Elaborated by the authors.

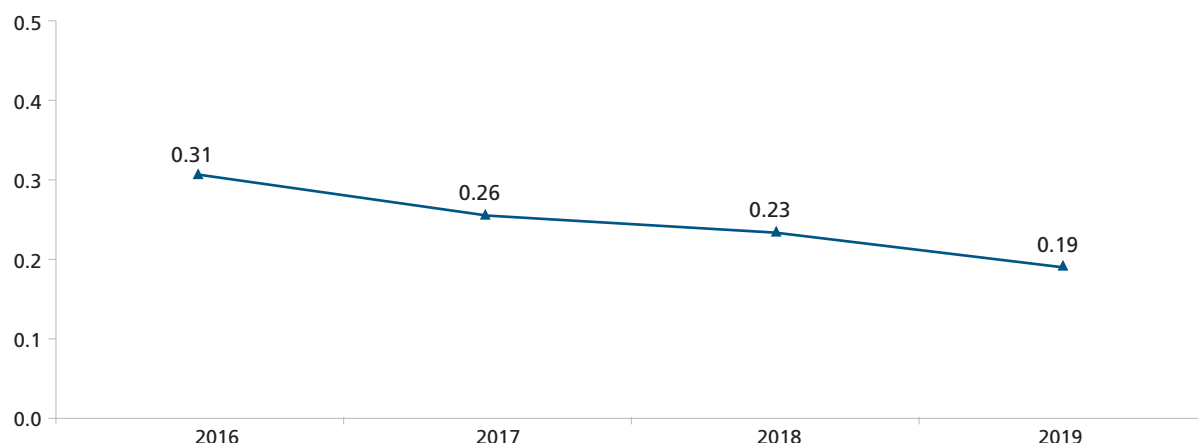
The last output variable of the model concerns the sum of salaries paid that is estimated to be associated with the implementation of the financed investments; that is, the so-called total payroll. As in the previous variables, estimates do not represent net wage creation and should be interpreted as salaries paid for one year to the estimated number of employees who helped implement the investments. Graphs 28 and 29 present the results of this effect.

GRAPH 28. ESTIMATES OF TOTAL PAYROLL ASSOCIATED WITH BNDES'S DISBURSEMENTS, 2016-2019 (R\$ BILLION)



Source: Elaborated by the authors.

GRAPH 29. COMPARISON OF TOTAL PAYROLL ESTIMATES ASSOCIATED WITH BNDES'S DISBURSEMENTS WITH GROSS DOMESTIC PRODUCT, 2016-2019 (%)



Source: Elaborated by the authors.

The estimated total payroll for 2019 was R\$ 13.8 billion, representing a 14% drop compared to the R\$ 16.1 billion calculated for 2018. Of course, it is the same proportional drop found in the estimates of the number of jobs. The result analyses are also similar to the previous variables, with 53% of salaries paid in activities directly impacted by the construction of investments and 47% in indirectly impacted activities. The indicator of comparison of wages with GDP is also declining over the 2016-2019 period, reaching 0.19% in the last year of the series. Finally, it can be stated that for every R\$ 1 million disbursed for fixed investments by BNDES, it is estimated that R\$ 0.27 million are paid per year to workers who make the construction of these investments possible and workers in their supply chains.



# MONITORING RESULTS OF **BNDES'S OPERATIONS**



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In the logical chain of data presentation on BNDES's performance in 2019, the next step to the effort to disburse, support enterprises, finance fixed investment and generate or preserve jobs during implementation is to survey what are the immediate deliverables of the support granted. This information is consolidated mainly based on the indicators of the operations results tables.

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Since 2017, BNDES has used the results table as an *ex-ante* evaluation tool in the process of analyzing nonautomatic support, which provides the development objectives sought by the Bank with the investments and indicators of deliveries (output and outcome indicators) and effects (effectiveness) that allow it to point out the expected benefits. This tool integrates the process of monitoring and self-evaluating the results from BNDES monitoring and evaluation system. The advanced implementation of this process will allow us to produce increasingly detailed information about the institution's outputs. Currently, each nonautomatic operation has values predicted for output and outcome indicators, filled in the information system in the analysis stage of the operation.

This chapter presents, for BNDES nonautomatic support, the outputs planned by projects approved exclusively in 2019, according to the values foreseen in the indicators of their results tables.<sup>4</sup> This type of information gives more concreteness to the social benefits from the financial support granted. Examples of indicators of this nature are: (i) number of sewer connections to be implemented; (ii) number of oil and gas (P&G) support vessels under repair; (iii) length, in kilometers, of Bus Rapid Transit (BRT) routes to be implemented; and (iv) supported working hours for software development.

This monitoring chapter covered, in previous effectiveness reports, periods longer than one year (2007 to 2014 in the first, 2015 to 2016 in the second and 2017 to 2018 in the third). In this edition, as the analysis period will be only one year (2019), naturally the number of projects and outputs will be smaller, even though the variety of sectors and types of indicators is maintained. In many cases, outcome indicators will also be presented that help illustrate the logic of the support and bring more results expected with the support.

This chapter also shows some delivery indicators related to automatic support, such as the number of equipment sold via BNDES Finame or the value of capital goods exports made viable with BNDES Exim.

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<sup>4</sup> Although this chapter focuses on output and outcome indicators, some effectiveness indicators may be included in the compilation, without prejudice to the presentation of monitoring results.



The indicators are arranged in themes that correspond to the finalist missions of BNDES's performance contained in the Triennial Plan 2020-2022,<sup>5</sup> approved in December 2019, according to Figure 1.

FIGURE 1. STRATEGIC OBJECTIVES FROM THE "DEVELOPMENT MISSIONS" PERSPECTIVE OF THE TRIENNIAL PLAN 2020-2022



Source: Elaborated by the authors.

As registered in the previous *Effectiveness Report*, the first operations that relied on the results table tool to structure the expected results were approved in 2017 and it was still necessary to elapse a period of investment implementation for effectiveness to be verified. The comparison of the results achieved with the expected results of an operation must be prepared by the support operational team in a self-evaluation report. The last chapter presents statistics of the first self-evaluation reports produced by BNDES, as well as the main results achieved and lessons learned.

## INFRASTRUCTURE

BNDES's strategic orientations in supporting electric energy consist in modernizing, decentralizing and decarbonizing the energy matrix, by promoting free market, distributed generation and energy transition.

<sup>5</sup> Available at: <https://www.bndes.gov.br/wps/portal/site/home/quem-somosplanejamento-estrategico/plano-trienal-2020-2022/>.

## Electric power generation, transmission and distribution

In previous editions of BNDES's *Effectiveness Report*, output data related to electric power generation and transmission were consolidated by identifying, in the Ministry of Mines and Energy monitoring reports, the projects that went into operation in a given period and that had been supported by the Bank. Thus, outputs delivered in a given period were reported for these segments of economic activity. In this report, the indicators of electric energy generation and transmission have the concept of deliveries planned by projects approved in 2019. This allows associating the deliveries of supported projects with BNDES's effort to analyze and approve operations within a given period, in addition to standardizing the presentation of result indicators with other segments.

The specific objective pursued by BNDES-supported projects for electric power generation is, to a large extent, the expansion of supply to support sustainable economic growth in relation to the use of renewable sources. Table 6 presents the indicators compiled by type of source in the generation segment.

TABLE 6. ELECTRIC POWER GENERATION CAPACITY PLANNED BY PROJECTS APPROVED BY BNDES IN 2019

SOURCE	Output	Metric
Hydroelectric power stations*	78	Megawatts
Thermal power stations**	566	Megawatts
Wind farms	1,263	Megawatts
<b>Total</b>	<b>1,906</b>	<b>Megawatts</b>

Source: Elaborated by the authors.

Observations: \* Hydroelectric and small hydroelectric plants. Does not include distributed generation. \*\* Does not include nuclear energy.

Ten electricity generation projects were approved in 2019, foreseeing the installation of 1,906 megawatts (MW) of power, divided into four hydroelectric power projects totaling 78 MW, a thermal project with a capacity of 566 MW and five wind projects totaling 1,263 MW. BNDES's support to the segment focuses on rendering projects of electric power

generation using renewable sources viable, which correspond to 70% of the total capacity to be added, with 1,341 MW, enough energy to supply the average consumption of 2.7 million households, or approximately 8.9 million people. To better understand the order of magnitude, this number of people is a little lower than the total population of the state of Ceará, where, according to IBGE estimates for July 1, 2019, 9.1 million people reside.

The Bank's support in the electric power transmission stage aims to ensure the power supply to the electrical system with quality and safety. Table 7 shows the indicators related to the length of lines planned by projects supported by voltage class.



**1,341 MW**

of power generation capacity added using renewable sources equivalent to the average consumption of about

**8.9 million**  
people

TABLE 7. LENGTH OF TRANSMISSION LINES PLANNED BY TRANSMISSION PROJECTS APPROVED BY BNDES IN 2019

VOLTAGE CLASS	Output	Metric
230 kV	1,235	Km
345 kV	587	Km
440 kV to 525 kV	4,843	Km
<b>Total</b>	<b>6,665</b>	<b>Km</b>

Source: Elaborated by the authors.

The total length of transmission line implementation planned by projects approved in 2019 is approximately 6,665 km, expressive if compared to the total 7,678 km length that was effectively implemented in 2017 and 2018 (BNDES, 2019).<sup>6</sup> This distance of more than 6,000 kilometers is equivalent to traveling by car from Boa Vista (RR) to João Pessoa (PB). The planned deliveries are concentrated in lines with higher voltage class, with 73% (4,843 km) in the range of 440 kV to 525 kV.

Power transmission projects also involve installing equipment that performs voltage transformation. This phenomenon is measured in megavolt-ampere (MVA), and the eight projects approved in 2019 that carry out this type of investment total 12,886 MVA of planned implementation, as shown in Table 8.

<sup>6</sup> BNDES. 2018 *Effectiveness Report*. Rio de Janeiro, 2019.

TABLE 8. POWER TRANSFORMATION CAPACITY (TRANSMISSION) FORSEEN BY TRANSMISSION PROJECTS APPROVED BY BNDES IN 2019

SEGMENT	Output	Metric
Implemented/expanded transformation capacity	12,886	MVA

Source: Elaborated by the authors.

Energy reaches final consumers, be they families or companies, via energy distributors. In this segment, the essential objective of BNDES's support is to ensure the universalization of electric power via the quality of the network. Two investment plans approved in 2019 (one in Alagoas and one in Piauí) will be responsible for implementing the network extension shown in Table 9.

TABLE 9. EXTENSION OF ELECTRICITY DISTRIBUTION NETWORKS PLANNED BY PROJECTS APPROVED IN 2019

VOLTAGE CLASS	Output	Metric
Less than 2.3 kV	1,580	Km
2.3 kV to 25 kV	2,545	Km
30 kV to 44 kV	556	Km
69 kV	222	Km
88 kV to 138 kV	75	Km
Underground network	8	Km
<b>Total</b>	<b>4,986</b>	<b>Km</b>

Source: Elaborated by the authors.

We expect to implement or substitute almost 5,000 km of network, being 83% of this total in voltage classes that go up to 25 kV. These projects are estimated to serve almost 275,000 new households, which, considered the national average of 3.3 people per household totals around 907,000 people (or 14% of the combined population of Piauí and Alagoas states).

Table 10 presents the indicators of two energy distribution projects that aim to promote technological updates, limit commercial losses and improve the quality of energy supply. The installation of almost 510,000 energy meters, the construction of nine new distribution substations and the modernization or expansion of 24 substations are expected. As for the transformation capacity, 63 MVA will be implemented or expanded and the 181 MVA capacity replaced.

TABLE 10. OTHER ELECTRICITY DISTRIBUTION DELIVERIES PLANNED BY PROJECTS APPROVED IN 2019

INDICATOR	Output	Metric
Installation of energy meters	509,636	Unit
Installation of smart meters	172	Unit
Construction of power distribution substations	9	Unit
Modernization/expansion of power distribution substations	24	Unit
Implementation/expansion of power transformation capacity being distributed	63	MVA
Replacement of power transformation capacity being distributed	181	MVA

Source: Elaborated by the authors.

## Logistics

In the logistics segment, BNDES seeks to promote an integrated, sustainable and safe matrix, as well as to reduce logistics costs and increase private investments. Among the specific objectives sought by road support projects, are: (i) to increase the flow capacity of vehicles; (ii) to restore the quality of the road pavement; (iii) to improve the provision of services to users; and (iv) to improve road safety.

