

DISTRIBUTION CHANNELS FOR RURAL CREDIT

DESIGN OF FINANCIAL SERVICES INCREASE FARMER'S UNCERTAINTY

Agriculture is intrinsically associated with credit – farmers pay upfront production costs that cannot be recovered until after harvest season. If, at harvest time, they have navigated the natural risks to their crops, they may also face market risks such as price variations. Financial services around the globe aim to support farmers during production and with overcoming hardships and unforeseen events. In Brazil, however, the current design and distribution of rural credit adds a layer of uncertainty among producers as they manage their cash flows and risks.

Though Brazil's financial institutions play a vital role in supporting rural communities and their agricultural activities, not all municipalities have adequate access to financial services. The geographical distribution of financial institutions, like banks and cooperatives, has many determinants and is not closely linked to agricultural potential. This means that the credit available for producers is often not the most appropriate for their specific circumstances or needs.

The mismatch of credit supply and demand has important consequences not only for individuals, but also for the localities where they live. In light of the unintended consequences that may be caused by such design, Climate Policy Initiative (CPI/PUC-Rio) analysts, under INPUT, have partnered with the Central Bank of Brazil (BACEN) to conduct a comprehensive analysis of rural credit distribution channels.

This brief provides an overview of how the distribution channels for credit generate additional uncertainties for producers. It describes how credit is administered and distributed, focusing on the effects access to agricultural funding has at the local level. The brief emphasizes how, in some areas, the availability of resources is determined by the distribution channels, such as banks and cooperatives, rather than by the agricultural potential of those areas.

KEY RECOMMENDATION

Farmers and municipalities should have access to the credit services that best fit the needs of their areas. Simplifying the structure of rural credit, including the rules for credit provision and funding sources, could reduce artificial fluctuations in credit availability and

thus increase policy effectiveness. This can promote competition among financial institutions and improve financial providers' access to and allocation of resources, generating benefits not only to farmers and local areas, but also to the country as a whole.

THE MECHANISM BEHIND RURAL CREDIT DISTRIBUTION

Rural credit in Brazil functions as a retail activity, with the delivery of resources decentralized across the country. Financing comes from multiple funding sources, which may be either the bank/cooperative itself (e.g., a proportion of the banks' deposits in checking or savings accounts) or external sources (e.g., the Brazilian Development Bank (BNDES) or National Treasury funds). Each of these funding sources offers different financial terms, such as credit limits, interest rates, and activities financed (see Table 1). The diversity of terms makes each one more appropriate for specific kinds of producers.

The resources are allocated through a large, complex and geographically uneven network of bank branches and cooperatives, which are operated by a relatively small number of financial institutions. This network was determined by a broader set of issues, in which the rural credit is one among many activities undertaken by the financial institution. Each distribution channel has its own characteristics and follows specific strategies of the financial institution.

Each financial institution has access to different funding sources and amounts, which leads them to offer credit under different financial terms. These resources are allocated among multiple programs, which, like the different funding sources, also have their own financial terms.¹ The conditions of programs and funding sources are determined by a series of factors that are not necessarily associated with the demand for credit, agricultural potential, or producers' needs.

Thus, the design of credit distribution generates differences in producers' access to credit, and may restrict them to funding that does not necessarily best fit their needs. Ultimately, this may lead to poor investment decisions and inadequate risk management on the producer side. The main causes and consequences of the complex distribution of rural credit in Brazil are discussed in more detail below.

1 For agricultural year 2015-2016, there were a total of 18 different programs: PRONAF; PRONAMP; Moderfrota; Funcaf; ABC; Procap-Agro; Prodecoop; Psi-Rural; PCA; Inovagro; Moderagro; Moderinfra; National Program to Fight Poverty; Prorenova-Rural; FNO-ABC; Pro-Aquicultura; and PRI.

