

POLICY BRIEF

THE FRAGMENTED RULES OF BRAZILIAN RURAL CREDIT HOW POLICY DESIGN CREATES ARTIFICIAL OBSTACLES IN CREDIT ACCESS AND LOAN CONDITIONS FOR RURAL PRODUCERS



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Rural credit serves as Brazil's main economic policy for the agricultural sector. The annual amount of credit available to the sector corresponds to around 40% of Brazil's total agricultural production value, making rural credit a major source of financing for agribusiness. Two government plans regulate the funding sources, the amounts allocated to each credit line, and the main conditions for obtaining loans:

- The Agricultural Plan (*Plano Agrícola e Pecuário* - PAP), which outlines programs for medium and large producers.
- The National Plan for Family Farming (*Programa Nacional de Fortalecimento da Agricultura Familiar* - PRONAF), which targets smaller producers.

For the agricultural year 2017-2018, these plans provided R\$188 billion (US\$60 billion) in PAP and R\$30 billion (US\$9 billion) in PRONAF.

Proper access to financial services can increase agricultural productivity by allowing producers to make better investment decisions and to manage their risks. However, based on a framework originally designed in the 1960s, the current rural credit policy is characterized by a highly complex set of funding sources and programs, each with intricate rules. While the numerous funding and distribution mechanisms have the objective of channeling resources to specific regions and activities, the current financing structure distorts credit access and loan conditions throughout most of the country.

Understanding how rural credit is distributed and the impact credit policy design has on production is fundamental for evaluating program effectiveness and for identifying areas for improvement. Climate Policy Initiative (CPI/PUC-Rio) analysts, under INPUT, have shown how distribution channels for rural credit create variation in access and generate additional uncertainty for producers.¹ More specifically, previous analysis emphasizes that the availability of financial resources is often determined

¹ Assunção J, Souza P, Figueiredo B. 2018. Distribution Channels for Rural Credit: Design of Financial Services Increase Farmers Uncertainty. Climate Policy Initiative. Available at <http://www.inputbrasil.org/publicacoes/canais-de-distribuicao-de-credito-rural/?lang=en>.

by the geographic location of bank branches and cooperatives, which have many determinants, rather than the agricultural potential of the locales.

In this brief, CPI/PUC-Rio analysts identify features of the rural credit policy that create a fragmentation of rules and, consequently, additional artificial variation in credit access and loan conditions. This brief outlines the complexity of the rural credit funding sources and programs and, then, highlights the sharp differences by geographical location, farm size, and farm revenue that this complexity likely causes in financing opportunities.

THE COMPLEXITY OF RURAL CREDIT FUNDING SOURCES AND PROGRAMS

The National Rural Credit System (*Sistema Nacional de Crédito Rural* - SNCR) was established in 1965.² Currently, rules for the funding sources are approved by the National Monetary Council (*Conselho Monetário Nacional* - CMN)³ and published in the Rural Credit Manual (*Manual de Crédito Rural* - MCR) by Brazil's Central Bank. PAP and PRONAF determine rural credit programs and conditions for resource allocation. They are made up of a variety of funding sources, channeling funds from bank deposits and taxes to rural credit programs.

Figure 1 shows how funding sources were allocated to credit programs for the agricultural year 2016-2017. The two main sources are Compulsory Resources (*Recursos Obrigatórios*), which is a fraction of bank deposits in checking accounts, and Rural Savings (*Poupança Rural*), which is a savings account modality in selected public banks and cooperatives. Financial institutions are required to allocate a fraction of these funds to credit programs such as PRONAF (for family farmers) and the National Program to Support Medium Producers (*Programa Nacional de Apoio ao Médio Produtor Rural* – PRONAMP).

Loans linked to specific credit programs follow that program's rules concerning borrower eligibility, interest rates, credit limits, destination and other conditions. If a loan is not linked to a specific program, it follows the rules of the funding source.⁴

² Law No. 4,829/1965.

³ Members include Minister of Finance as President of the Board; Minister of Planning, Development and Management; and Brazil's Central Bank President.

⁴ Some funding sources allow interest rates and other conditions to be agreed to freely between lender and borrower (see Table 1).

AGRICULTURAL PLANS

PAP

The Agricultural Plan (*Plano Agrícola e Pecuário* - PAP), which applies from July 1 of the current year to June 30 of the following year, is elaborated by the Ministry of Agriculture, Livestock and Supply (*Ministério da Agricultura, Pecuária e Abastecimento* - MAPA). It takes into account all rural credit programs (except for PRONAF). PAP also includes the National Program to Support Medium Producers (*Programa Nacional de Apoio ao Médio Produtor Rural* – PRONAMP), and resources for the Constitutional Funds that are not linked to PRONAF.