TABLE 11. OUTPUTS PLANNED BY ROAD CONCESSION PROJECTS APPROVED IN 2019 (SIDEWALK CAPACITY AND QUALITY)

INDICATOR	Output	Metric
Duplication of highways	302	Km
Restoration/reconstruction of highways	473	Km
Implementation of third lanes	76	Km
<b>Total</b>	<b>851</b>	<b>Km</b>

Source: Elaborated by the authors.

In 2019, two projects to support investments by road concessionaires were approved, one related to three highways in Minas Gerais and the other to four highways in Rio Grande do Sul. Regarding the capacity and improvement of pavement quality indicators, the doubling of 302 km, the restoration or reconstruction of 473 km and the implementation of 76 km of third lanes are planned. The expected length of duplication plus restoration/reconstruction of highways equals 775 km, a little less than the road distance between Manaus (AM) and Boa Vista (RR), or between Natal (RN) and Aracaju (SE), of 785 km and 788 km, respectively.

Table 12 shows the planned outputs related to improving service delivery and road safety. More than 1,100 cameras, 15 luminous signs and seven medical and mechanical service stations are expected to be implemented. With support from BNDES's resources, 43 uneven crossings, 32 overpasses and a city outline will also be implemented.

TABLE 12. OUTPUTS PLANNED BY ROAD CONCESSION PROJECTS APPROVED IN 2019 (PROVISION OF SERVICE AND SAFETY)

INDICATOR	Output	Metric
Deployment of cameras	1,147	Number of cameras
Deployment of luminous signs	15	Number of signs
Deployment of city outlines	1	Number of outlines
Deployment of uneven crossings	43	Number of uneven crossings
Deployment of overpasses	32	Number of overpasses
Deployment of medical and mechanical service stations	7	Number of stations

Source: Elaborated by the authors.

## Environmental sanitation

Another relevant role of BNDES in infrastructure concerns supporting investments in environmental sanitation, for which the corporate strategy points out the direction for raising and decentralizing investments, expanding access to services and reducing social and regional inequalities.

The specific objectives of sanitation projects involve:

- (i) the expansion of water supply as an essential welfare service;
- (ii) the expansion of the collection and treatment of sanitary sewage; and (iii) the promotion of operational improvements of service providers.

In 2019, BNDES approved financing for a project to implement a system for capturing and treating raw water and to extend the water supply system of the municipality of Camboriú (SC), whose expected deliveries are in Table 13.

TABLE 13. OUTPUTS PLANNED BY THE SANITATION PROJECT (WATER) APPROVED IN 2019

INDICATOR	Output	Metric
Raw water collection capacity	370	Liters/second
Water storage capacity	6,250	Thousand liters
Water treatment capacity	375	Liters/second
Water network extension and pipeline	37	Km
Water network replacement	11.4	Km
Replacement of old or obsolete hydrometers	26,687	Number of hydrometers
Installation of hydrometers	1,434	Number of hydrometers
New water connections	1,434	Number of systems

Source: Elaborated by the authors.

We expect increases of 370 liters per second in raw water collection capacity, 6.25 million liters in water storage capacity, and 375 liters per second in treatment capacity. Improvements to the distribution network are also expected, with a planned 37 km expansion and replacement of another 11.4 km. Around 28,100 hydrometers are expected to be delivered, being approximately 1,400 new installations and 26,700 corresponding to old or obsolete units to be replaced.



Around  
**4,800 people**  
from the municipality of  
Camboriú will benefit  
from BNDES-supported  
investments in environmental  
sanitation (water) in 2019

The investments will also allow almost 1,434 new water connections to be made. Considering the average of 3.38 people served by active system, we estimate that around 4,800 people will benefit from the investments supported by BNDES, that is, 14% of the population with access to the water network in the municipality of Camboriú.

In the sanitary sewage segment, in 2019, a project for implementing urban infrastructure was approved in neighborhoods with low human development index in the municipality of Fortaleza (CE), involving rainwater drainage and paving of streets associated with sanitation services. The expected outputs of this project are found in Table 14.

TABLE 14. OUTPUTS PLANNED BY THE SANITATION PROJECT (SEWAGE AND DRAINAGE) APPROVED IN 2019

INDICATOR	Output	Metric
Sewage treatment capacity	183	Liters/second
Expansion of the sewer network, interceptor and collectors	70	Km
New sewer connections	13,304	Number of systems
Drain network extension	12,211	Km
Paving area for drainage	298,689	M <sup>2</sup>

Source: Elaborated by the authors.



An increase in sewage treatment capacity of 183 liters per second, an expansion in network extension, interceptors and sewage collectors of 70 km, the implementation of 12,200 km of drainage network and almost 300,000 m<sup>2</sup> of associated paving area are expected. The more than 13,000 sewer connections correspond to 48.300 people who will gain access to the network.

For the environmental sanitation segment, in 2019, BNDES approved direct support for a project that aims to increase the solid waste treatment capacity in the municipalities of Caieiras (SP) and Curitiba (PR) by increasing just over 10 million m<sup>3</sup> of capacity in landfills. Considering the daily production of 1.039 kg of garbage per person and a density of 155 kg of municipal solid waste (RSU) per cubic meter, the additional capacity of the supported landfills could receive the annual waste production of 4,168,000 people.

TABLE 15. OUTPUTS PLANNED BY MUNICIPAL SOLID WASTE PROJECT APPROVED IN 2019

INDICATOR	Output	Metric
Total landfill capacity	10,197	Thousand m <sup>3</sup>

Source: Elaborated by the authors.

## Urban mobility

BNDES has as strategic guidelines for its performance in urban mobility: (i) reducing the investment gap (necessary volume *versus* investments made); (ii) promoting the use of clean energy sources; and (iii) improving the capacity of public administrators.

In projects for implementing or extending urban transport systems, the specific objectives regarding the results of the support are to expand the infrastructure and increase the quality of high and medium capacity urban mobility.

In 2019, support was approved for a BRT system implementation project in Sorocaba (SP), whose expected outputs are presented in Table 16. There will be about 17 km of double tracks and 12.5 km of bicycle path in the BRT corridors, 32 stations, 110 buses and an information technology (IT) system for project management.

TABLE 16. OUTPUTS PLANNED BY URBAN MOBILITY PROJECT APPROVED IN 2019

INDICATOR	Output	Metric
Implementation of BRT double track	17.1	Km
Construction of BRT stations	32	Number of stations
BRT bus acquisition	110	Number of buses
Implementation of BRT systems	1	Number of systems
Implementation of bicycle path in BRT corridors	12.5	Km

Source: Elaborated by the authors.

Sorocaba BRT can meet a demand of about 99,000 users per business day when fully operational.

## Oil and gas

In the oil and gas sector, the focus of BNDES's operations should turn, according to the Triennial Plan 2020-2022, to promote the energy transition and expand the demand for natural gas in Brazil. To address this direction, in 2019 a project to expand the distribution services of piped natural gas and the construction of new distribution networks in several municipalities in the state of São Paulo was approved. According to Table 17, the project seeks to expand the gas distribution network by 3,500 km.

TABLE 17. OUTPUT PLANNED BY NATURAL GAS DISTRIBUTION PROJECT APPROVED IN 2019

INDICATOR	Output	Metric
Construction or modernization of natural gas distribution network	3,500	Km

Source: Elaborated by the authors.

With the project, more than 14 municipalities within the concession area of the supported company are expected to gain access to natural gas and that 2.2 million households and about 1,500 industrial establishments will be served.

Also, in the oil and gas segment, we highlight the support for the construction and repair of vessels, which specifically aims to strengthen the support fleet for the production activities of that sector. In 2019, three operations of this nature were approved, and the deliveries are listed in Table 18.

TABLE 18. PLANNED OUTPUT BY PROJECTS OF SUPPORT VESSELS FOR THE OIL AND GAS SECTOR APPROVED IN 2019

SEGMENT	Output	Metric
Vessel building	2	Number of vessels
Conversion of vessels	2	Number of vessels
Repair of vessels	22	Number of vessels
<b>Total</b>	<b>26</b>	<b>Number of vessels</b>

Source: Elaborated by the authors.

The construction of two shallow diving support vessel (SDSV) – i.e., vessels supporting offshore shallow dive services – and the conversion of two platform supply vessels (PSV), which mainly transport people and supplies between platforms and operating bases in SDSV, are planned. Additionally, repairs will be carried out in 22 vessels, between PSV, anchor handling tug supply (AHTS) – to handle anchors for oil rigs –, well stimulation support vessel (WSSV) – for emptying and stimulating wells – and fast supply vessel (FSV) – fast offshore support vessels.

## PRODUCTION STRUCTURE

The most relevant agendas for BNDES in supporting industry, trade and services are to promote gains in productivity, competitiveness and employment, integrating innovation, export, entrepreneurship and decarbonization.

For basic industries, development agendas concern the promotion of sustainable mining, skilled employment and the use of advanced materials. As for specific objectives, they are supported to increase production or maintain

installed capacity, expand operational efficiency, promote productivity gains and/or added value in production, develop human capital and skills, enable and diversify exports, reduce and mitigate environmental risks and impacts, and increase energy efficiency and cogeneration.

## Agroindustry and biofuels complex

In the agroindustry production segment, BNDES's activities are directed to promoting decarbonization, precision farming and competitiveness. Generally speaking, for sugar and alcohol production projects, the specific objectives of productive investments are related to increasing production capacity, achieving productivity gains or added value, expanding energy cogeneration capacity and reducing environmental impacts. In 2019, six projects in the segment were approved in a nonautomatic way.

TABLE 19. OUTPUTS PLANNED FOR SUGAR AND ALCOHOL PROJECTS APPROVED IN 2019

INDICATOR	Output	Metric
Expansion of sugarcane fields	3,903	Hectares
Renovation of sugarcane fields	22,143	Hectares
Sugarcane grinding capacity	3,100	Thousand tons/year
Ethanol production capacity	60	Thousand m <sup>3</sup> /year

Source: Elaborated by the authors.

The renewal of sugarcane fields is positively related to productivity gains in the sector. Thus, 3,900 hectares of new planting areas and 22,100 of renewed hectares are expected. Sugarcane grinding capacity is expected to increase by around 3.1 million tons per year. Regarding alcohol production, we expect an advance in the production capacity of 60,000 m<sup>3</sup> per year of ethanol. Considering the full use of this productive capacity for biofuel production, the expected annual advance is capable of fueling about 1.1 million cars (since the fuel tank capacity of the best-selling vehicle models in Brazil are, on average, 53.6 liters).

The organic material resulting from processes agricultural products such as sugarcane and corn has the potential to generate energy that can be used by the industrial activity itself or supplied to the National Interconnected System. In 2019, five projects that planned an increase of 82.2 MW of biomass power generation capacity were approved in a nonautomatic way.

TABLE 20. INSTALLED POWER PLANNED BY BIOMASS POWER GENERATION PROJECTS APPROVED IN 2019

INDICATOR	Output	Metric
Installed power of biomass power generation	82.2	MW

Source: Elaborated by the authors.

Another segment in which BNDES has shown continued support over the last few years is the storage of bulk production, aiming at reducing logistics costs, promoting gains in added value, improving quality, safety and control of industrial production and reducing environmental impacts. In this sense, four projects were approved in 2019 that will seek to increase the static grain storage capacity by 295,000 tons, which corresponds to 4.5% of the total storage capacity increase observed between the first half of 2018 and the same period of 2019, according to IBGE.

TABLE 21. OUTPUTS PLANNED FOR GRAIN STORAGE PROJECTS APPROVED IN 2019

INDICATOR	Output	Metric
Grain storage capacity	295	Thousand tons

Source: Elaborated by the authors.

## Planted forests and paper

In the planted forests segment, BNDES approved, in 2019, the support for three investment plans by paper and pulp producers that foresee the planting of 195,600 hectares of forests, a number that corresponds to 2% of the total planted

forests in Brazil, according to data from the Brazilian Forestry Service (SFB) for the end of 2017. In addition, a project to increase paper production capacity (specifically kraftliner, normally used for the covers of the different corrugated cardboard structures) of 450,000 tons per year was approved.

TABLE 22. OUTPUTS PLANNED BY PLANTED FOREST AND PAPER PROJECTS APPROVED IN 2019

INDICATOR	Output	Metric
Area of planted forests	195,580	Hectares
Paper production capacity	450,000	Tons/year

Source: Elaborated by the authors.