Table 1: Rural Credit Funding Sources in Brazil

FUNDING SOURCE	AMOUNT (2015-2016)	% OF TOTAL AMOUNT	DESCRIPTION
Compulsory Resources (Recursos Obrigatórios)	R\$ 54.02 billion	32.25%	Compulsory Resources are made up of 34% of checking deposits, which banks must reserve for rural credit lending. These are an important funding source for programs such as PRONAF and PRONAMP. This funding imposes rules related to financing limits, resource targeting and credit modality.
Rural Savings - Restricted (Poupança Rural - Controlados)	R\$ 56.32 billion	33.62%	Institutions that raise funds in this format (Banco do Brasil, Banco do Nordeste, Banco da Amazônia, cooperative banks and institutions of the Savings and Credit Brazilian System) designate 74% of savings deposits to rural credit. These resources are offered under two different conditions:
Rural Savings - Unrestricted (Poupança Rural - Livre)	R\$ 2.94 billion	1.75%	1) restricted rates, with interest rates subsidized by the Treasury; 2) unrestricted rates, which are not subsidized and vary among financial institutions.
BNDES/Finame - Subsidized (BNDES/Finame - Equalizável)	R\$ 15.86 billion	9.46%	BNDES/Finame is funded by resources from the National Treasury. These resources are offered under interest rates lower than the market rates, because of the Treasury's subsidy.
BNDES - Unrestricted (BNDES Livre)	R\$ 132 million	0.08%	BNDES applies its own resources to rural credit programs. These resources are offered under terms determined by the Bank, with no restrictions on interest rates.
Agricultural Credit Notes - Floating Rate (Letra de Crédito Agrícola (LCA) - Taxa Livre)	R\$ 13.54 billion	8.08%	Agricultural Credit Notes are bonds that can be issued by any financial institution. They are exempt from income taxes and the financial transaction tax (IOF). A portion of the total amount collected (35%) must be lent to the rural sector.
Northeastern Constitutional Fund for Financing (Fundo Constitucional de Financiamento do Nordeste)	R\$ 6.39 billion	3.81%	The Constitutional Funds were created to boost the economic development of the Northeastern, Midwestern and Northern regions of Brazil (for both rural and non-rural sectors). They are managed, respectively, by the Banco do Nordeste do Brasil, Banco do Brasil and Banco da Amazônia. Resources come from 3% of income taxes and taxes on manufactured products (IPI). Programs such as PRONAF, PRONAMP and ABC are financed by these funding sources.
Midwestern Constitutional Fund for Financing (Fundo Constitucional de Financiamento do Centro-Oeste)	R\$ 3.02 billion	1.8%	
Northern Constitutional Fund for Financing (Fundo Constitucional de Financiamento do Norte)	R\$ 1.94 billion	1.15%	
Unrestricted Resources (Recursos Livres)	R\$ 6.10 billion	3.64%	Unrestricted Resources from financial institutions are offered under freely agreed interest rates. Any financial institution can offer these resources, which can be their own or raised from other sources. In some cases, these unrestricted resources are offered with the help and guidance of the government in the form of Unrestricted Resources - Subsidized.
Unrestricted Resources - Subsidized (Recursos Livres Equalizáveis)	R\$ 2.45 billion	1.46%	