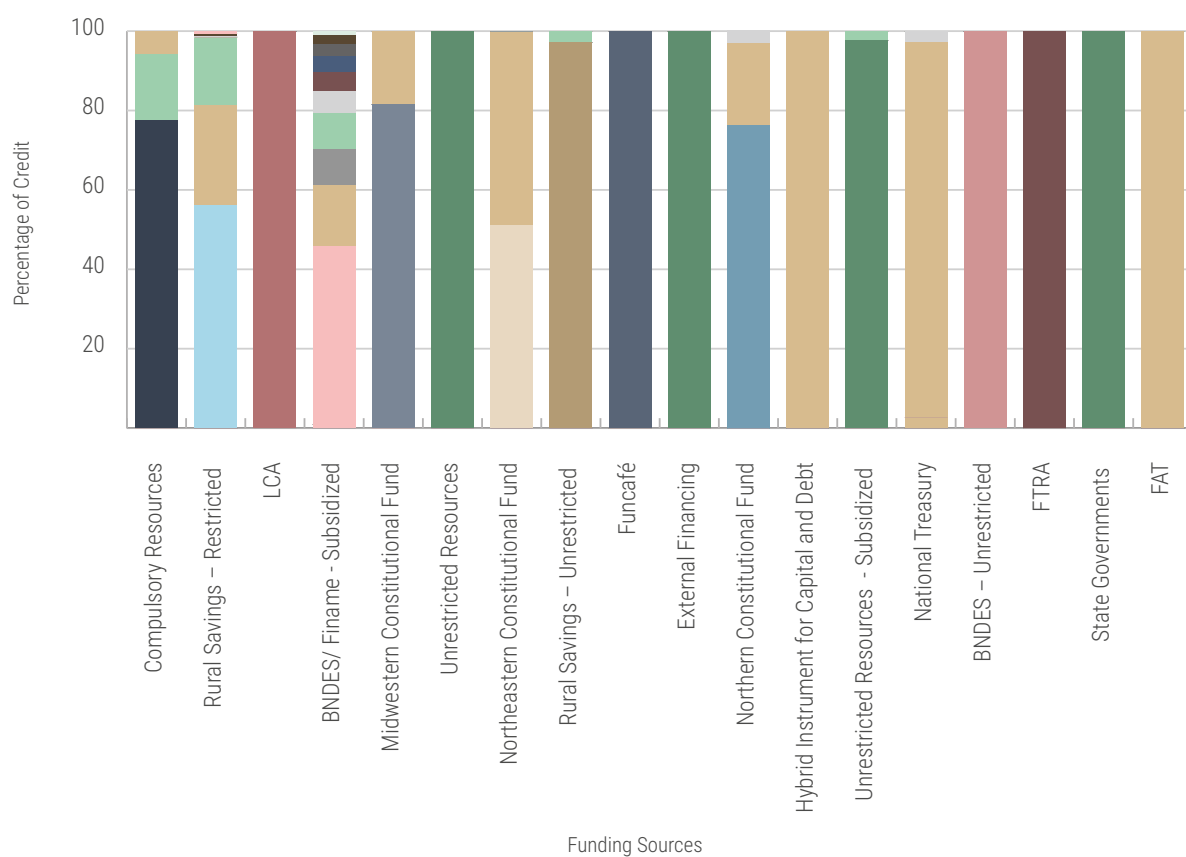
PRONAF

The National Plan for Family Farming (*Programa Nacional de Fortalecimento da Agricultura Familiar* - PRONAF) targets small producers and constitutes a rural credit program with several sub-programs. PRONAF was elaborated by the Ministry of Agrarian Development (*Ministério do Desenvolvimento Agrário* - MDA) until 2016, the year in which MDA became Secretary for Family Agriculture and Agrarian Development (*Secretaria Especial de Agricultura Familiar e do Desenvolvimento Agrário* - SAED) linked to the Office of the President (*Casa Civil da Presidência da República*). In 2017, PRONAF became a multi-year plan for the sector, valid through 2020.

For the agricultural year 2016-2017, rural credit was comprised of 20 funding sources and 13 programs (see Table 1 for descriptions, amounts, and main conditions).⁵ There were also dozens of sub-programs. For example, PRONAF had 16 subprograms with interest rates varying from 0.5% to 5.5%. This multiplicity of credit lines makes it hard for both the producer and the local credit lender to pin down what resource best fits current needs.

⁵ In Figures 1a and 1b, the following funding sources were considered together: 1) Agricultural Credit Notes (Unrestricted) with Agricultural Credit Notes (Restricted); and 2) Rural Savings (Restricted) with Rural Savings (Rural Credit Manual, Chapter 6, Section 4). Hence, there are 18 bars in Figures 1a and 1b.

Figure 1a: Distribution of Funding Sources by Rural Credit Program, Agricultural Year 2016-2017



Loans with Program Rules

ABC	PCA
Funcafé	Pronaf
Inovagro	Pronamp
Moderagro	Procap Agro
Moderfrota	Other programs