## Naval sector

To strengthen the national fleet for waterborne transport, BNDES approved financing in 2019 for two repair and modernization projects of 120 vessels in total. One project anticipates the maintenance and repair of 34 tugboats, that is, small vessels of high maneuverability used to move larger vessels in ports or canals, in the municipality of Guarujá (SP). The second project consists in modernizing (replacement of roofing for operational gains in the loading and unloading process) of 86 barges, responsible for transporting grain along the Madeira-Amazonas waterway, in Brazil's northern region.

TABLE 23. OUTPUTS PLANNED BY NAVAL SECTOR PROJECTS APPROVED IN 2019

INDICATOR	Output	Metric
Repair of port support vessels	34	Km
Modernization of cabotage vessels	86	Km
<b>Total</b>	<b>120</b>	<b>Km</b>

Source: Elaborated by the authors.

## Consumer goods, trade and services

The service sector has an increasing weight in the generation of wealth in the world and is responsible for creating many jobs. In the segments of production of consumer goods, trade and service provision, BNDES's strategy aims the creation of jobs and the promotion of competitiveness, productivity and regional development as its main guidelines.

In addition to these effects, the support to the retail trade seeks, more specifically, to foster the generation or maintenance of jobs, to develop human capital and competence in the firms and to promote networks of companies and interfirm cooperation.

TABLE 24. OUTPUTS PLANNED BY RETAIL PROJECTS APPROVED IN 2019

INDICATOR	Output	Metric
Opening of commercial stores	4	Number of stores
Opening of commercial stores	60,000	M <sup>2</sup>

Source: Elaborated by the authors.

In 2019, financing was approved in a direct way for a pharmacy network expansion project and a supermarket project, which plan for the opening of four stores, totaling an additional area of 60,000 m<sup>2</sup>, equivalent to approximately 8.4 soccer fields such as Maracanã (RJ). The beneficiary enterprises estimate to create 1,300 new jobs.

Efficiency gains in the trade sector are increasingly based on investments related to the process of distributing goods. BNDES approved, in 2019, three projects of distribution centers and logistic complexes that will expand and/or modernize approximately 72,400 m<sup>2</sup>, an area corresponding to about ten soccer fields.

TABLE 25. EXPANSION AND MODERNIZATION OF DISTRIBUTION CENTERS AND LOGISTIC COMPLEXES APPROVED IN 2019

INDICATOR	Output	Metric
Expansion and modernization of distribution centers and logistic complexes	72,369	M <sup>2</sup>

Source: Elaborated by the authors.

These projects also plan to create 1,100 direct jobs for operationalizing new ventures.

## Creative economy and information and communication technologies

Universalizing telecommunications and promoting the creative economy and digital society are the guidelines of BNDES's action on this area. The Bank's support for information and knowledge-intensive segments is naturally focused on financing intangible assets, which is reflected in the types of delivery indicators associated with these projects. In the audiovisual production segment, for example, the specific objectives are promoting the sustainability of the national audiovisual content, stimulating the recognition of the Brazilian audiovisual production, promoting the competitiveness of the national animation industry, facilitating the export of the national audiovisual content and promoting a modern and decentralized exhibition park.

TABLE 26. OUTPUTS PLANNED BY AUDIOVISUAL SEGMENT PROJECT APPROVED IN 2019

INDICATOR	Output	Metric
Film development and production	4	Number of films
Animation development and production	1	Number of films
Supported work hours of employees in creative centers	40,640	Man-hour
Supported total payroll of employees in creative centers	329	R\$ thousand

Source: Elaborated by the authors.

Table 26 shows that BNDES's support for an audiovisual project approved in 2019 plans for the development of four films and one animation. To achieve these results, we estimate more than 40,000 working hours of employees in creative centers that will be supported with R\$ 329,000 in salary payments. Considering a weekly 40-hour employment contract, the total planned work in creative centers would be enough to keep approximately 19 people working exclusively on the project for one year. Twelve new jobs are also estimated because of investments.



BNDES is an important supporter of software development projects such as vectors of gains in business competitiveness, effort and results of innovation, development of human capital and skills, and feasibility and diversification of exports. In 2019, direct support was approved for a project that seeks to develop locally seven new software in an effort that will take more than 760,000 working hours (equivalent to 367 people working 40 hours per week for one year) and will consume R\$ 46 million in programmers' salaries.

TABLE 27. OUTPUTS PLANNED BY PROJECTS FROM SOFTWARE AND HARDWARE SEGMENTS APPROVED IN 2019

INDICATOR	Output	Metric
Update of locally developed software	7	Number of software
Supported working hours for software development	764,544	Man-hour
Supported total payroll for software development	46,000	R\$ thousand
Optical-fiber cable production capacity	698,000	Km/year

Source: Elaborated by the authors.

It is also noteworthy the construction project of a factory for fiber-optic cable production, aiming to meet the increasing consumption of this input by regional internet providers. The support will enable the entry of a new player in Brazil (single, medium-sized) with a manufacturing capacity of almost 700,000 km of optical fiber per year and will allow the creation of 45 direct jobs.

For the information and communication technology segment, BNDES approved, in 2019, support for two projects of regional internet providers that aim to expand the infrastructure and quality of telecommunication services in their areas of operation. The support to regional internet providers enables the digital inclusion of people living in municipalities with a deficit in the provision of telecommunication services. The expansion of broadband internet services generates greater dissemination of knowledge, reduction of inequalities and increased corporate productivity.

TABLE 28. OUTPUTS PLANNED BY PROJECTS FROM SOFTWARE AND HARDWARE SEGMENTS APPROVED IN 2019

INDICATOR	Output	Metric
Optical fiber installation	7,900	Km
Municipalities that will be served by dedicated fixed broadband above 2Mb	37	Number of municipalities

Source: Elaborated by the authors.

Almost 8,000 km of optical fiber network will be installed to serve 37 new municipalities with dedicated fixed broadband. It is estimated that about 50,000 people will benefit from the service and that the investments will employ an additional 220 people.



Around

50,000 people

will benefit from the supported investments for expanding broadband internet services in 37 municipalities

## Sales of capital goods

The strategic direction provided by the BNDES 2020-2022 Triennial Plan for operations in the capital goods sector is aimed at promoting advanced manufacturing practices, qualified employment and efficiency in the use of resources.

Table 29 shows the number of machines and equipment sold in operations approved in the 2016-2019 period for some selected types of equipment, considering only capital goods sales indirectly supported through BNDES Finame. Improvements made in 2019 in the BNDES information system's classification of machinery and equipment made it possible to accurately identify financed items; it was thus decided to present in Table 29 the historical series of outputs since 2016. It should be noted that these data are not comparable with those disclosed in the previous *Effectiveness Report* (which covered the 2015-2018 period for capital goods sales).

TABLE 29. MACHINERY AND EQUIPMENT PURCHASES SUPPORTED BY BNDES FINAME, 2016-2019 (NUMBER OF ITEMS)

TYPE OF MACHINERY	2016	2017	2018	2019	Variation 2019/2018 (%)
Trucks	30,594	38,729	37,244	21,673	(42)
Buses	5,284	5,456	4,530	2,836	(37)
Harvesters	5,292	5,741	6,142	6,495	6
Agricultural tractors	13,503	14,935	13,774	14,911	8
Sprayers and irrigation systems	3,181	3,130	2,866	11,598	305
Industrial ovens	12,829	26,853	2,352	2,580	10
Electric motors, generators and transformers	1,161	2,313	719	474	(34)
Refrigeration and air-conditioning	50,912	42,229	7,483	8,047	8
Medical and hospital equipment	419	158	236	165	(30)
Machine tools	544	741	866	917	6
Industrial robots	2	4	5	8	60

Source: Elaborated by the authors.

BNDES Finame's disbursements fell about 13% between 2018 and 2019 (from R\$ 19.2 billion to R\$ 16.6 billion), a decrease reflected in the amount of capital goods financed in some asset categories. For example, in 2019 around 24,500 buses and trucks financed by BNDES funds were sold, 41% less than the 41,700 units sold in the previous year. These financed sales represented 20% of all buses and trucks licensed in the country in 2019, compared with a 46% share observed in 2018.

Electric motors, generators and transformers (-34%) and medical and hospital equipment (-30%) were the other types of equipment that saw a decrease in BNDES financing in 2019.

In contrast, agricultural equipment showed a positive performance in 2019 compared with 2018, with supported sales reaching about 33,000 units of harvesters, tractors and sprayers, 45% more than in 2018. The highlight was the segment of sprayers and irrigation systems, which grew by 305% in 2019. Considering only tractors and harvesters, the share of BNDES's support in total units sold in the country in 2019, according to data from the National Association of Motor Vehicle Manufacturers (Anfavea), was 54% (a growth of 10 percent points compared with the 44% share calculated for 2018). Stands out that BNDES has a procedure for financing agricultural equipment that allows manufacturers of these products to grant loans directly to the final buyer. The simplification of loan procedures may have contributed to the good performance of this segment.

Another highlight in 2019 is the 6% increase in supported sales of machine tool units compared with 2018, reaching around 900 units. For this new equipment category, the segment showed sustained growth from 2016 to 2019.

In summary, considering only those selected machinery and equipment categories, for which a reasonable degree of homogeneity is expected, BNDES Finame seems to be gained relevance in agricultural equipment sales and lost ground in the industrial equipment segment.

## Exports

BNDES's support for exports is focused on ensuring that Brazilian companies are able to compete in foreign markets. The specific goals of the Bank's support are as follows: (i) increase the scale of national production by expanding consumer markets; (ii) generate income and direct and indirect jobs (exporters' supply chain); and (iii) strengthen the balance of payments by diversifying exports and generating a long-term inflow of foreign currency.

The trend of decrease in BNDES's support for Brazilian exports showed continuity, as evidenced by the 56% drop in disbursements for all BNDES Exim products from 2018 to 2019 (R\$ 4.2 billion to R\$ 1.8 billion), which, in turn, is reflected in this segment's deliveries.

Apart from the support for the export of road-building or agricultural machinery, which grew from US\$ 25 million in 2018 to US\$ 77 million in 2019, and in the bus and truck segment, which remained stable, the support for the export of other types of capital goods decreased. In total, US\$ 539 million in exports (value of goods exported) were enabled in 2019, compared with US\$ 1,278 million in 2018.

TABLE 30. EXPORTS OF CAPITAL GOODS APPROVED BY BNDES EXIM FOR THE 2016-2019 PERIOD, BY SELECTED SEGMENTS (CURRENT US\$ MILLION)

SEGMENT	2016	2017	2018	2019	Variation 2019/2018 (%)
Industrial or power generation machines	935	56	40	25	(37)
Road-building or agricultural machinery	143	32	25	77	210
Buses, trucks, parts and accessories	3,286	37	75	81	9
Other transport equipment	1,611	651	1,136	355	(69)
Other capital goods	62	17	2	0	(100)
<b>Total</b>	<b>6,037</b>	<b>793</b>	<b>1,278</b>	<b>539</b>	<b>(58)</b>

Source: Elaborated by the authors.

Support for the sale of aircraft produced by Embraer showed a significant drop in 2019, in comparison with previous years, totaling 14 units.

TABLE 31. AIRCRAFT EXPORTED BY EMBRAER WITH BNDES SUPPORT, 2016-2019

	2016	2017	2018	2019	Variação 2019/2018 (%)
Aircraft supported through BNDES credit	62	25	46	14	(70)

Source: Elaborated by the authors.

## EDUCATION, HEALTH AND SECURITY

A strategic direction for BNDES planning is improving the quality and efficiency in the provision of education, health and security services. More specifically, the goals are to improve labor qualification and productivity, promote product innovation and disseminate best practices.

With regard to health industry, BNDES encourages industrial companies' investments in medicine research and manufacturing and supports improvements in the provision of healthcare services by hospitals, clinics etc.

As for the industrial health segment, the specific goals are as follows:

- increase the supply of health products, promote productivity gains and improve business competitiveness;
- increase the local supply of strategic products for meeting Brazil's health needs;
- increase the supply of biotechnological products for human health;
- enable export diversification; and
- improve product quality, traceability and safety, promote compliance with regulatory changes, improve environmental and safety controls and the control of industrial processes in the health industry.

TABLE 32. EXPECTED OUTPUTS BY HEALTH INDUSTRY PROJECTS APPROVED IN 2019

INDICATOR	Output	Unit
Production capacity for human medicines	215,449	,000 of SKUs*/year
New medicines	18	Number of medicines

Source: Elaborated by the authors.  
\* Stock keeping unit (SKU).