Fund for the Defense of the Coffee Industry (Funcafé)	R\$ 2.52 billion	1.5%	Funcafé is comprised of a contribution quota over exported coffee and the returns over the fund's financial applications, including buffer stock sales. These resources are offered by the financial institutions accredited by the Funcafé. Coffee producers and agricultural cooperatives can obtain credit for coffee production costs, harvest, storage and acquisition.
Hybrid Capital-Debt Instrument (Instrumento Híbrido Capital D'vida - IHCD)	R\$ 838.19 million	0.5%	The Hybrid Capital-Debt Instruments are financial instruments that resemble stocks because they do not have maturity terms - they only have the renegotiation term. They also have debt characteristics, due to interest payment. Banco do Brasil is the only institution that offers these IHCDs as a rural credit instrument.
External Financing (Captação Externa)	R\$ 701.12 million	0.41%	External Financing resources are offered by banks whose parent companies are established abroad, such as Rabobank. The resources granted are not linked to any specific rural credit programs. The recipients are usually quite different from those who participate in programs such as PRONAF and PRONAMP.
Fund for Workers' Aid (Fundo de Amparo ao Trabalhador - FAT)	R\$ 464.6 million	0.27%	FAT's resources originate from the Social Integration Program (Programa de Integração Social - PIS) and the Public Service Employee Savings Program (Programa de Formação do Patrimônio do Servidor Público - PASEP). FAT channels its resources to the rural sector through PRONAF operations.
Fund for Lands and Agricultural Reform (Fundo de Terras e da Reforma Agrária - FTRA)	R\$ 121.62 million	0.07%	The FTRA finances land rearrangement and rural settlement programs. The recipients are non-proprietary rural workers and those whose properties are smaller than the limit area established for family farms. The FTRA is made up of a share of deposit accounts, a share of the resources designated to economic development programs, Agricultural Debt Bonds and other sources.
National Treasury (Tesouro Nacional)	R\$ 109.40 million	0.06%	These resources are channeled from the National Treasury to financial institutions. They do not have specific rules, varying considerably among institutions.
State Governments (Governos Estaduais)	R\$ 24.39 million	0.01%	These resources originate from state taxes and the state governments allocate them through funding agencies. The financial terms are determined by the governments and are not bound to any specific program.
Required Reserves on Cash Deposits (Compulsão sobre Recursos à Vista)	R\$ 116 thousand	< 0.01 %	The government under President Dilma Rousseff allowed financial institutions to allocate resources in investments (such as rural credit) and reduce a portion of the cash deposits required to be withheld at the Central Bank. Instead of allocating 45%, they could reduce their compulsory deposits to 25% and direct the other 20% to investments. These funds make up the Required Reserves on Cash Deposit.

ARTIFICIAL SOURCES OF FLUCTUATIONS

Three important variations in the Brazilian rural credit distribution channels include:

- I. Geographical distribution of bank branches and cooperatives;
- II. Total funding amount across financial institutions; and
- III. Financial terms.

I. Geographical distribution of bank branches and cooperatives

In Brazil, retail bank branches and cooperatives are the most important distribution channels for rural credit. While these financial institutions are highly concentrated in some areas, its five million rural credit recipients are spread across the country. Although alternative points of services (e.g., correspondent banks) with a much broader geographical coverage complement the system, bank branches and cooperatives still provide the bulk of credit to farmers.

Figure 1 illustrates how the network of financial institutions were clustered throughout the country during the 2015-2016 agricultural year as well as the geographic distribution of the agricultural activity.² Bank branches are primarily concentrated in the Southern and Southeastern regions of Brazil closely following the distribution of population and urban activities. The presence of these branches in the most developed and populous cities is so strong that 33% of all branches are found in State capitals. Cooperatives are also heavily located in the Southern and Southeastern regions, where small farmers are better organized.

In rural areas, financial providers tend to be located where agricultural production is higher. Some municipalities in Northern and Northeastern Brazil suffer from particularly limited financial access with bank branches and cooperatives being sparsely located in these regions. While the Northeastern Constitutional Fund (*Fundo Constitucional do Nordeste*) and the Northern Constitutional Fund (*Fundo Constitucional do Norte*) serve as special sources for regional development, these two funding sources are small compared to the other funding sources for rural credit, accounting for only about 5% of total rural credit lending. Thus, producers who live in less productive regions and are most likely in need of subsidized credit, are exactly those who have the least access.

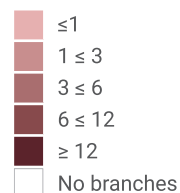
² The agricultural year 2015-2016 corresponds to July 2015 until June 2016.