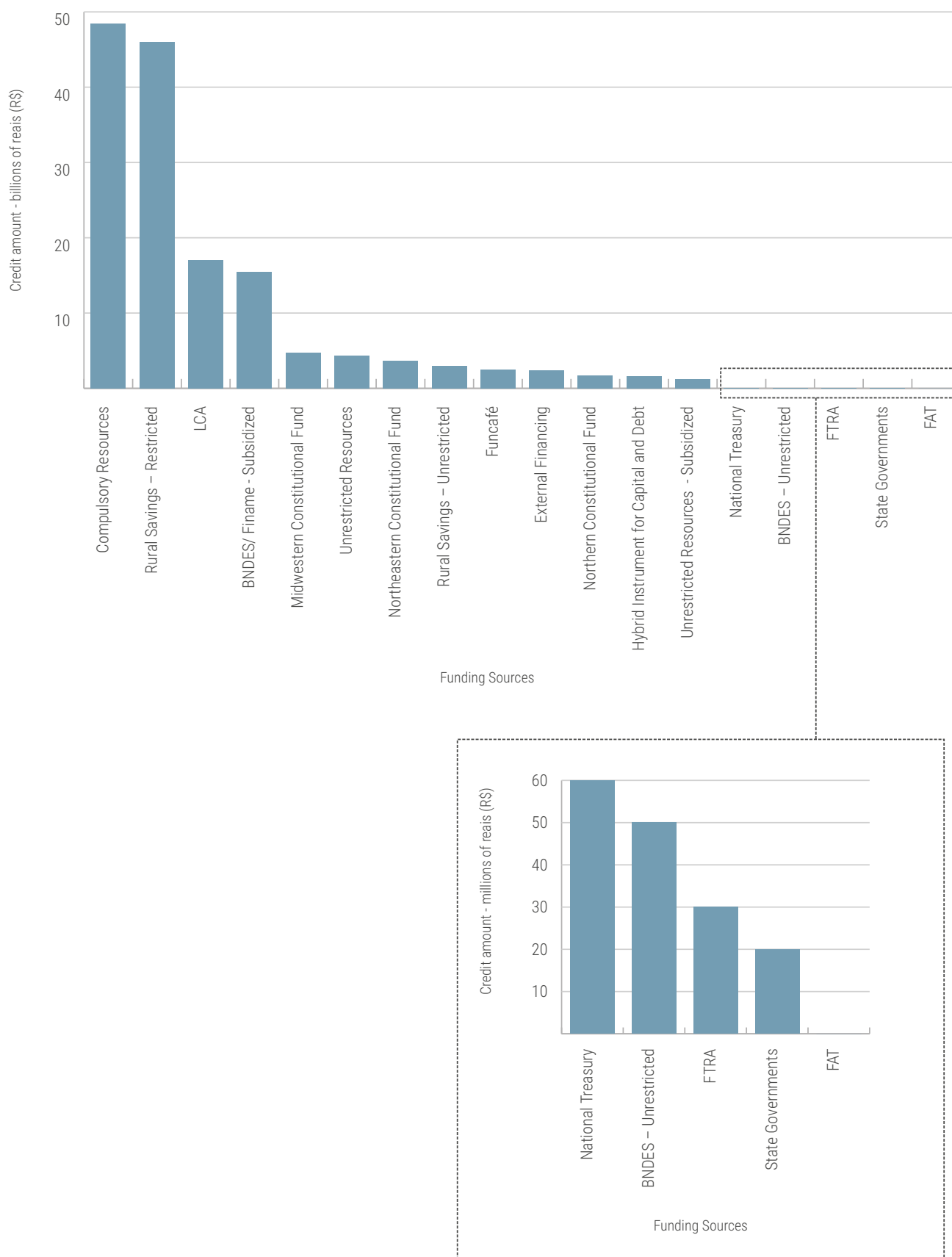
Loans with Funding Source Rules

BNDES/ Unrestricted	LCA
FCO	Compulsory Resources
FNE	Rural Savings – Restricted
FNO	Rural Savings – Unrestricted
Finame	Other funding sources

Elaboration: Climate Policy Initiative

Source: Matriz de Dados do Crédito Rural, Central Bank of Brazil

Figure 1b: Funding Sources Amounts, Agricultural Year 2016-2017



Elaboration: Climate Policy Initiative

Source: Matriz de Dados do Crédito Rural, Central Bank of Brazil

Table 1: Description and Financing Conditions of Rural Credit Programs and Funding Sources

Loans Linked to Rural Credit Programs				
PROGRAM	CREDIT (2016/2017)	% OF TOTAL CREDIT	DESCRIPTION	CURRENT FINANCING CONDITIONS
National Program for Family Farming <i>(Programa Nacional de Fortalecimento da Agricultura Familiar - PRONAF)</i>	R\$21.44 billion	14.09%	<p>PRONAF aims to improve financing and increase productivity in family farming activities, also to generate income for family farmers and rural settlements beneficiaries.</p> <p>Funding sources:</p> <ul style="list-style-type: none"> Rural Savings - Restricted: R\$11.6 billion Compulsory Resources: R\$2.8 billion BNDES/FINAME – subsidized: R\$2.4 billion Northeastern Constitutional Fund for Financing: R\$1.8 billion Hybrid Instrument of Capital and Debt (IHCD): R\$1.57 billion Other Sources: R\$1.27 billion 	<p>Interest rate: 0.5%-5.5%</p> <p>Financing limit: R\$250,000 (production costs) and R\$330,000 (investment).</p> <p>Beneficiaries: Rural producers who present a valid Aptitude Declaration (<i>Declaração de Aptidão - DAP</i>) to PRONAF. Main conditions: hold area no greater than four fiscal modules earn at least 50% of gross family income from agricultural activities have a maximum gross household income of R\$360,000 over the last 12 months prior to DAP's application.</p>
National Program to Support Medium-Sized Farmers <i>(Programa Nacional de Apoio ao Médio Produtor Rural - PRONAMP)</i>	R\$17.28 billion	11.36%	<p>PRONAMP aims to support the development of activities of medium-sized producers, generating jobs and increasing income in rural areas.</p> <p>Funding sources:</p> <ul style="list-style-type: none"> Compulsory Resources: R\$8.2 billion Rural Savings-Restricted: R\$7.6 billion BNDES/FINAME – subsidized: R\$1.38 billion Other Sources: R\$120 million 	<p>Interest rate: 7.5%</p> <p>Financing limit: R\$1.5 million (production costs) and R\$430,000 (investment) per beneficiary. For collective loans aimed at investments, the limit is R\$4.3 million at Banco do Brasil and R\$20 million at BNDES (respecting the limit of R\$430,000 per beneficiary).</p> <p>Beneficiaries: Rural producers with at least 80% of their gross annual income from agricultural or vegetal extractives activities and gross annual income up to R\$1.76 million.</p>
Program for the Modernization of Agricultural Tractors and Related Accessories and Harvesters <i>(Programa de Modernização da Frota de Tratores Agrícolas e Implementos Associados e Colheitadeiras - MODERFROTA)</i>	R\$7.36 billion	4.84%	<p>MODERFROTA's main goal is to finance the acquisition of agricultural equipment, such as tractors, harvesters and agricultural machinery in general.</p> <p>Funding sources:</p> <ul style="list-style-type: none"> BNDES/FINAME – subsidized: R\$7.0 billion Other Sources: R\$330 million 	<p>Interest rate: 7.5% (gross annual < R\$90 million) and 10.5% (gross annual income > R\$90 million)</p> <p>Financing limit: 90% of the value of the assets subject to financing.</p> <p>Beneficiaries: Rural producers and agricultural cooperatives.</p>