In 2019, five health industry projects were approved, which will increase the production capacity for medicines by just over 215 million ready-for-sale units per year. As medicinal products can take the form of bottles, pills, ointments etc., the stock keeping unit (SKU) metric can be used to aggregate all product variations.

It is worth mentioning a project to install a new production unit in Hortolândia (SP), which will be dedicated to the production of 18 new generic injectable drugs for treating patients diagnosed with cancer, which are expected to be launched between 2024 and 2026.

The support for the provision of healthcare services is aimed at improving management quality of service providers, helping institutions in financial difficulties to maintain the provision of services to the Unified Health Service (SUS) and increasing and improving the supply of healthcare services in the country, especially in regions that have fewer hospital beds *per capita* than recommended by the World Health Organization (WHO).

TABLE 33. EXPECTED OUTPUTS BY HEALTH SERVICE PROJECTS APPROVED IN 2019

INDICATOR	Output	Unit
New nonSUS beds	109	Number of beds
Construction of nonSUS operating rooms	3	Number of rooms
Inpatient care capacity	16,619	Patients day/year
Surgical care capacity	1,500	Surgeries /year

Source: Elaborated by the authors.

In 2019, three investment projects for the expansion and modernization of hospitals were approved, aimed at improving infrastructure to offer 109 new nonSUS beds and build three new operating rooms. With this support, inpatient care capacity is expected to increase by approximately 16,600 patients per year and 1,500 additional surgeries may be performed per year.

To give a perspective of the relevance of the Bank's operations, in the period between January 2018 and January 2019, 3,341 beds were closed in private hospitals in Brazil (FBH; CNSAÚDE, 2019). During this period, BNDES approved projects aimed at delivering 109 new nonSUS beds, which represents 3.3% of the variation in Brazil.



109

new nonSUS beds + 3 new supported operating rooms

16,619 patient days/year

of increased inpatient care capacity

1,500 /year

of increased surgical care capacity

## TECHNOLOGY DIFFUSION AND INNOVATION

The strategic direction established in the BNDES 2020-2022 Triennial Plan for innovation is to promote the transition to a knowledge economy and a digital society. The Plan's priorities are promoting entrepreneurship, stimulating the innovation ecosystem, supporting the formulation and structuring of public innovation policies, expanding the support for the public administration's digital transition, investing in infrastructure, data processing and professional qualification, and structuring and/or investing in funds focused on innovation and entrepreneurship.

The projects to be supported through BNDES's innovation mechanisms should have as expected results: (i) increasing firms' innovation capacity, that is, the promotion of private innovation efforts; (ii) generating value for the company through innovation, which in turn consists of translating the strategy of continuous business innovation into positive economic results (such as productivity gains); and (iii) promoting innovation through applied academic knowledge, which entails linking academic research with business innovation plans, with the aim of boosting the development of technologies more likely to be brought to the market.

Result indicators vary for the innovation projects approved for direct operations in 2019. This report thus individually presents the projects' descriptions and main deliveries. The first approved operation is aimed at supporting the set of investments in innovation to be carried out in the 2019-2021 period by a pharmaceutical company from São Paulo (SP), which has a portfolio of around one hundred medicinal products



(including projects still in the economic feasibility study phase). The project involves research and development of active ingredients not yet available in the Brazilian market, innovations in pharmaceutical formulation (drug administration), changes in concentration for more appropriate dosage, new associations of commercially available molecules, new therapeutic indications and improvement or modification of existing drugs.

For society, the project seeks to expand the number of medicinal products and supplements available in the country, which will provide more treatment options for the population by incorporating a variety of innovations. Forty-four new products are expected to be launched, as well as the generation of seventy highly qualified job positions.

Another pharmaceutical company had a project approved in 2019 to enable investments in innovation. Three research and development centers will be built in Valinhos (SP), totaling 1,250 m<sup>2</sup> of area, which will concentrate the development of new products. In addition to construction works, the project includes the acquisition of machinery and equipment for research and development activities. Thirty highly qualified professionals are estimated to be hired for expanding the company's R&D activities.

A highlight in the automotive industry is the project to develop a light electric truck aimed at urban goods distribution that will be produced in Resende (RJ), a novelty in the country, as there is yet no electric truck developed and manufactured in Brazil. The support covers developments related to the electric motor, software for the vehicle systems, and prototype building and testing, among other activities. Investment will be made in engineering, services, equipment, tools and construction works. An estimated 145,000 man-hours of researchers and engineers will be employed in the development of two truck models.

The supported company is also expected to hire 142 additional employees (a figure that also considers another BNDES-supported project aimed at the development and nationalization of technologies for ensuring compliance with Brazilian vehicular legislation). This automotive industry project is aligned with the country's main urban mobility and environmental policies, such as the National Urban Mobility Policy and the National Policy on Climate Change. It contributes to mitigate the environmental costs of urban freight on urban centers and to reduce particulate matter in the atmosphere, thus improving air quality.

## CAPITAL MARKET

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Capital market development is a key factor in the economic development of a country. A developed capital market usually means a more dynamic and transparent economy, which enables efficient allocation of resources to investors and investment opportunities, expanding capitalization alternatives for businesses and the investment portfolio for savers, as well as providing an alternative to the banking system for accessing and investing resources.

The development of the capital market is even more relevant in Brazil, where banking is very concentrated and long-term credit is essentially provided by state-owned banks. In this sense, the capital market is an alternative for meeting the funding needs of companies and projects (BNDES, 2017).

Moreover, the capital market is also an important instrument for implementing other public policies, such as support for innovation and the privatization of state-owned companies.

In this context, the BNDES System operates as a subscriber of securities, with a view to strengthening and expanding the access to the capital market by companies (fundraising) and investors (investment of resources), including the structuring of new products and development of new markets, the promotion of investments that generate positive impacts for society and the dissemination of best management, governance and sustainability practices, also aiming to strengthen the Bank's capacity to fulfill its institutional role and to create value for the BNDES System's equity assets portfolio.

The BNDES System invests in all growth stages of businesses, including in small companies with a strong innovative spirit through investment funds and in publicly traded companies through public offerings and private securities operations, particularly equity interests and convertible debentures. BNDES's operations are always evaluated by renowned methods based on solid financial theory, using market parameters and discount rates usually adopted by private investors, and must have adequate return prospects for the investment.

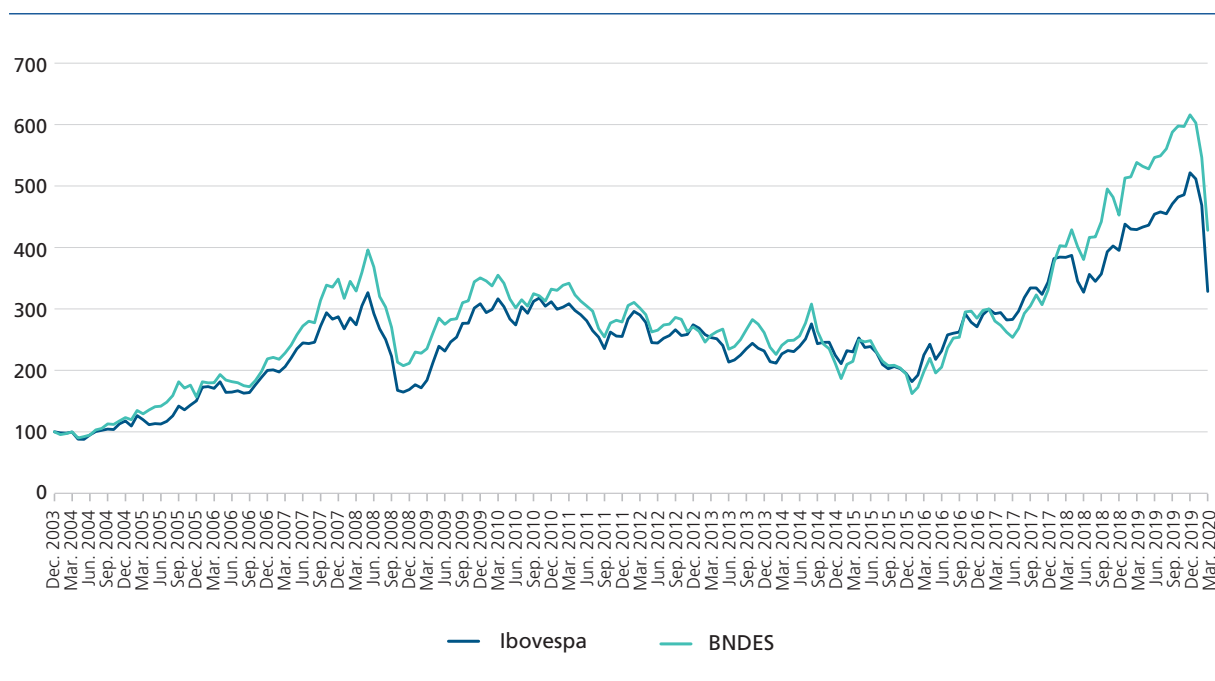
Despite this, BNDESPAR is not immune to financial losses, as risks and uncertainty about the return on investments are

inherent to equity instruments and, thus, to the very nature of BNDESPAR's activity.

Mitigating these risks depends on building an adequate portfolio, which involves diversification of assets, investment turnover and flexibility in the equity disinvestment period.

In this sense, even in a long-term evaluation, including periods of financial crisis, the overall profitability of the BNDES System's equity portfolio, from December 2002 to March 2020, remained in line with the Brazilian stock market's profitability according to the Ibovespa index, as shown in Graph 30.

GRAPH 30. PROFITABILITY OF THE BNDES SYSTEM'S EQUITY PORTFOLIO, DEC. 2003-MAR. 2020



Source: Elaborated by the authors.

## Portfolio repositioning

In 2019, the BNDES 2020–2022 Triennial Plan set the goal of accelerating equity sales. In line with this strategy and in the context of the annual review of risk limits provided for in the BNDES System's Corporate Market Risk Management Policy (PCGRM),<sup>7</sup> a reduction of about 90% was proposed

<sup>7</sup> The risk limits established by the PCGRM are associated with the risks of exchange rate fluctuations, interest rates and share prices, measured by daily Value at Risk (VaR), with a confidence interval of 99% (risk indicators). The PCGRM establishes the governance framework for the definition and monitoring of risk limits for BNDES's portfolio and its sub-portfolios, including the equity portfolio.

in the risk limit of the Capital Market Portfolio, which went from R\$ 5.63 billion to R\$ 0.6 billion.

At the same time, changes were proposed to the BNDES System's Capital Market Policy (PAMC), in order to, among other adjustments (Figure 2), improve the governance of the divestment process, provide greater transparency and flexibility to the asset pricing methods used in investment and divestment operations, and establish the risk limit imposed on the equity portfolio as one of the guiding principles of the BNDES System's operations.

FIGURE 2. MAIN ACTIVITIES FOR REPOSITIONING THE BNDESPAR'S PORTFOLIO IN 2019

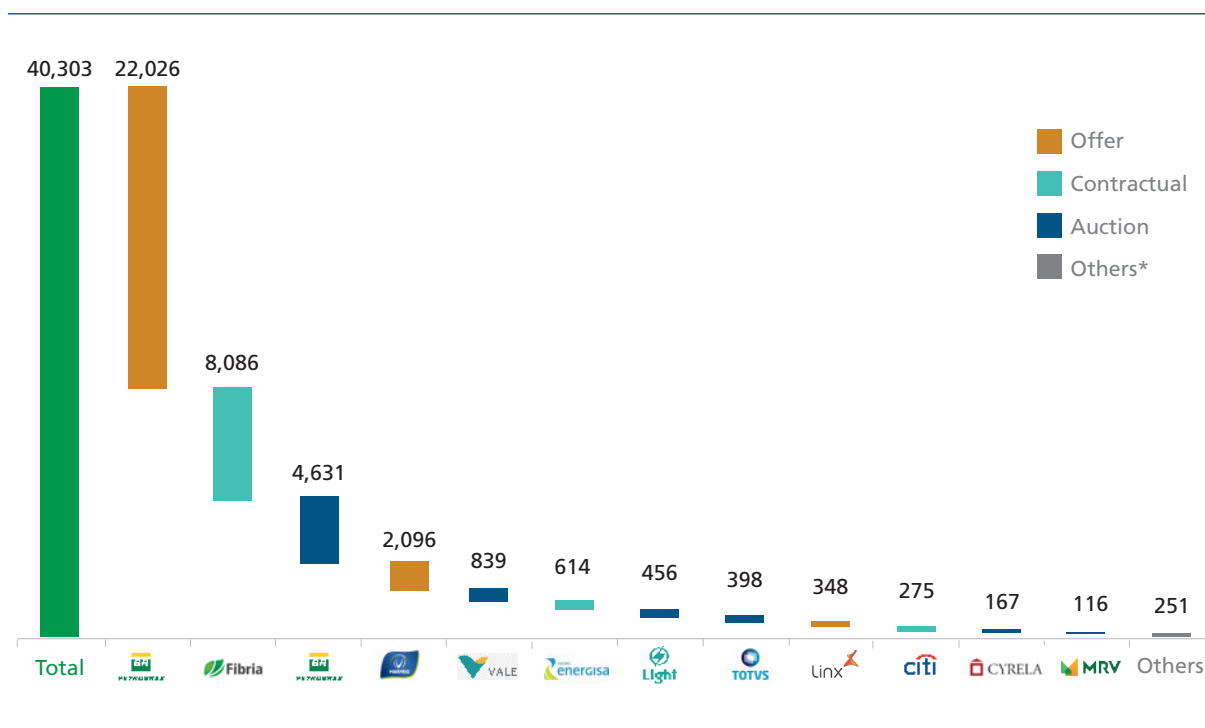


Source: Elaborated by the authors.