Figure 1: Bank Branches, Credit Cooperatives and Agriculture in Brazil

**BRANCH CONCENTRATION
(2015-2016)**



NUMBER OF BANKS PER MUNICIPAL AREA
(1,000 KM²)



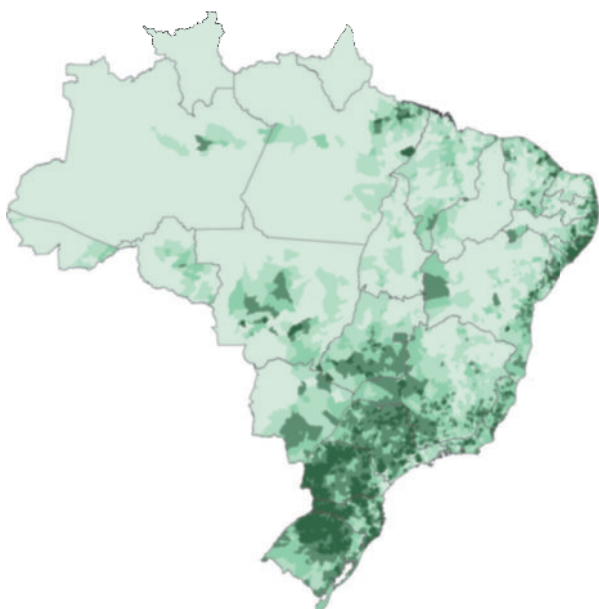
**CREDIT COOPERATIVES
(2015-2016)**



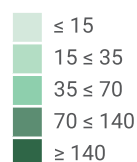
NUMBER OF COOPERATIVES
PER MUNICIPALITY



**AGRICULTURE GROSS VALUE ADDED
(2014)**



AGRICULTURE GVA PER MUNICIPAL AREA
(1,000 REAIS/KM²)

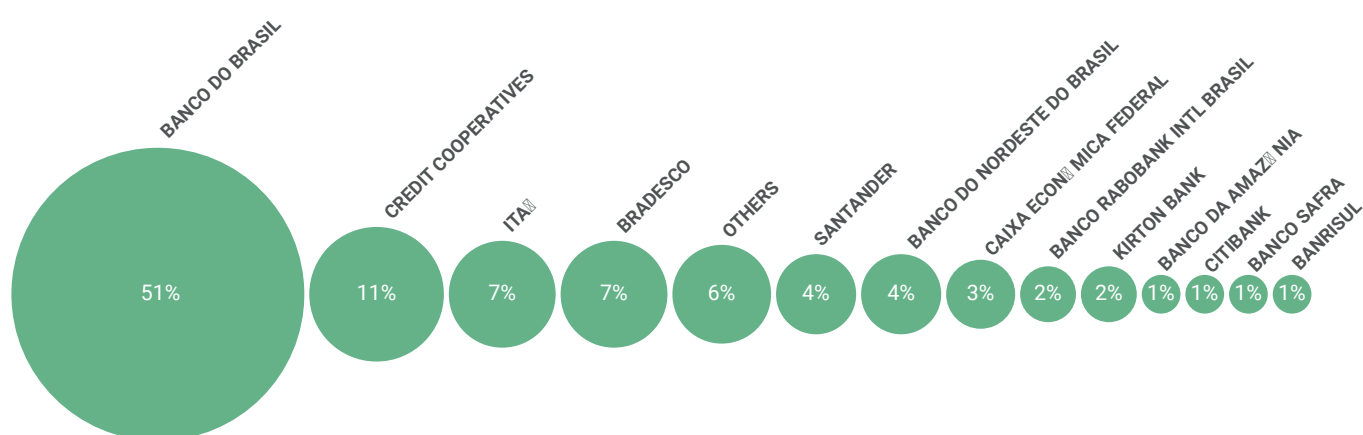


Source: BACEN and IBGE

II. Total funding amount across financial institutions

The geographical prevalence of financial institutions may also create inefficiencies in rural credit allocation. For agricultural year 2015-2016, Figure 2 presents how financial institutions vary significantly in the amounts they lend to farmers. The disparity of amounts offered by financial institutions is clear. The *Banco do Brasil*, with its retail system of 5,448 branches, stands out as the main national player, lending more than half of all rural credit provided during the 2015-2016 agricultural year (R\$ 85.2 billion).³ Itaú and Bradesco, two other important banks, together with *Banco do Brasil*, offered almost two-thirds of all rural credit in that year.⁴ It is worth noting that cooperatives, while made up of many small entities, are the second largest rural credit lender.