Loans Linked to Rural Credit Programs - Continued

PROGRAM	CREDIT (2016/2017)	% OF TOTAL CREDIT	DESCRIPTION	CURRENT FINANCING CONDITIONS
Fund for the Defense of the Coffee Industry (<i>Fundo de Defesa da Economia Cafeeira - FUNCAFÉ</i>)	R\$2.47 billion	1.62%	<p>FUNCAFÉ provides financial support for activities carried out in coffee plantations, such as harvesting and storage. Its resources come from a fund with the same name.</p> <p>Funding sources:</p> <ul style="list-style-type: none"> Fund for the Defense of the Coffee Industry: R\$2.47 billion Other Sources: R\$3 million 	<p>Interest rate: 8.5%-11.25%</p> <p>Financing limit: R\$3 million (for production costs) – The financing limits vary greatly for credit lines directed to storage and commercialization.</p> <p>Beneficiaries: Coffee producers and coffee production cooperatives.</p>
Program for the Capitalization of Agriculture and Livestock Cooperatives (<i>Programa de Capitalização de Cooperativas Agropecuárias - PROCAP-AGRO</i>)	R\$1.43 billion	0.94%	<p>PROCAP-AGRO supports the recovery of assets of agricultural, agro-industrial, aquaculture and fisheries cooperatives, financing the payment of quotas and obtaining working capital.</p> <p>Funding sources:</p> <ul style="list-style-type: none"> BNDES/FINAME – subsidized: R\$1.43 billion 	<p>Interest rate: TLP + 3.7% per year</p> <p>Financing limit: R\$45,000 per associated rural producer and R\$65 million per cooperative.</p> <p>Beneficiaries: Rural producers (private individuals or companies) and agricultural cooperatives.</p>
National Program for Low Carbon Emissions in Agriculture (<i>Programa para Redução da Emissão de Gases de Efeito Estufa na Agricultura – ABC</i>)	R\$1.11 billion	0.73%	<p>ABC aims to support investments that reduce environmental damage caused by agricultural activities, for example by reducing greenhouse gas emissions or by adopting sustainable practices to increase production.</p> <p>Funding sources:</p> <ul style="list-style-type: none"> BNDES/FINAME – subsidized: R\$815.9 million Other Sources: R\$295.01 million 	<p>Interest rate: 7.5%</p> <p>Financing limit: R\$2.2 million and R\$5 million (for planted forests installation).</p> <p>Beneficiaries: Rural producers and agricultural cooperatives.</p>
Program for Modernization of Agriculture and Conservation of Natural Resources (<i>Programa de Modernização da Agricultura e Conservação dos Recursos Naturais – MODERAGRO</i>)	R\$658.78 million	0.43%	<p>MODERAGRO focuses on improving agricultural productivity through modernization of the agricultural sector and actions aimed at soil recovery.</p> <p>Funding sources:</p> <ul style="list-style-type: none"> BNDES/FINAME – subsidized: R\$576.4 million Other Sources: R\$82.4 million 	<p>Interest rate: 8.5%</p> <p>Financing limit: R\$880,000 per beneficiary, R\$2.64 million for joint venture and R\$220,000 for replacement of bovine and buffalo matrices (R\$5,000 per animal).</p> <p>Beneficiaries: Rural producers and agricultural cooperatives, including loans to cooperative associates.</p>
Program for Construction and Expansion of Storage (<i>Programa para Construção e Ampliação de Armazéns – PCA</i>)	R\$586.92 million	0.39%	<p>PCA supports investments that improve the storage capacity of rural producers and cooperatives.</p> <p>Funding sources:</p> <ul style="list-style-type: none"> BNDES/FINAME – subsidized: R\$463.2 million Other Sources: R\$123.7 million 	<p>Interest rate: 6.5%</p> <p>Financing limit: Up to 100% of the project's value.</p> <p>Beneficiaries: Rural producers and their production cooperatives.</p>

Loans Linked to Rural Credit Programs - Continued

PROGRAM	CREDIT (2016/2017)	% OF TOTAL CREDIT	DESCRIPTION	CURRENT FINANCING CONDITIONS
Program to Encourage Technological Innovation in Agricultural Production (<i>Programa de Incentivo à Inovação Tecnológica na Produção Agropecuária – INOVAGRO</i>)	R\$517.38 million	0.34%	INOVAGRO finances technological innovations that increase productivity and improve producers' farming practices. Funding sources: <ul style="list-style-type: none"> • BNDES/FINAME – subsidized: R\$310 million • Other Sources: R\$207.4 million 	Interest rate: 6.5% Financing limit: R\$1.1 million per beneficiary and R\$3.3 million per joint venture. Beneficiaries: Rural producers and their production cooperatives.
Program to Encourage Irrigation and Production in Protected Areas (<i>Programa de Incentivo à Irrigação e à Produção em Ambiente Protegido – MODERINFRA</i>)	R\$386.50 million	0.25%	MODERINFRA finances improvements in agricultural infrastructure, such as the development of sustainable irrigated agriculture and protection of fruticulture against the incidence of hail. Funding sources: <ul style="list-style-type: none"> • BNDES/FINAME – subsidized: R\$364.43 million • Other Sources: R\$22.07 million 	Interest rate: 7.5% Financing limit: R\$3.3 million per beneficiary and R\$9.9 million per joint venture. Beneficiaries: Rural producers and their production cooperatives.
Cooperative Development Program to Add Value to the Agriculture and Livestock Production (<i>Programa de Desenvolvimento Cooperativo para Agregação de Valor à Produção Agropecuária – PRODECOOP</i>)	R\$376.26 million	0.25%	PRODECOOP stimulates the modernization of production and trading systems, improving competitiveness of Brazilian agricultural cooperatives. Funding sources: <ul style="list-style-type: none"> • BNDES/FINAME – subsidized: R\$358.61 million • Other Sources: R\$17.65 million 	Interest rate: 8.5% and TLP + 3.7% for acquiring assets of existing projects Financing limit: R\$150 million Beneficiaries: Agricultural, agroindustrial, aquaculture and fisheries cooperatives, and rural producers associated with them.
National Program for Land Credit (<i>Programa Nacional de Crédito Fundiário – PNCF</i>)	R\$26.02 million	0.02%	PNCF seeks to provide access to land for small producers (who have no land or insufficient land), for example by purchasing a rural property. It also promotes investments in infrastructure for these workers. Funding sources: <ul style="list-style-type: none"> • Farm land and Land Reform Fund: R\$26.02 million 	Interest rate: 0.5%-2% Financing limit: R\$80,000 Beneficiaries: Rural producers who have annual gross family income up to R\$30,000 and annual property below R\$60,000.
Program to Support Renovation and Implantation of New Sugarcane Plantations (<i>Programa de Apoio à Renovação e Implantação de Novos Canaviais – PRORENOVA</i>)	R\$12.60 million	0.01%	PRORENOVA aims to expand sugarcane production in the country through the renovation and development of new sugarcane plantations. Funding sources: <ul style="list-style-type: none"> • BNDES/FINAME – subsidized: R\$12.60 million 	Interest rate: TLP + 2.1% (BNDES fees) + Financial agent fee (freely agreed between the parties) Financing limit: R\$7,265 per hectare of sugarcane, with a limit of R\$150 million per economic group. Beneficiaries: Sugarcane production-related companies.