These decisions, taken together, clearly repositioned the BNDES System's equity assets portfolio to comply with the new risk limit, accelerating this portfolio turnover.

Between January 2019 and February 2020, equity holdings (total or partial) in 21 assets were sold, totaling approximately R\$ 40 billion, as shown in Graph 31.

GRAPH 31. BNDESPAR'S DISINVESTMENTS, JAN. 2019-FEB. 2020 (R\$ BILLION)



Source: Elaborated by the authors.

\* Cipher, SBCE, LOG, BR Malls, Cosan, Sinjia, Rossi, Kepler, Eletrobras, Tim and Zenvia.

A global offer of 734,202,699 common shares issued by Petróleo Brasileiro S.A. (Petrobras) and owned by the BNDES System stands out among the divestments made, including 168,140,000 shares in the form of American Depositary Shares (ADS), priced in February 2020. The price per share was fixed at R\$ 30, totaling R\$ 22 billion.

In June 2019, the BNDES System also participated as a seller in the public offering of shares issued by Linx, with sales amounting to about R\$ 350 million.

Such operations, in addition to providing a positive financial return for the BNDES System, are in line with BNDESPAR's institutional goals of developing the capital market, contributing to increase public offerings of equity assets.

Also noteworthy is the merger between Fibria S.A. and Suzano Papel e Celulose S.A., which allowed a divestment of approximately R\$ 8 billion.

## Promoting best practices of governance

BNDESPAR also encourages firms in their early stages of development to be listed on Bovespa Mais, a preparatory step for the public offering of shares. The aim is to allow companies to get used to a more regulated environment, with periodic information requirements, and to prepare for an initial public offering (IPO). The progressive adoption of the best governance practices required by the segment is thus encouraged, allowing the disclosure of results and nonfinancial information to potential investors. A highlight is the listing on the Bovespa Mais B3 Segment of Lifemed, a company that develops medical and hospital products, devices and equipment.

The appointment of members to compose investee companies' boards is also one of the mechanisms used by BNDESPAR to promote best practices of management and governance. In 2016, the BNDES System updated its Appointment Policy for Collegiate Bodies, with the aim of incorporating the requirements and prohibitions established by the new legislation that had entered into force (BRASIL, 2016a; 2016b) and adopting the management and governance practices recommended by the market.<sup>8</sup> The new policy sought to prioritize the appointment of experienced, external and independent professionals, and to establish the rules and procedures for selecting them, in addition to requiring a periodic evaluation of their performance.

It is worth mentioning that, on February 29, 2020, BNDESPAR's representatives participated in 32 boards of directors and 14 fiscal boards, considering all 76 companies of which it was a shareholder. Moreover, it had signed shareholder agreements with 42 of these companies, thus helping to improve transparency and governance practices in the supported companies.

BNDESPAR, as a relevant institutional investor, understands that it is its duty to exercise its right to vote, in a diligent and transparent manner and in the best interest of the investees, as provided for in article 115 of the Brazilian Corporate Law (BRASIL, 1976).

On this point, and in view of the BNDES System's commitment to transparency, BNDESPAR started in 2019 to disclose the votes cast in the shareholders' meetings of its investees.

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<sup>8</sup> According to IFC (2016).

## Operations with debt assets

As mentioned above, the BNDES System also supports the issuance of corporate debt assets through the subscription of simple debentures and other publicly offered securities issued by Brazilian companies.

With regard to publicly offered simple debentures, in 2019, R\$ 247 million were subscribed in infrastructure project debentures issued by companies in the wind energy and road-building sectors.

## Operations with investment funds

Through its operations with investment funds, the BNDES System seeks to develop the fund market in Brazil and catalyze and leverage private investments. The goals for each type of fund include, among others: (i) supporting innovation and entrepreneurship; (ii) supporting infrastructure and sustainability projects; (iii) increasing the access of MSMEs to capital market resources.

The funds in which the BNDES System invests are selected based on a rigorous selection process, which can be carried out by public call or prior consultation sent to the BNDES System.

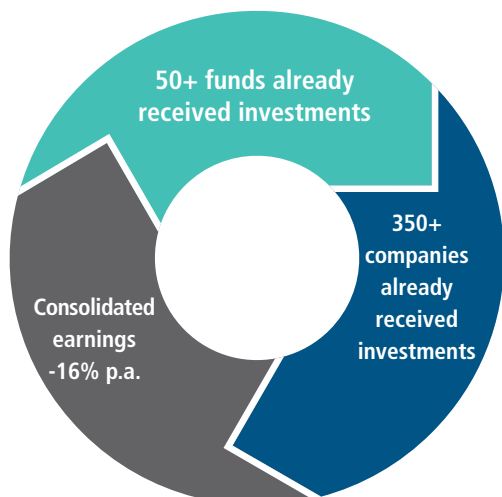
In 2019, the initiatives aimed at renovating the active portfolio stand out, with three new funds contracted (Pátria Crédito Estruturado, Fundo Anjo and Venture Debt I) and the approval of the result of the 2018 Multisector Call, in which eight funds were approved – four private equity funds and four venture capital funds.

In December 2019, BNDESPAR's portfolio had 41 active funds and investments in about two hundred companies. All of these were single-class funds had a single class of quotas, with R\$ 3.5 billion committed by BNDESPAR. Considering the amount committed by the other fund members, the total committed amount reaches R\$ 18 billion, which represents a multiplier effect on investment of 4: 1 (for each R\$ 1 invested by BNDES, R\$ 4.35 are invested by other investors).

FIGURE 3. BNDES'S OPERATIONS IN THE BRAZILIAN FUND MARKET

With more than twenty years of experience, BNDES played a relevant role in the Brazilian fund market's development and crowding-in

History of the BNDES System's operations with funds



Current overview of the fund portfolio

- > Active funds<sup>1</sup>: 41
  - » Seed capital: 7 (~61% de share)
  - » Venture capital: 13 (~38% de share)
  - » Private equity: 17 (~14% de share)
  - » Credit funds<sup>2</sup>: 1 (~43% de share)
- > BNDES's share is adjusted to types of funds
- > Higher shares show greater dependence on BNDES's funding

Source: Elaborated by the authors.

Notes: 1. Also considering three *Funcines* and a fixed income fund. 2. There are also two credit funds in the pre-operating stage (*FIDC Pátria* and venture debt).

Finally, in 2019, the first edition of the BNDES Garagem aimed to develop and foster entrepreneurship in Brazil. The program, which ended in September 2019, supported 74 startups and was divided into two modules: (i) startups creation module – 44 startups in the idea validation stage seeking to develop their Minimum Viable Product (MVP), with a four-month duration; and (ii) startups acceleration module – 30 startups that already have a product on the market and are seeking to accelerate their growth, with a six-month duration.

There was a record of startups enrolled in the selection process: 5,056 enrollments from all Brazilian states. The selection process mainly focused on: health, education, creative economy, blockchain, internet of things, environment/sustainability and financial solutions.

During the program, the BNDES Garagem network was launched, an initiative aimed at opening an active communication channel with the innovation and entrepreneurship ecosystem.



74 startups supported

850+ entrepreneurs are already participating in the BNDES Garagem network



More than 850 entrepreneurs are already participating in the network and receiving useful content about the ecosystem on a monthly basis.

## SUSTAINABILITY

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BNDES's strategic direction for sustainability is to promote the transition to a resilient and low carbon economy, as well as to support the protection and recovery of forests.

### Amazon Fund

BNDES's main support instrument for the conservation of biomes and the reduction of deforestation in Brazil is the Amazon Fund, which is structured in four support components:

- sustainable production, whose purpose is ensuring that the activities that maintain the forest standing are economically attractive;
- monitoring and control, which focuses on government actions to ensure that human activities comply with environmental legislation;
- land-use planning, which seeks to ensure that the Brazilian Amazon is submitted to land-use planning, with management of public forests, ecological-economic zoning (EEZ) and land regularization; and
- science, technology and economic instruments, which focuses on the role of these instruments and activities in the recovery, conservation and sustainable use of biodiversity.

Due to the advances in the monitoring and evaluation of this support instrument's effectiveness, both at the programmatic level and at the project level, it is possible to present the deliveries actually made in 2019 by the projects in execution.

The sustainable production projects are aimed at ensuring that economic activities that make sustainable use of the forest and biodiversity are identified and developed, that production chains of agroforestry and biodiversity products have increased added value, that managerial and technical

skills are expanded to implement sustainable forest and biodiversity economic activities and that deforested and degraded areas are recovered and used for economic or ecological conservation purposes.

TABLE 34. OUTPUTS MADE IN 2019 BY PROJECTS SUPPORTED BY THE AMAZON FUND IN THE SUSTAINABLE PRODUCTION COMPONENT

INDICATOR	Outputs	Unit
Individuals trained in sustainable economic activities	10,527	Number of individuals
Rural properties benefited from technical assistance	1,775	Number of properties
Processing units for family agriculture and extractive products installed	22	Number of processing units
Individuals directly benefited by the supported activities	31,401	Number of individuals
Area of forest directly managed as a result of supported projects	51,663,898	Hectares
Recovered area used for economic purposes	1,302	Hectares

Source: Elaborated by the authors.

As shown in Table 34, in 2019 about 10,500 individuals were trained in sustainable economic activities, and more than 1,700 rural properties benefited from management and production technical assistance. Twenty-two processing units for family farming and extractive products were installed and more than 31,000 people were directly benefited by activities supported by sustainable production projects. Almost 51.7 million hectares of forests started to be sustainably managed as a result of the supported projects (516,600 km<sup>2</sup>), an area slightly larger than Spain, which has approximately 504,800 km<sup>2</sup>. Finally, a little over 1,300 hectares were recovered for economic activities (13,000 km<sup>2</sup>), an area almost equivalent to the territory of Northern Ireland (13,800 km<sup>2</sup>).

The monitoring and control projects are aimed at structuring and modernizing monitoring institutions, promoting environmental control and accountability and increasing rural producers' access to the environmental regularization of their properties.

TABLE 35. OUTPUTS MADE IN 2019 BY PROJECTS SUPPORTED BY THE AMAZON FUND IN THE MONITORING AND CONTROL COMPONENT

INDICATOR	Output	Unit
Civil servants trained	204	Number of individuals
Environmental inspection missions undertaken	549	Number of missions
Rural properties registered in the Rural Environmental Registry (CAR) – protocol	290,044	Number of properties
Area of rural properties registered in CAR (protocol)	40,796,903	Hectares
Area with vegetation cover recovered for conservation or environmental regularization (regeneration in progress)	202	Hectares

Source: Elaborated by the authors.

As shown in Table 35, 204 civil servants were trained in 2019 to structure and improve environmental monitoring and control activities and 549 environmental inspection missions were undertaken. Roughly 290,000 rural properties registered in the CAR's first phase (protocol), representing an area of about 40.7 million hectares. To have an idea of the combined area of the registered properties, it is as if the whole of Paraguay was formed by rural properties that have registered in CAR in 2019.

An area of 202 hectares has been reforested for the purpose of land regularization and is currently in regeneration.