Figure 2: Importance of Financial Institutions in Rural Credit Lending (2015-2016)



Source: BACEN

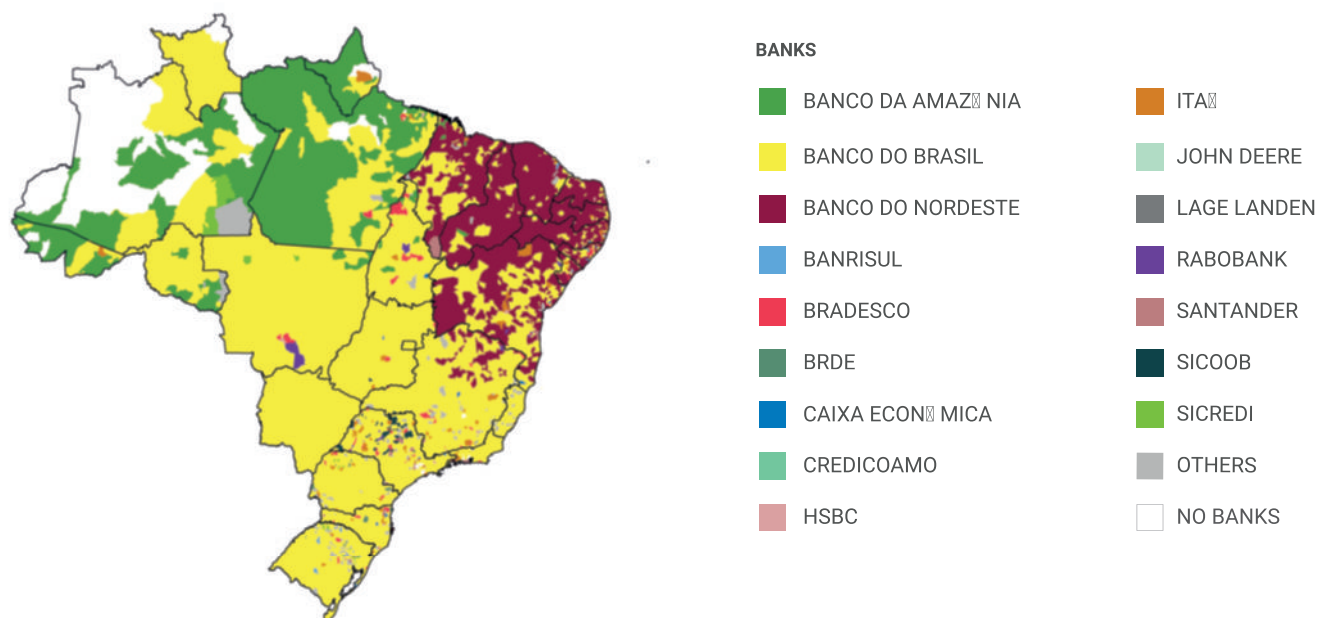
Figure 3 shows how the financial institutions' importance in credit lending varies considerably across regions. For each municipality, the first, second and third main providers of rural credit for the 2015-2016 agricultural year are identified. *Banco do Brasil* remains the main credit provider for most of the Southern, Southeastern, and Midwestern regions. However, *Banco da Amazônia* and *Banco do Nordeste*, while less important at the aggregate level, serve as the primary sources of rural credit for the Northern and Northeastern regions.

³ When comparing rural credit to the total of all credit provided in Brazil, public financial institutions (Banco do Brasil, Caixa Econômica Federal, Banco Nacional de Desenvolvimento Econômico e Social - BNDES, Banco do Nordeste, Banco da Amazônia, Banco do Estado do Rio Grande do Sul, etc.) accounted for 55.8% of lending participation. While Banco do Brasil's share in rural credit lending is quite high, for total credit, it accounts for less than 20%.