Loans Linked to Funding Sources Rules

SOURCE	CREDIT (2016-2017)	% OF TOTAL CREDIT	DESCRIPTION	CURRENT FINANCING CONDITIONS
Compulsory Resources (Recursos Obrigatórios - MCR 6.2)*	R\$37.5 billion	24.65%	Compulsory Resources consist of 34% of deposits in checking accounts collected during the period of one year by Brazilian financial institutions. Most of these resources (77% in the agricultural year 2016-2017) are not targeted at any particular rural credit program.	Interest rate: 8.5% Financing limit: R\$3 million for production costs. Beneficiaries: Rural producers and agricultural cooperatives.
Rural Savings – Restricted (Poupança Rural - Controlados)	R\$25.96 billion	17.07%	Three institutions follow the Rural Savings' rules: Banco da Amazônia, Banco do Nordeste, and Banco do Brasil. For these banks, it is mandatory to keep 60% of the rural savings deposits applied to rural credit for a year. Most of the funds are offered at subsidized interest (restricted) and a small portion at free interest.	Interest rate: 8.5% Financing limit: R\$3 million for production costs. Beneficiaries: Rural producers and agricultural cooperatives.
Rural Savings – Unrestricted (Poupança Rural - Livre)	R\$2.91 billion	1.92%		Conditions: Freely agreed between the parties. Beneficiaries: Rural producers and agricultural cooperatives.
BNDES/ Finape - Subsidized (BNDES/ Finape - Equalizável)	R\$145.23 million	0.10%	BNDES/ Finape's resources are primarily focused on technological innovation, equipment acquisition, machinery, and projects. In the agricultural year 2016-2017, most of its resources were applied in rural credit programs and only 1% had no link to specific programs, following the rules of the source.	Interest rate: TLP + BNDES fees (2.1%) + Financial Intermediate Rate (0.1%) + Financial agent fee (freely agreed between the parties) Financing limit: 80% of the investment value (micro, small and medium enterprises) and 70% of the investment value (other enterprises). Beneficiaries: Rural producers, companies, entrepreneurs, cooperatives, and other institutions connected to agricultural, forestry production, fisheries, and aquaculture activities.
BNDES – Unrestricted (BNDES Livre)	R\$52.83 million	0.03%	BNDES – Unrestricted are resources offered at unrestricted rates, that is, under free negotiation by the client with the bank.	Conditions: Freely agreed between the parties. Beneficiaries: Rural producers and agricultural cooperatives.
Agricultural Credit Notes (Letra de Crédito do Agronegócio – LCA)	R\$17.01 billion	11.18%	Agricultural Credit Notes is an instrument offered by public or private financial institutions for their clients to invest. Of the total collected, 35% should be applied in rural credit, financing the agricultural sector. These resources are not linked to any program.	Interest rate: 12.75% (LCA at favorable rates) and freely agreed between the parties (LCA at floating rate) Financing limit: Freely agreed between the parties. Beneficiaries: Rural producers and agricultural cooperatives.

Loans Linked to Funding Sources Rules - Continued

SOURCE	CREDIT (2016-2017)	% OF TOTAL CREDIT	DESCRIPTION	CURRENT FINANCING CONDITIONS
Unrestricted Resources (<i>Recursos Livres</i>)	R\$4.34 billion	2.85%	Unrestricted Resources are freely agreed between financial institutions and borrowers. When there is a government direction or subsidy, they are called Unrestricted Resources - Subsidized.	Conditions: Freely agreed between the parties. Beneficiaries: Rural producers and agricultural cooperatives.
Unrestricted Resources - Subsidized (<i>Recursos Livres Equalizáveis</i>)	R\$1.17 billion	0.77%		Conditions: various
External Financing (<i>Captação Externa</i>)	R\$2.38 billion	1.56%	Funding from External Financing comes from foreign financial institutions to be applied to rural credit in Brazil. These resources are not linked to any specific source of credit. Most of these resources (98%) come from Rabobank.	Conditions: various
State Governments (<i>Governos Estaduais</i>)	R\$16.59 million	0.01%	The State Governments resources originate mainly from the state taxes of each Brazilian state. These are resources where financing conditions are agreed to between the agents and have no link to programs. In the agricultural year 2016-2017, only the States of Rio Grande do Sul and Bahia benefited from this source of rural credit.	Conditions: various
Northeastern Constitutional Fund for Financing (<i>Fundo Constitucional de Financiamento do Nordeste - FNE</i>)**	R\$1.86 billion	1.22%	The Constitutional Funds for Financing are resources aiming at the growth and development of Brazil's Northeastern, Midwestern, and Northern regions. The Constitutional Funds consist of 3% of the collection of Taxes on Industrialized Products (IPI) and Income Tax. A portion of these funds is invested in rural credit operations.***	Interest rate: For investment: 6.5%-7.65% (Mini, Small, Small-Medium); 7.25%-8.53% (Medium); 8.5%-10% (Large). For production costs: 7.5%-8.82% (Mini, Small, Small-Medium); 8.75%-10.29% (Medium); 10.5%-12.35% (Large). (See Table 3 for producer's size definition) Financing limit: It varies according to the producers' size and municipality's classification (See Table 2). Beneficiaries: Rural producers and agricultural cooperatives (in areas served by the Northeastern Constitutional Fund).