The land-use planning component focuses on expanding public forests and protected areas; strengthening the infrastructure, territorial protection and management of protected areas; expanding the areas with regularized land titling; and expanding the areas with land-use planning defined by ecological economic zoning (EEZ).



549

environmental inspection missions undertaken

290,000

rural properties registered in CAR (first phase)

TABLE 36. OUTPUTS MADE IN 2019 BY PROJECTS SUPPORTED BY THE AMAZON FUND IN THE LAND-USE PLANNING COMPONENT

INDICATOR	Output	Unit
Protected areas (PAs) supported	0	Number of PAs
Indigenous lands supported	0	Number of indigenous lands
Indigenous people directly benefited	9,774	Number of individuals
Individuals trained in activities related to the management of public forests and PAs	406	Number of individuals
Extent of PAs with infrastructure, environmental management and/or control of territory strengthened	167,406	Km <sup>2</sup>

Source: Elaborated by the authors.

Table 36 shows that about 9,700 indigenous people benefited directly from the projects still in execution and 406 people were trained in activities related to the management of public forests and protected areas. The extent of protected areas with strengthened infrastructure, environmental management and/or control of the territory totaled 167,400 km<sup>2</sup>, slightly more than the territory of Suriname, of 163,800 km<sup>2</sup>, or the state of Acre, which has 152,500 km<sup>2</sup>.

## STATE MODERNIZATION AND TERRITORIAL DEVELOPMENT

BNDES's agenda for the improvement of municipal and state management focuses on supporting digital transformation and improving operational models of the subnational entities, ensuring an efficient tax collection.

### Municipal and state management

Projects to support municipal management are aimed at improving the provision of public services to citizens,

reducing administrative costs and improving tax collection.

Table 37 shows the expected outputs foreseen for the two tax management modernization projects approved in 2019.

TABLE 37. EXPECTED OUTPUTS FOR THE MUNICIPAL MANAGEMENT MODERNIZATION PROJECTS APPROVED IN 2019

INDICATOR	Output	Unit
Training of civil servants and commissioners in tax administration	290	Number of individuals
Training of civil servants in the use of the new systems	30	Number of individuals
Training of servers and commissioners in administrative management	600	Number of individuals
Mapping/georeferencing of areas for municipal management purposes	672	Km <sup>2</sup>
Implementation of information systems for municipal management purposes	11	Number of systems

Source: Elaborated by the authors.

The support to municipalities is aimed at providing training in tax administration for 290 civil servants and commissioners, training in the use of new information systems for thirty civil servants and training in administrative management for six hundred civil servants and commissioners. In addition, 672 km<sup>2</sup> are to be mapped or georeferenced and 11 systems for municipal management are to be implemented. The total area to be mapped or georeferenced roughly corresponds to the area of the municipality of Bauru (SP).

## Cultural heritage

BNDES's strategic objective of promoting state modernization and territorial development also includes supporting cultural infrastructure and historical heritage. The support for this segment focuses on the preservation of the Brazilian cultural heritage as a vector for economic, social and territorial development, the promotion of the sustainable maintenance of this heritage (in addition to occasional restoration) and the development of human capital and skills.



2

material heritage sites preserved

160,000 heritage items preserved and/or digitized

3

cultural centers implanted or revitalized

In 2019, two projects were approved, which have expected deliveries as shown in Table 38. Two material heritage sites will be preserved, with the restoration and architectural requalification of the Main Church of Saints Cosmas and Damian, in Igarassu (PE), and the restoration and revitalization of the Father José de Anchieta National Museum, located in the Father José de Anchieta National Sanctuary, in Anchieta (ES). Within the scope of these two projects, three cultural centers will be implemented or revitalized.

TABLE 38. EXPECTED OUTPUTS FOR THE CULTURAL HERITAGES PROJETS APPROVED IN 2019

INDICATOR	Output	Unit
Preservation of material heritage sites	2	Number of heritage sites
Preservation and/or digitization of collections	160,000	Number of items
Implementation or revitalization of cultural centers	3	Number of centers

Source: Elaborated by the authors.

BNDES will also support the works to adapt and revitalize the building of the São Paulo Museum of Art Assis Chateaubriand (Masp), in addition to efforts aimed at expanding the access to and preserving its artistic and documentary collection, which contains around 160,000 items. In all, these three supported heritage sites are expected to receive 2.26 million visitors a year.

## PRIVATIZATION AND CONCESSION

Privatization is the sale of public assets and concession is the transfer of public service provision to the private sector for a specified period.

BNDES operates both in structuring privatization and concession projects and in providing financial support to auction winners. The strategic direction for privatization and concession is aimed at attracting private investors to improve the provision of public

services and the allocation of public capital. The specific goals for this theme include: (i) increasing tax revenue, transferring debts and contingencies to the private sector and monetizing public assets; (ii) promoting regulatory security to leverage investments and the competitiveness of auctions, attracting top-tier investments; and (iii) supporting the public sector in structuring long-term partnerships to enable private investments in economic and social infrastructure projects of public interest.

BNDES monitors the progress of each privatization or concession project according to five milestones: mandate, contract with the client, delivery of studies, launching of the public call and auction contract.

The first milestone is when the Bank receives a mandate to carry out the privatization or concession of a certain company or provision of public services. An example of an event characterizing the first milestone is the listing of the project in a resolution of the Investment Partnerships Program Council (CPPI) establishing the qualification of the project or the company within the scope of the Investment Partnerships Program, the National Privatization Program or the National Privatization Fund.

The second milestone is achieved by formalizing the relationship between BNDES and the client, thus advancing the project's structuring process. Examples of this may be a state seeking to grant the concession of a state-run road, or a decree by the President of the Republic providing for the qualification of a project or company under the Investment Partnerships Program, the National Privatization Program or the National Privatization Fund.

Project structuring completion marks the third milestone, when the client formally acknowledges the receipt of the technical study prepared by a third-party structuring company, previously selected by BNDES.

The fourth milestone is reached when the public notice for the auction of the asset to be privatized is published and, finally, the fifth milestone is marked by the signing of the contract between the public body and the private partner that won the auction.

At the end of 2019, BNDES had 67 privatization or concession projects in its structuring portfolio. Of these, 16 did not advance from the milestone they were in to a subsequent milestone during 2019, with the 51 remaining projects being

the focus of this delivery analysis. These projects come from various sectors, but the highlights are energy and public lighting, with seven projects each (14%), roads, with five projects (10%), and then ports, urban mobility, finance, natural gas and communications, with four projects each (8%). With regard to the distribution across government levels, 43% of the projects are from states, 39% are federal and 18% are municipal.

TABLE 39. ADVANCES IN PRIVATIZATION AND CONCESSION PROJECTS IN 2019

MILESTONE	Number of projects	%
Mandate	36	71
Contract with client	7	14
Delivery of studies	4	8
Launching of public call	2	4
Auction contract	2	4
Total	51	100

Source: Elaborated by the authors.

Table 39 presents the number of projects that advanced in 2019 in terms of privatization's process milestones. Five projects advanced more than one milestone and, for these, the highest milestone reached was considered for statistical purposes. It can be seen from Table 39 that a large number of projects (about 70%) achieved the first milestone in 2019, showing the strengthening of BNDES's role as a service provider for public entities, which is a result of the new directions established by the Bank's senior management in recent years.

BNDES signed a contract with clients in seven other projects, but the most tangible deliveries are concentrated in the next process stages. Four technical studies were



delivered to the municipalities of Caruaru (PE), Vila Velha (ES), Natal (RN) and Petrolina (PE), for the structuring of public lighting projects. Public notices were also launched for two public lighting projects, one in Teresina (PI) and the other in Porto Alegre (RS).

The Teresina's public lighting project includes the modernization, improvement in efficiency, expansion, operation and maintenance of the public lighting infrastructure in the capital of Piauí state, with R\$ 152 million expected to be invested over the first two years for the modernization of the city's 92,000 light points (urban and rural areas) with the installation of LED lamps, which will reduce energy consumption by 50.5%.

The winning company will provide implementation, installation, recovery, modernization, expansion and maintenance services for the municipal public lighting system, among other public lighting services. The improvements in the service provided and the standardization of public lighting quality throughout the city are some of the project's expected positive results, as well as a significant reduction in energy consumption and an increase in the sense of security. Another benefit is reduced environmental impacts, as LED lamps do not contain heavy metals in their composition.

Porto Alegre, in turn, has about 101,000 public lighting points and a deficit of 3,000 points. The concession project provides for the service provider to invest around R\$ 260 million for implementing a remote management system – which enables scheduled activation and online problem identification, creating the basis for a smart city – building an operational control center and creating five tourist routes with the illumination of monuments, facades and gardens, among other initiatives.

The public notice provides for the administrative concession of services for twenty years, with twenty-month investment schedule for modernizing 100% of the public lighting system with LED lamps. The service provider will have to make investments and conform to efficiency standards,



Public lighting project in Teresina:

R\$ 152 million  
of expected investments  
in public lighting  
92,000  
LED lamps in  
public lighting points  
50.5%  
of reduction in  
energy consumption

such replacing older models with LED lamps and reducing consumption by 45.8%.

Two federal projects reached completion in 2019, with the signing of the privatization contracts of the power distribution companies Amazonas Energia, from the state of Amazonas, and Companhia Energética de Alagoas (Ceal), both former subsidiaries of Centrais Elétricas Brasileiras S.A. (Eletrobras).

As presented in the previous Effectiveness Report, the main positive results of transferring the control of these companies to the private sector are the commitment to invest in expanding the network (thus serving a larger share of the population), improving power distribution quality (by decreasing the frequency and duration of supply interruptions) and in the transfer of debts to the new controllers.



# EVALUATIONS OF **THE BNDES'S IMPACTS**



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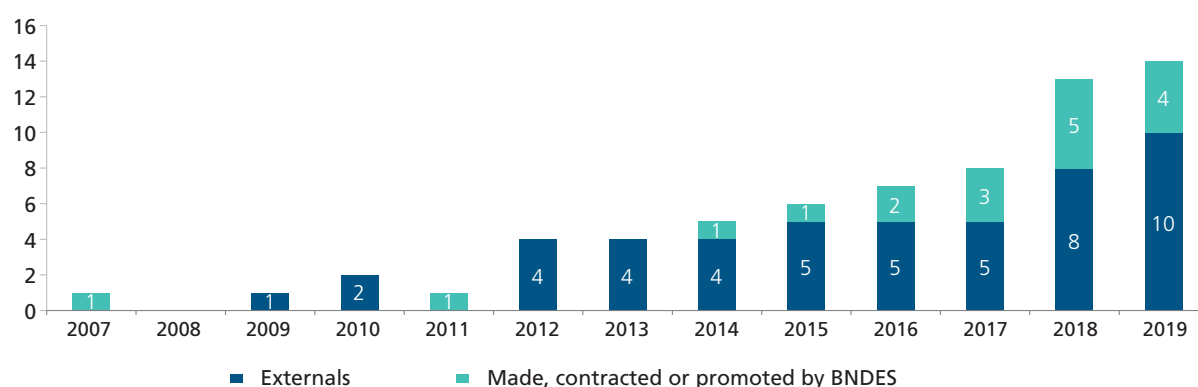
The last two editions of the *Effectiveness Report* contain a review of BNDES's impact evaluations. The BNDES considers that an impact evaluation actually seeks to identify the effects of the Bank's performance when it meets two criteria: (i) it uses an econometric method that addresses selection biases; and (ii) it uses a database containing information on units supported and not supported by BNDES, or alternatively, on units receiving varying levels of support.

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In this edition of the *Effectiveness Report*, the review of the BNDES's impact evaluations is updated, considering those evaluations available on the Internet as of February 2020. The review found 66 evaluations meeting the adopted criteria,<sup>9</sup> 16 more than in the 2018 *Effectiveness Report* (BNDES, 2019).<sup>10</sup>

Since 2007, there has been an almost continuous growth in the number of BNDES's impact evaluations released each year<sup>11</sup> as shown in Graph 32. The number of evaluations carried out, contracted or promoted by the Bank has also increased, especially since 2016. This, however, did not change the predominance of external evaluations, which represent more than 70% of the evaluations included in this review.

GRAPH 32. NUMBER OF IMPACT EVALUATIONS, BY YEAR OF RELEASE AND LINK WITH BNDES, 2007-2019



Source: The authors.