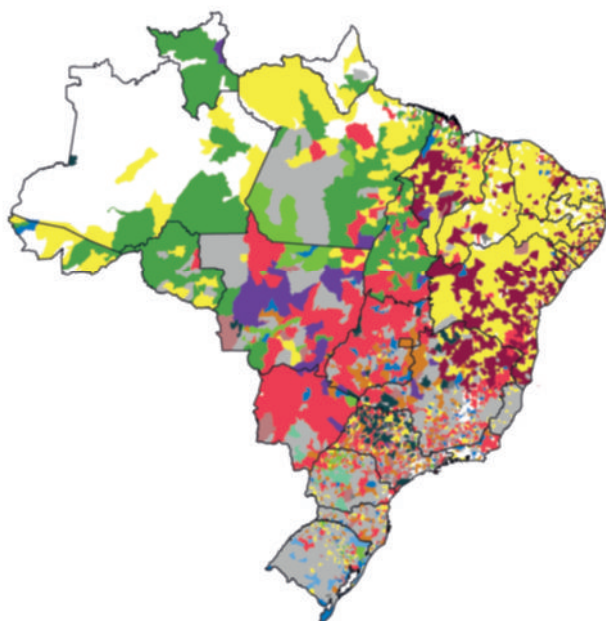
⁴ Comparing again rural credit to total credit in Brazil, the participation of these three institutions in June 2017 was 43.1%.

Figure 3: Primary Rural Credit Providers by Municipality (2015-2016)

1ST MAIN FINANCIAL INSTITUTION



2ND MAIN FINANCIAL INSTITUTION



3RD MAIN FINANCIAL INSTITUTION



Source: BACEN

Note: The main financial institutions are defined as those that lent the most credit in a municipality.