Loans Linked to Funding Sources Rules - Continued

SOURCE	CREDIT (2016-2017)	% OF TOTAL CREDIT	DESCRIPTION	CURRENT FINANCING CONDITIONS
Midwestern Constitutional Fund for Financing (<i>Fundo Constitucional de Financiamento do Centro- Oeste - FCO</i>)	R\$3.84 billion	2.52%	The Constitutional Funds for Financing are resources aiming at the growth and development of Brazil's Northeastern, Midwestern, and Northern regions. The Constitutional Funds consist of 3% of the collection of Taxes on Industrialized Products (IPI) and Income Tax. A portion of these funds is invested in rural credit operations.***	<p>Interest rate: For investment: 6.5%-7.65% (Mini, Small, Small-Medium) 7.25%-8.53% (Medium) 8.5%-10% (Large). For production costs: 7.5%-8.82% (Mini, Small, Small-Medium) 8.75%-10.29% (Medium) 10.5%-12.35% (Large). (See Table 3 for producers' size definition)</p> <p>Financing limit: It varies according to producers' size and the municipality's classification (See Table 2).</p> <p>Beneficiaries: Rural producers and agricultural cooperatives (in areas served by the Midwestern Constitutional Fund).</p>
Northern Constitutional Fund for Financing (<i>Fundo Constitucional de Financiamento do Norte - FNO</i>)	R\$1.27 billion	0.84%		<p>Interest rate: For investment: 6.5%-7.65% (Mini, Small, Small-Medium) 7.25%-8.53% (Medium) 8.5%-10% (Large). For production costs: 7.5%-8.82% (Mini, Small, Small-Medium) 8.75%-10.29% (Medium) 10.5%-12.35% (Large). (See Table 3 below for producers' size definition)</p> <p>Financing limit: It varies according to the producers' size and the municipality's classification (See Table 2).</p> <p>Beneficiaries: Rural producers and agricultural cooperatives (in areas served by the Northern Constitutional Fund).</p>

* MCR 6.2 refers to Compulsory Resources defined under the rules of the Rural Credit Manual, Chapter 6, Section 2.

** The interest of the Northeastern Constitutional Fund (FNE) refers to FNE Rural since there is variation in rates among the subprograms.

*** The total amount planned for the Northeastern Constitutional Fund in 2017 was R\$26.1 billion, for the Midwestern Constitutional Fund was R\$10.17 billion, and for the Northern Constitutional Fund was R\$4.6 billion. The percentage of each of these funds applied in rural credit (considering both loans linked and not linked to specific programs) was 13.4%, 61.5%, and 43.0%, respectively, in that same year (January to December).

Elaboration: Climate Policy Initiative

Sources: Rural Credit Manual elaborated by the Brazilian Central Bank; Special Secretariat for Family Agriculture and Agrarian Development (SEAD); National Bank for Economic and Social Development (BNDES); Banco do Brasil; Agricultural Plan 2017-2018 (Ministry of Agriculture, Livestock and Supply); Ministry of National Integration; Banco do Nordeste do Brasil; Banco da Amazônia.

When the funding sources are viewed by geographic location, another feature of the rural credit system's complexity can be seen. Figure 2 shows the first, second, and third main funding sources in Brazilian municipalities for the agricultural year 2016-2017. Municipalities are exposed to different credit conditions depending on the resources available. In the South, Southeast, and Midwest, funding sources come primarily from Rural Savings and Compulsory Resources, which are the two sources with the highest available credit amounts nationally (see Figure 1). While the Northern Constitutional Fund and the Northeastern Constitutional Fund make up only a small percentage of the total amount of rural credit available in Brazil (1.1% and 2.4% in 2016-2017, respectively)⁶, these two sources constitute the primary funding sources in Brazil's North and Northeast. There is also a Constitutional Fund for the Midwest, but it is only the third most important credit source for most of the municipalities in the region, since these areas receive a larger influx of funds from the main rural credit sources when compared to the North and Northeast.

These spatial differences in composition of the funding sources are related both to agricultural production and to the distribution channels for rural credit. (Bank branches and cooperatives are highly concentrated in richer areas in Brazil as shown in a previous work conducted by CPI analysts.)⁷ The South, Southeast and Midwest produced 83% of the agricultural gross production value in 2017. The North and the Northeast produced 10% and 7%, respectively. Therefore, financial institutions direct most resources that are not geographically restricted (such as Rural Savings and Compulsory Resources) to the richer regions, where administrative costs tend to be lower (due to the availability of distribution channels) and richer borrowers are located.