Graph 33 shows the number of evaluations addressing each combination of type of support (rows) and impact dimension (columns). On the one hand, Graph 33 shows that the types of support most evaluated are those provided to a large number of companies – two examples are financing the purchase of capital goods and financing for MSMEs.<sup>12</sup> On the other hand, there are few evaluations of infrastructure financing, a segment that represents a smaller number of operations, but accounts for a significant share of BNDES's disbursements.

<sup>9</sup> The complete table with information on the 66 evaluations considered is available on the BNDES website: [www.bndes.gov.br/nota9](http://www.bndes.gov.br/nota9).

<sup>10</sup> Among these 16 studies, there are some released after March 2019 (the timeframe adopted in the 2018 Effectiveness Report) and also others released before that date.

<sup>11</sup> Over this period, there was also a progressive increase in the amount of data on BNDES financing made available on the Internet.

<sup>12</sup> The existence of a large number of supported and unsupported companies facilitates the application of impact evaluation methods.

Employment and investment are the most evaluated impact dimensions. It is natural to assess the impact of the BNDES's performance on these variables, as the Workers' Assistance Fund (FAT) allocates resources to the Bank, whose mission statement includes promoting an increase in investments.

GRAPH 33. NUMBER OF IMPACT EVALUATIONS BY TYPE OF SUPPORT AND IMPACT DIMENSION

All				2						1	2							
Variable income					1			2	3				4		2		4	
Local content policy				3			2		1		1	1						
Nonrefundable	3																	
Financing for projects				3			2		2		5	2	2	1				
Financing for municipalities		4	1															
Financing for MSMEs				7	1	2	2		2		4	2	1	2		1		
Financing for innovation				1	3		1		1		1	1						
Financing for infrastructure	1	1		1						2								
Financing for large companies					1				3		1		1		3		2	
Financing for exports				2		5			2		1		1	1				
Financing for companies – overall				3	1		1	1	3		3	1	1	1		1		
Direct financing					1					1								
Financing for the purchase of capital goods			1	4	1		2		4		5	2	3	2		2		
	Forested area	Tax revenue	Education	Employment	Innovation efforts	Debt stock	Exports	Revenue	Governance	Investment	Gross domestic product (GDP)	Labor productivity	Total factor productivity	Profitability	Real wages	Financial health	Survival	Share value

Source: Elaborated by the authors.

Notes: (1) The darker the cell color the greater the number of evaluations. Gray indicates no evaluation. (2) An evaluation is counted in more than one cell when more than one type of support or impact dimension is analyzed. (3) The types of support and the impact dimensions assessed in more than one evaluation are featured.

The impact evaluations' results are shown in Graph 34.

For each combination of type of support and impact dimension, the share of evaluations that found a positive impact is presented.<sup>13</sup> Some patterns become clear, which are also mentioned in the last two editions of the *Effectiveness Report*. For the types of support where MSMEs predominate<sup>14</sup> – financing for MSMEs and financing for the

<sup>13</sup> To be classified as positive, the impact must be statistically significant at 10% for all specifications presented.

<sup>14</sup> MSMEs represent the majority of companies supported.

purchase of capital goods – at least half of the evaluations addressing the impact on employment, investment and revenue show a positive impact. On the other hand, in the evaluations that assess the impact of these same types of support on productivity variables, a lower number show positive results. For the types of support in which large companies are the majority – financing for large companies and financing for investment projects – it is less common to find positive impacts, and this applies both to dimensions that capture company growth (employment, investment and revenue) and to productivity variables. It is also worth of notice that most evaluations that assess the impact of different types of support on innovation efforts and export performance find a positive result.

GRAPH 34. PERCENTAGE OF EVALUATIONS THAT FIND POSITIVE IMPACTS, BY TYPE OF SUPPORT AND IMPACT DIMENSION

	Forested area	Tax revenue	Education	Employment	Innovation efforts	Debt stock	Exports	Revenue	Governance	Investment	Gross domestic product (GDP)	Labor productivity	Total factor productivity	Profitability	Real wages	Financial health	Survival	Share value
All				0,5						0	0,5							
Variable income						0			1	0				0,2		0		0,5
Local content policy				0,7				0,5		0		0		0				
Nonrefundable	0,7																	
Financing for projects				0				0		0,5		0	0	0	0			
Financing for municipalities		0,5	1															
Financing for MSMEs				0,7		0	1	0,5		1		0,2	0,5	1	0,5		1	
Financing for innovation				1	0,7			1		1		0	1					
Financing for infrastructure	0	1		1							0,5							
Financing for large companies						1				0		0		0		0,3		0
Financing for exports				0,5				0,8	0,5		0		0		0			
Financing for companies – overall				1	1			1	1		0,3		0,3	0	0	0		0
Direct financing					1						0							
Financing for the purchase of capital goods			0	0,5	1			0,5		0,8		0	0	0	0		0,5	

Source: Elaborated by the authors.

Notes: (1) The darker the cell color the greater the number of evaluations that find positive impacts. Gray indicates no evaluation. (2) An evaluation is counted in more than one cell when more than one type of support or impact dimension is assessed. (3) The types of support and the impact dimensions assessed in more than one evaluation are featured.



## STRATEGIC PLAN FOR EVALUATIONS

In 2019, the 2019-2020 Strategic Plan for Effectiveness Evaluations was approved by the BNDES's Board of Directors. The Plan is an important instrument for guiding the evaluation efforts on topics and areas of activity considered strategic by the Senior Management. The 2019-2020 Plan consists of five effectiveness evaluations, summarized in Box 1. They are currently in progress, and are described in more detail below.

CHART 1. EVALUATIONS IN THE 2019-2020 STRATEGIC PLAN FOR EFFECTIVENESS EVALUATIONS

EVALUATION	GOAL
BNDES and the promotion of technology use in Brazilian education	Assess the ability of the BNDES Connected Education Initiative to increase technology use in schools and, thus, improve student performance.
The sanitation challenge in Brazil: the BNDES's contribution	Assess the impact of the additionality of BNDES financing on investment in sanitation and on the social welfare of the population served.
The impacts of urban mobility works on the Metropolitan Region of Rio de Janeiro (RMRJ)	Understand the effects of the large urban mobility projects in the RMRJ on the quality of life of the population.
The impacts of BNDES's performance on rural credit	Assess the effects of rural credit for investment in land use, employment, agricultural production and productivity.
BNDESPAR's contribution to corporate governance	Assess the contribution of BNDESPAR to the governance of the companies in which it holds interests, with a focus on smaller companies.

Source: Elaborated by the authors.

One of the goals of the BNDES Connected Education Initiative is to generate knowledge for the Federal Government's Connected Education Innovation Program and for the BNDES's performance in the area of education.<sup>15</sup> In evaluating the Initiative, the Bank's team works in partnership with Fundação Getulio Vargas (FGV). One of the methodologies applied is the random experiment, which involves selecting supported municipal schools for evaluation by drawing lots. In 2019, a primary data survey was carried out in schools in seven Brazilian municipalities,<sup>16</sup> in order

<sup>15</sup> The 2020-2022 Triennial Plan established the goal of supporting basic and/or vocational education projects to benefit one million students.

<sup>16</sup> BNDES thanks the Lemann Foundation and the Itaú Social Foundation for their support in making the primary data collection feasible.

to establish the baseline for how teachers use their time, the materials used in the classroom, the students' engagement and the teaching practices adopted. After the projects' implementation is completed, a new data survey will be carried out, similar to that carried out in 2019, to assess what has changed since then. A test will also be applied to measure student learning.

Increasing the population's access to water and sewage networks is one of the 2020–2022 Triennial Plan's expected outcomes. The evaluation “The challenge of sanitation in Brazil: the BNDES's contribution” is aimed at assessing the impacts of increased coverage of water and sewage networks on the population served – particularly on health indicators. In 2019, as a first product of this evaluation, an article was prepared showing that increased access to resources for investments in sanitation by Brazilian municipalities had positive effects on child health indicators.<sup>17</sup> This evaluation is scheduled for completion in 2020, with a focus on the impacts of BNDES's financing operations.

Before the 2016 Olympics, the municipality of Rio de Janeiro received large investments in urban mobility works, which were also financed by BNDES. Assessing the impacts of these investments is particularly important, considering the relevance given to urban mobility by the 2020–2022 Triennial Plan. The evaluation “The impacts of urban mobility works on the Metropolitan Region of Rio de Janeiro (RMRJ)” aims to measure impacts on travel time, employment, income, pollution and health. In this case, an external institution was hired to carry out the evaluation. The online auction and the contract signing took place in 2019.<sup>18</sup>

The evaluation “The impacts of BNDES's performance on rural credit” is intended to fill a knowledge gap regarding the effects of BNDES financing on this segment. Impacts on land use, employment, production and agricultural productivity are assessed. The Bank's team is carrying out this evaluation in partnership with the Climate Policy Evaluation Center of the Pontifical Catholic University of Rio de Janeiro (NAPC/PUC-Rio).

The evaluation “BNDESPAR's contribution to corporate governance” focuses on smaller companies, as these are the firms that most

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<sup>17</sup> The article “Sewage Collection and Child Health in Brazilian Municipalities: Analysis of the Expansion in Access to Long-Term Financing” was presented at the 47th National Economics Meeting and is available at: [https://www.anpec.org.br/encontro/2019/submissao/files\\_l/i12-04f3ff77b5269e14c1dfc9cd9c88f266.docx](https://www.anpec.org.br/encontro/2019/submissao/files_l/i12-04f3ff77b5269e14c1dfc9cd9c88f266.docx).

<sup>18</sup> More information on these procedures is available at: [www.bndes.gov.br/wps/portal/site/home/transparencia/licitacoes-contratos/licitacoes/pregoes-eletronicos/pregoes-eletronicos-2019](http://www.bndes.gov.br/wps/portal/site/home/transparencia/licitacoes-contratos/licitacoes/pregoes-eletronicos/pregoes-eletronicos-2019).

need to improve their corporate governance. This focus limits data availability, since governance data for small companies in which BNDESPAR does not hold interests is lacking. This is a contribution evaluation, which is not aimed at ascertaining the causal effect of BNDESPAR's operations.

## OTHER EVALUATIONS

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In 2019, in addition to the evaluations included in the plan, three others were part of the impact evaluation team's agenda: (i) local impacts of investments on large industrial plants – spillover effects of clustering; (ii) effectiveness of the Networks for Sustainable Development Program (ReDes Program) in promoting social development; and (iii) the impact of synergies between BNDES's instruments and the Brazilian Micro and Small Business Support Service (Sebrae).

Historically, the BNDES has been financing the construction of large industrial plants. These investments generate impacts that go beyond the financed projects. An evaluation has been made to investigate the spillover effects of clustering by assessing: (i) the economic activity and air pollution in the surrounding areas of recently installed large industrial plants; and (ii) the employment in firms already operating in the municipalities where a large industrial plant was installed. The results obtained point to positive spillover effects of the installation of large industrial plants. Positive effects are found on economic activity, measured by the intensity of night lighting and number of jobs in companies already operating before the large industrial plant's installation. With regard to the effects on air pollution, the results are not conclusive.

The ReDes Program, implemented in a partnership between the BNDES and the Votorantim Institute, seeks to support structuring projects for productive activities and professional qualification to promote the social and productive inclusion of low-income populations. The Program is aimed at beneficiaries organized in production cooperatives and/or associations. In evaluating the ReDes Program's effectiveness, data from the Single Registry (CadÚnico), made available by the Ministry of Citizenship, were used. CadÚnico data is obtained through a census of Brazil's low-income population, consolidating the registration and maintaining updated information on Brazilian households with *per capita* income below half a minimum monthly wage or total family

income of up to three minimum monthly wages, in all Brazilian municipalities. Evidence was found of the ReDes Program's positive impact on participation in the labor market by its beneficiaries, in terms of both access to work and participation in the Economically Active Population. In addition, a positive impact was found on the beneficiaries' income from work.

BNDES and Sebrae jointly developed an impact evaluation to estimate the isolated and joint effects of BNDES's financing and Sebrae's technical assistance in the support for micro- and small-sized enterprises. This evaluation used Rais data and the impacts on employment were estimated. The results obtained suggest synergies between the two types of support. When only companies supported by the BNDES are considered, it was found that also receiving Sebrae's technical assistance has an impact of 1% to 2% on employment. In turn, the impact of BNDES's financing on companies that rely on Sebrae's technical assistance is estimated to range from 3% to 6%.