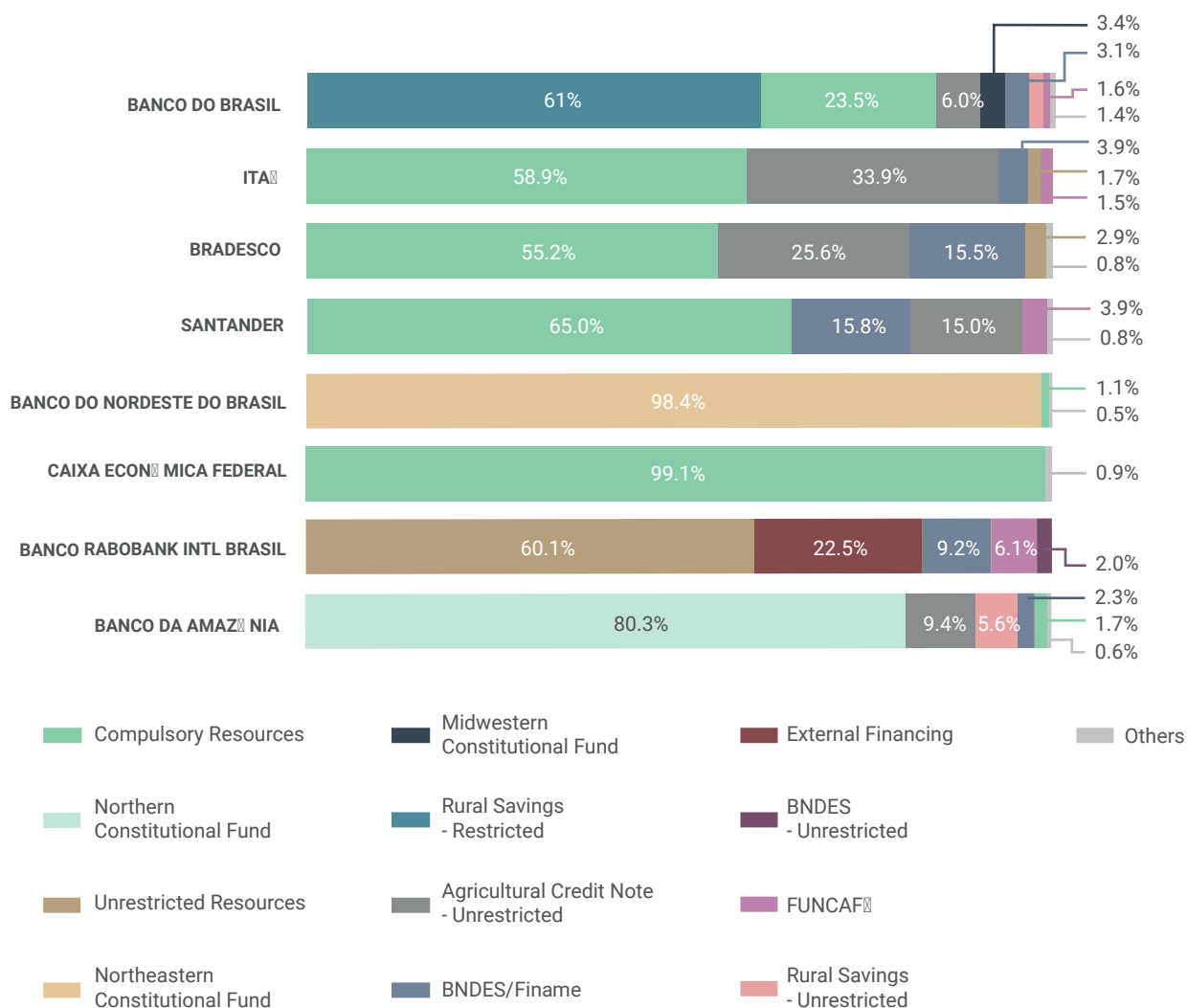
III. Financial terms

Since banks and cooperatives have access to different funding sources and allocate the resources into different programs, farmers are left with notably different options for credit solutions depending on where they live. Annual fluctuations in funding sources add another layer of variation to credit services. These aspects affect credit terms as follows:

- 1 Funding sources are numerous and diverse. In the agricultural year of 2015-2016, for instance, Brazil's credit program had 21 funding sources offering credit under their specific terms. A comparison between two important funding sources illustrates the disparity in the terms: while, in the same 2015-2016 agricultural year, Compulsory Resources (*Recursos Obrigatórios*) – a funding source made up of earmarked credit from 34% of commercial banks' checking accounts – offered credit at 9.5% interest, the Northern Constitutional Fund, which is primarily funded by a portion of federal income taxes and taxes on industrial products, had interest rates as low as 6.5% for small producers.

While funding sources offer different financial terms, financial institutions' funding structures also vary significantly (see Figure 4). Most credit lent by *Banco do Brasil* comes from the Rural Savings (*Poupança Rural*) funding source, while banks like Bradesco, Itaú and Santander primarily lend Compulsory Resources. Bank of the Northeast's lending, on the other hand, comes almost entirely from the Northeastern Constitutional Fund. This results in financial institutions offering considerably different financial terms, which, as noted before, are unevenly distributed across the country. Thus, depending on the region where they live, farmers find themselves with a mix of credit options that result from the structure of the banking and cooperative system, rather than as a response catered to their needs.