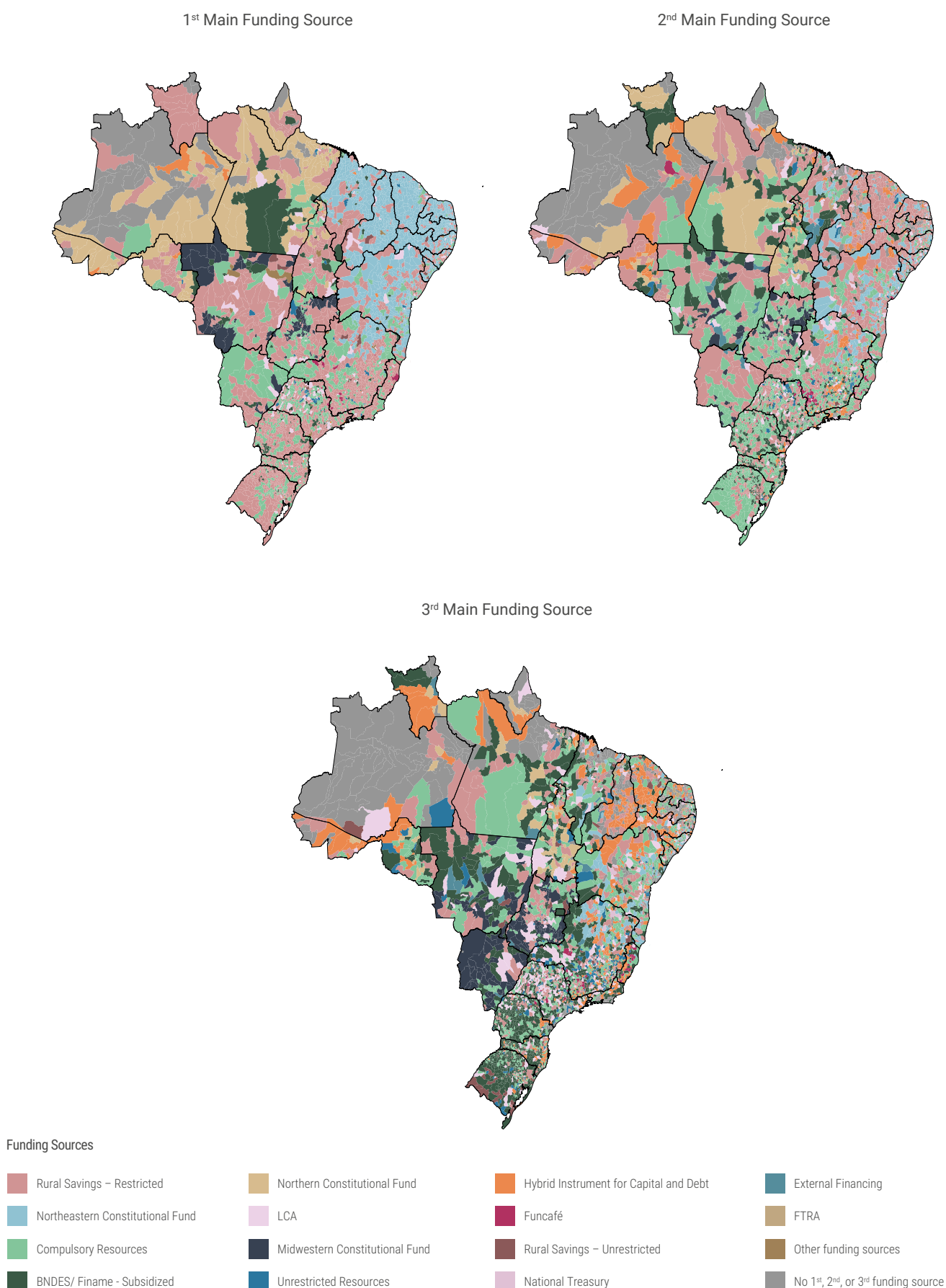
The credit programs and resources available in each area have critical implications for producers. In most cases, loan terms follow the conditions of the funding sources, since they are not linked to specific programs. Figure 3 shows the first, second, and third most important programs per municipality for crop year 2016-2017. Compulsory Resources and Rural Savings (without links to programs) set the main loan conditions in the Midwest, São Paulo, and West of Minas Gerais. PRONAF is the main credit line in the North, Northeast, and parts of the South, where family farming is important. Loans that follow the rules of the Constitutional Funds (not linked to PRONAF or other programs) are also key in the North and Northeast as shown on the map of the second most important program. The absence of a second or a third program in many municipalities in the North and Northeast, indicated by the scattered gray areas in the map, shows that farmers in these areas have more limited options and resources.

Since both funding sources and credit programs have varying loan conditions, similar farmers may have access to remarkably different credit conditions depending on the availability of resources in their areas.

⁶ These percentages include both the resources of the Constitutional Funds that are directed and those that are not directed to rural credit.

⁷ Assunção, Juliano; Souza, Priscila; Figueiredo, Beatriz. 2018. Distribution Channels for Rural Credit: Design of Financial Services Increase Farmer's Uncertainty. Policy Brief. Climate Policy Initiative/ Núcleo de Avaliação de Políticas Climáticas (PUC-Rio). <http://www.inputbrasil.org/publicacoes/canais-de-distribuicao-de-credito-rural/?lang=en>

Figure 2: Primary Funding Sources in Brazilian Municipalities, Agricultural Year 2016-2017



Note: The main funding sources are defined as those that supply the highest total amount of credit in a municipality.

Elaboration: Climate Policy Initiative

Sources: Sistema de Operações do Crédito Rural e do Proagro (SICOR), Central Bank of Brazil

Figure 3: Primary Rural Credit Programs in Brazilian Municipalities, Agricultural Year 2016-2017



Note: The main programs are defined as those that supply the highest total amount of credit in a municipality.

Elaboration: Climate Policy Initiative

Sources: Sistema de Operações do Crédito Rural e do Proagro (SICOR), Central Bank of Brazil

THE FRAGMENTATION OF RURAL CREDIT RULES

In this section, CPI/PUC-Rio analysts discuss three important types of rule fragmentation that leads to distortions in access to credit and financial terms related to:

I. Geographic location

II. Farm size

III. Farm revenue.

These distortions are presented and discussed below.

I. Geographic Discontinuities in Credit Access: the Constitutional Funds

Created to boost economies in need, the Northern Constitutional Fund, the Northeastern Constitutional Fund, and the Midwestern Constitutional Fund aim to finance the development of these regions and are the most important sources for rural credit in many municipalities as seen in Figure 3. Since their resources are restricted to specific regions,⁸ this creates a geographic discontinuity in the availability of credit: producers in municipalities assisted by one of these funds have more credit options than those who fall just outside of the target areas.

The Constitutional Funds also offer better credit terms to qualifying sub-regions (within the assisted regions) based on three classifications established by the Ministry of National Integration:

1. Income – municipalities are classified as low, stagnant, dynamic, and high income.
2. Priority Areas – special regions recognized by the government as presenting poor economic development.
3. Border Regions – municipalities considered strategic because of their importance for the country's economic integration.

8 The Northeastern Constitutional Fund includes some municipalities in the northern part of the Southeast region (see Figure 4).