## EFFECTIVENESS EVALUATION REPORTS

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For each evaluation carried out within the scope of the BNDES Effectiveness Promotion System, an *Effectiveness Evaluation Report* is produced. As an active transparency measure established in the Effectiveness Promotion Macroprocess, these reports are made public and disseminated to all interested parties.<sup>19</sup>

Before being published, the *Effectiveness Evaluation Report* is submitted to a review process. The reviewers' considerations are included in the final version, in a specific section. The division responsible for the evaluated support indicates one of the reviewers. Experts – internal or external to the BNDES – may also participate in the review process.

In 2019, the effectiveness evaluation reports of two evaluations mentioned in the latest edition of the *Effectiveness Report*<sup>20</sup> were published: (i) local effects of the construction of wind farms in Brazilian municipalities; and (ii) the impact of the BNDES Local Content Policy on the Brazilian capital goods sector.

It should be noted that all effectiveness evaluations mentioned in this section, once completed, will be the subject of an *Effectiveness Evaluation Report*, which will be made public.

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<sup>19</sup> The effectiveness evaluation reports are available at: <https://web.bndes.gov.br/bib/jspui/handle/1408/18901>.

<sup>20</sup> BNDES. 2018 Effectiveness Report. Rio de Janeiro, 2019.



# RECOMMENDATIONS



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The monitoring and evaluation system that produced the information in this report aims to achieve two main goals: (i) accountability; and (ii) organizational learning. The significant increase in BNDES's transparency, which involves the disclosure of data on the results of its actions, is what drives the pursuit of the first goal. The continuous effort towards greater effectiveness and efficacy in public policies, however, evidences the relevance of organizational learning in the M&E system. It is with this aim that this chapter seeks to fulfill the role of a *Recommendation Report*, as established in BNDES's Effectiveness Promotion Macroprocess, whose goal is to translate the main results of the monitoring and evaluation process into practical recommendations for promoting greater effectiveness in the BNDES System.

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## SELF-EVALUATION OF RESULTS

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The ultimate goals of the process of preparing the *ex ante* evaluation, through the Results Table, and the survey of the outcome and output indicators are to assess the results achieved, generate organizational learning for the operational team and, occasionally, identify lessons learned to generate more positive effects on the economy. The review of the actual and expected values for the Results Table's indicators and the analysis of the extent to which the support and the project contributed to the results obtained must be carried out, according to BNDES's internal norms, by the operational team in a document entitled *Self-Evaluation Report*.

This review, or evaluation, ideally takes advantage of the operational team's knowledge about the project's sector and the client evolution to assess whether the outcome and output goals initially defined in the analysis and the intervention logic were adequate and whether external factors have also influenced the results achieved.

The Results Table, which informs the subsequent monitoring and evaluation of BNDES's nonautomatic support, started to be implemented for the operations approved in 2017. Usually, operational teams should prepare self-evaluation reports within two years after the project's investments are completed. The first operations eligible for the preparation of self-evaluation reports became ready to have their effectiveness evaluated in the second half of 2019 (according to the timeframe for measuring the required indicators established during the analysis).

As of February 2020, 21 reports were produced for projects completed between November 2016 and January 2019, having their results classified by the Effectiveness and Economic Research Department (which is currently responsible for the monitoring and evaluation management at BNDES) into three categories: "as expected," "partially as expected" and "not as expected," based on a comparison between actual results and the results expected when each project was approved.

The methodology for aggregating the results of the self-evaluation reports is currently under development, but initially, for classification purposes, the ratios between the actual and expected values were calculated for each Results Table's



indicator. Then, the average of the ratios for the output and outcome indicators was calculated. The final performance of the project is then measured by calculating the weighted average with a weight of 40% for the consolidated output indicator and 60% for the outcome indicator. Based on the figure obtained, the classification is as follows:

- not as expected: value up to 70% or higher or equal to 130% of the expected value;
- partially as expected: value between 70% and 90% or between 110% and 130%; and
- as expected: between 90% and 110%.

The consolidated results show that 18 projects (86% of the total) were as expected and three (14%) partially as expected. It should be noted that, in the self-evaluation reports prepared, there is a predominance of operations in the power generation sector (12 projects), for which the expected values were achieved. Excluding the energy sector, six projects (67% of the total) were as expected and three partially as expected (33%). It is also worth of notice that, in addition to the energy projects, there is only one railway project, two for port terminals, one for gas distribution, one for culture and one for software development.

About 95% of the projects achieved the expected efficacy results (outputs) and 80% of the projects achieved the expected effectiveness results (outcomes). This is not surprising, as effectiveness, being influenced by more factors than just the execution of supported investments, is more difficult to achieve.

In general, these figures indicate BNDES's good performance both in immediate deliveries and in generating positive effects. However, caution should be exercised because, in view of the great diversity of the Bank's operations, the quantity and representativeness of the projects with completed evaluation are limited.

The main results (output and outcome indicators) achieved by this sample of evaluated projects are:

- Electric power generation: 1,296 megawatts (MW) of installed capacity, which corresponds to an energy produced (physical guarantee) of 609 average MW. These are mostly wind projects and produce enough electricity to supply 2.7 million households;

- Cogeneration and energy savings: effective increase in the capacity of distributed energy generation of 215 MW;
- Energy distribution: 1,240 km of distribution grids implemented or replaced, 540 mega-volt-amperes (MVA) of installed or expanded energy transformation capacity, 67,300 installed energy meters and 93,400 households served by the project;
- Railways: 650 railway wagons were built and an annual load capacity of 33.9 billion ton/kilometer was reached;
- Gas distribution: the storage volume of gas or derived products increased by about 7,400 cubic meters, 17 natural gas terminals were built or modernized and 853,800 gas cylinders were replaced by new ones;
- Port terminals: increase in annual storage capacity of 330,000 twenty-foot equivalent units (TEUs), increase of 5,000 units in static storage capacity for vehicles, 74,000 square meters of storage area built or renovated, effective movement of vehicles of about 117,700 units per year and effective handling capacity of 218,000 TEUs per year;
- Information technology: six software or platforms were updated locally, 1,179,000 hours of work were employed in software development, R\$ 28.1 million in support to the wage bill and the share of professionals dedicated to research and development soared to 6.4% from 26.4% in the supported company; and
- Cultural heritage: a cultural heritage site (*Cine Paraty*) and cultural facility (*Espaço Experimental de Cultura Cinema da Praça*) had their conservation supported and have been receiving almost 4,000 visitors per month for free movie sessions, school sessions and theater rehearsals. In addition, 360 people were trained in one year, attending courses in cinema and audiovisual, cultural projects and mini-documentaries.

This section is also aimed at addressing aspects of the implementation of monitoring and evaluation activities, methodological findings, lessons learned and recommendations for operational teams regarding the process of monitoring and self-evaluating the support provided.

With regard to the implementation of the monitoring and evaluation activities, operational teams completed the stages of formulating the Results Table, setting goals and the output and outcome indicators with values established in the analysis reports, which were entered into the information system. This now allows BNDES to have a much greater wealth of data on the expected development logic and on expected deliveries. The first self-evaluation reports were prepared on the basis of an *ex post* survey of the output and outcome indicators carried out by the operational teams.

If, on the one hand, this *ex post* survey implies obtaining less timely information on actual deliveries, on the other hand, it has less impact on the process of monitoring operations and requesting information from the clients.

With regard to the methodology and the lessons learned, the intervention logic for the results tables, that is, the link between goals, indicators and the results achieved, were generally successful. The exception was working capital operations, in which the support is aimed at providing short-term (output) gains in the current liquidity indicator (ratio of current assets to current liabilities) as a relevant step to improve the financial situation, maintain productive capacity or strengthen job maintenance or generation (outcome). In some cases, the output indicator itself was affected by factors external to the support provided, such as other debts contracted by the supported company. Thus, there was a loss of the explanatory power of output indicators for the evolution of outcome indicators.

Deliveries for working capital support are particularly challenging to include in a logic framework, given the variation and flexibility in the use of resources. Initially, an indicator was sought to express the short-term financial strength for the company to later ascertain the long-term effects.

**RECOMMENDATION: the indicators for working capital operations should be reviewed. Consideration should be given to the adoption of a Theory of Change Framework for the line, instead of using individual indicators for each operation or assessing whether the operation's outputs are not exclusively linked to the availability of resources for the company's survival.**

In order to ensure the continuous improvement of the effectiveness monitoring and evaluation processes at BNDES, it

is necessary to make some recommendations based on the self-evaluations produced to this date.

In some cases, indicators or indicators units differing from those established during the analysis were used in the *Self-Evaluation Report* without a technical explanation. The effectiveness promotion macroprocess allows for some flexibility regarding changes in the support logic or in indicators throughout the project life, as external factors may alter the characteristics of the required investments or some indicator may prove inadequate to capture the intended phenomenon.

**RECOMMENDATION: the *Self-Evaluation Report* should record and explain any changes in the results tables' indicators, ensuring the correct monitoring of the support provided in order to consolidate the lessons learned.**

Finally, the lessons learned section of the *Self-Evaluation Report* should indicate any knowledge gained regarding the rationale for the provision of support, present the project or investment strengths that may be relevant to future projects, and present the factors that negatively influenced the results and thus should be avoided in future projects. Below are some excerpts from cases for which the operational teams made comments that show good potential for use in future cases (some points were previously discussed).

Regarding working capital support, on the current liquidity indicator: “However, even the output indicator was not able to capture BNDES's contribution, as the company incurred (...) other liabilities that offset the positive effect of the Bank's support. (...) Analyzes and evaluations of future working capital operations should consider, therefore, that even the current liquidity output indicator can be influenced in the short term by factors external to the support and that this may disrupt the results chain theory.”

Another comment refers to the use of indicators more appropriate to the type of project: “As a recommendation for future projects aimed at promoting energy efficiency, it is suggested the establishment of indicators (...), which may be of energy optimized/generated, whether in the form of heat (steam), electrical energy or substituted fossil fuel, among others, or reduction in electrical demand (...).”

In a third project, the evaluator recognizes the challenge of assessing the project's contribution to effectiveness, which, by definition, is a not controllable aspect: “[If] the outcome indicators used, on the one hand, are easy to determine, on the other hand, they are very sensitive to factors external to the project, which makes them (...) show little of the actual gains [resulting] from the investments made.”

This is the type of learning that the monitoring and evaluation of the financial support process seeks to generate for the operational teams: a reflection on the results achieved and on how to improve performance and the monitoring and evaluation to generate more development.

**RECOMMENDATION: reinforce to the operational teams the importance of reflecting on the lessons learned in the process of monitoring operations.**

## EVIDENCE FROM EVALUATIONS

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The previous section sought to systematize the impact evaluations produced on BNDES's performance. Based on the evidence from these studies, this section seeks to offer recommendations for maintaining or improving the effectiveness of the Bank's actions. It should be noted that the intention is to report what is already consolidated in the literature, avoiding recommendations based on a single study.

**Evidence:** Most evaluations of the impact of the BNDES support to MSMEs find evidence of positive impacts.

**Current situation:** The number of micro and small companies supported by BNDES fell in recent years, having contributed to this the decrease in the BNDES Card's disbursements.

**RECOMMENDATION: New instruments for supporting MSMEs should be developed and existing instruments redesigned. It should be taken into account that the primary objective of operating with this group of companies is to overcome the credit constraints to which they are subject. Therefore, alternatives such as easing the requirements for credit access and new forms of guarantee provision should be considered.**

Evidence: Most evaluations of the impact of BNDES's performance on productivity do not find evidence of positive impacts.

Current situation: BNDES has few instruments with an explicit focus on increasing the productivity in supported companies.

**RECOMMENDATION: New instruments aimed at increasing productivity should be developed and/or existing instruments redesigned to incorporate the goal of increasing productivity. Whenever possible, efforts should be made to adapt forms of access and financial incentives to encourage the dissemination of these instruments.**

Evidence: Most evaluations of the impact of the BNDES Exim on export performance find evidence of positive impacts.

Current situation: BNDES Exim's disbursements in 2019 (R\$ 1.8 billion) were significantly lower than in previous years.

**RECOMMENDATION: New instruments aimed at supporting exports should be developed and/or existing instruments redesigned.**

Evidence: Support for innovation has a positive effect on companies' innovation efforts, typically on research and development spending.

Current situation: BNDES's disbursements for innovation have been reduced in recent years.

**RECOMMENDATION: New instruments aimed at supporting innovation should be developed and/or existing instruments redesigned. Due to the effects generated beyond the supported companies, it should also be considered the possibility of seeking explicit subsidies for the innovation lines, in line with Federal Government's policies, thus improving the potential of existing or ongoing initiatives.**

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