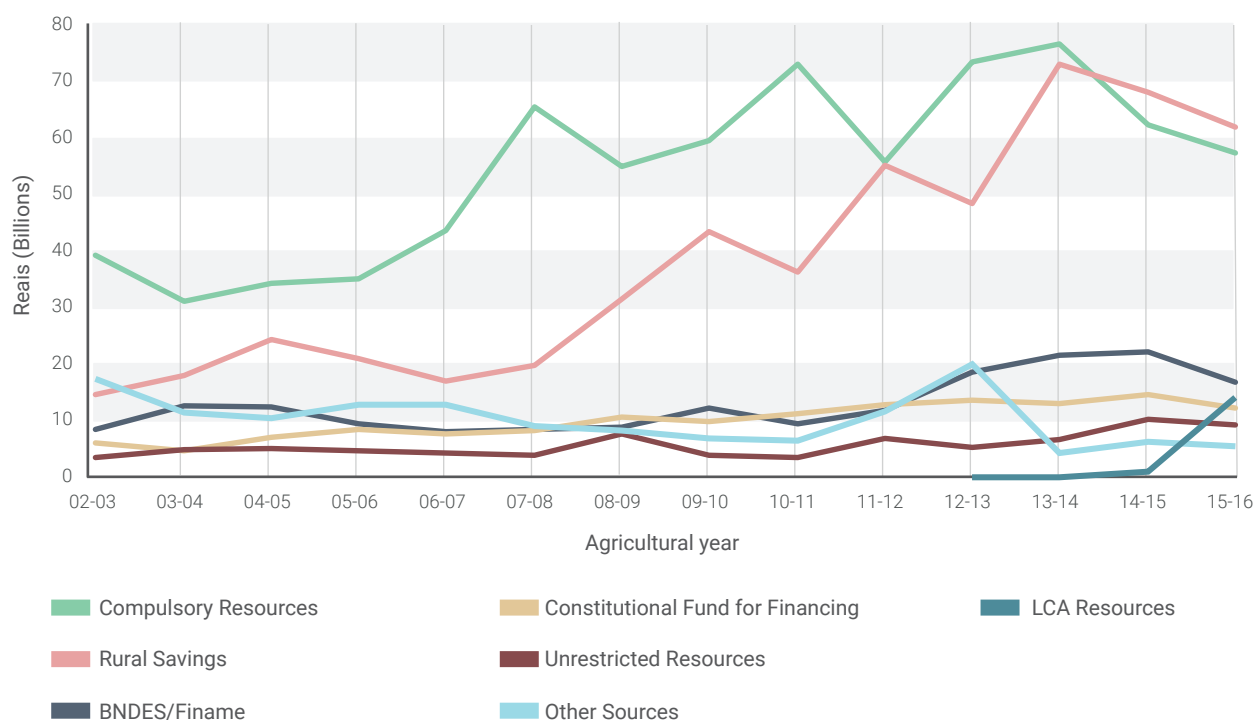
Figure 4: Funding Sources per Financial Institution (2015-2016)

Source: BACEN

2

The availability of funding per source usually fluctuates dramatically from year to year, affecting the total amount of resources available to each financial institution. Once again, with producers exposed to different financial institutions, financial terms offered in their locations may vary considerably. Figure 5 illustrates how different funding sources follow independent and, sometimes, inverse paths over time (e.g., Rural Savings and Compulsory Resources in agricultural year 2015-2016).

Figure 5: Total Funding Available by Rural Credit Funding Sources from 2002 to 2016 (in 2016 Billion Reais)



Source: BACEN

3

Each funding source obligates the bank or cooperative to follow a specific set of rules and requirements. This means that who is eligible to receive each set of funds and how they can use the credit may vary significantly.

4

On top, banks and cooperatives must channel resources through a complex set of credit programs which changes substantially over time. For example, in 2015-2016, Brazil had 13 established programs, such as PRONAF (for family farming) and PRONAMP (for medium-sized producers). All those programs vary, not only in the financial terms they offer, but also in how many programs are offered from year to year – many programs are created and then disappear over time.

CONCLUSION

Rural credit plays an important role in helping farmers deal with upfront costs, unforeseen events and eventual risks to their production. If properly designed, credit allows producers to make better and more profitable choices in the face of uncertainty. Scaled up, this may allow investment and production to grow at a national scale. Nonetheless the current uneven and complex distribution of banks and cooperatives that provide credit in Brazil generates additional uncertainty

for producers. The credit services, including their amounts and terms, fluctuate substantially over time. The lack of predictability on credit availability might create allocative consequences for the sector, possibly affecting investment and production. CPI/ PUC-Rio and the Central Bank of Brazil are taking an in-depth look at the data to quantify and measure the impact that the distribution channels of rural credit have on producers.

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The **Land Use Initiative (INPUT - Iniciativa para o Uso da Terra)** is a dedicated team of specialists who work at the forefront of how to increase environmental protection and food production. INPUT engages stakeholders in Brazil's public and private sectors and maps the challenges for a better management of its natural resources. Research conducted under INPUT is generously supported by the Children's Investment Fund Foundation (CIFF) through a grant to the Climate Policy Initiative.