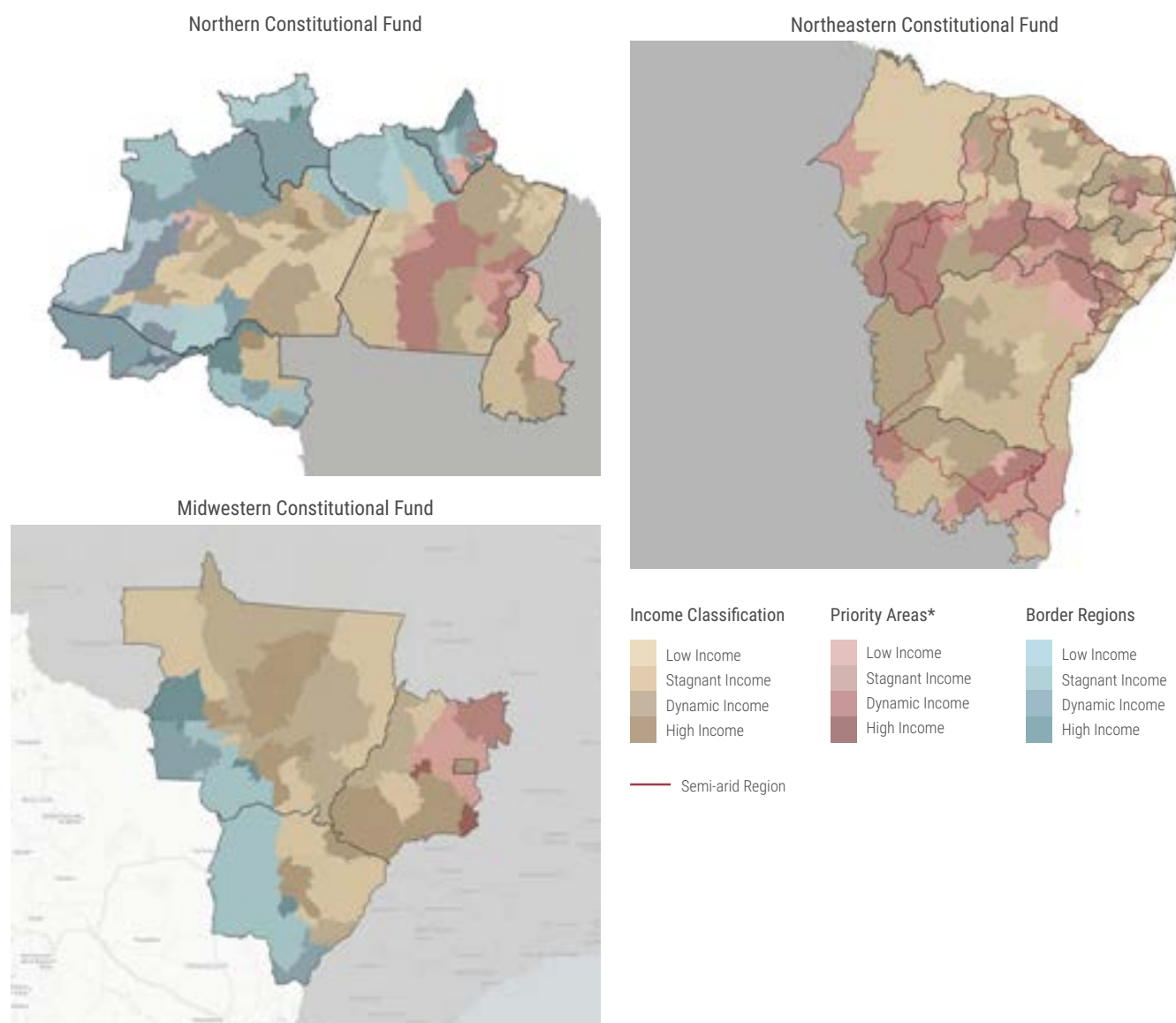
Figure 4 presents the classification of municipalities assisted by the Constitutional Funds. Several municipalities in the North and Midwest fall in the Border Region classification. In the Northeast, Priority Areas and the semi-arid area cover a large extension of the territory.⁹

The financial limits set for farmers depend on the classification of their municipality and on their farm's size (see Table 2). For example, micro and small producers in Priority Areas or Low-Income areas in the Northeast have loan limits of R\$270,000 to cover production costs and commercialization, which is 35% higher than the limit for producers of the same size in other municipalities of this same region. As another example, a large producer in a high-income municipality in the Border Region of the Midwest can borrow 90% of their investment costs, while the limit is 70% for larger producers in other high-income municipalities of the Midwest.

Therefore, producers from neighboring municipalities are subject to different credit limits. This creates another layer of geographical discontinuity located within the Constitutional Funds' assisted regions. In this sense, Constitutional Funds' geographical criteria are generating kinks in credit availability and financial terms among producers.

⁹ The area of the Northeast with a semi-arid climate also benefits from special terms for rural credit loans.

Figure 4: Constitutional Funds Classification of Municipalities by Type of Income



* For the North, the following sub-regions, defined by the Ministry of National Integration, are marked in red: Alto Solimões, Bico do Papagaio, Chapada das Mangabeiras and Xingu. The area of Amapá state that is not part of the border region is also marked in red. Amapá, Acre and Roraima are defined as states with lower economic dynamism and, therefore, their municipalities have favorable loan conditions. Other differentiated sub-regions are inside the border region and, hence, are marked in blue. In the Northeast, all differentiated sub-regions are marked in red: Águas Emendadas, Bico do Papagaio, Chapada das Mangabeiras, Chapada do Araripe, Seridó, Vale do Jequitinhonha/Mucuri and Xingó. The Grande Teresina-Timon and Petrolina-Juazeiro Integrated Regions for Development are also red. The semi-arid region in the Northeast is surrounded by a red line (it includes, either entirely or partially, some of the cited sub-regions). In the Midwest, the Águas Emendadas sub-region is shown in red. However, after 2017, changes were made in the spatial priorities of the Constitutional Funds, eliminating the differentiated sub-regions as priorities. From this year on, priorities were restricted to the states considered to have lower economic dynamism (Acre, Amapá and Roraima in the Northern region), the semi-arid region in the Northeast and the Grande Teresina-Timon and Petrolina-Juazeiro Integrated Regions for Development also in the Northeast. All of those areas were already considered as priorities in previous years.

Note: For the Northeastern Constitutional Fund, the semi-arid region (within the red line) offers the same financial limits as Priority Areas. Because the region covers part of other priority areas, it has been drawn separately from the others in Figure 4.

Elaboration: Climate Policy Initiative

Sources: Banco da Amazônia's Plan for the Application of Resources for 2017, Banco do Nordeste's Regional Programming FNE 2017, Sudeco's Programming FCO 2017 and Ministry of National Integration.

Table 2: Loan Conditions for the Constitutional Funds by Region, Loan Destination, and Producer Size

Financing conditions		Constitutional Funds for Financing												
		Northeast*					North							
		Midwest												
		Semi-arid region; sub-regions defined by the Ministry of National Integration; Forest operations; Financing for science, technology, and innovation projects		Low income, stagnant, dynamic		High income		Border regions; sub-regions defined by the Ministry of National Integration; Forest operations; Financing operations for science, technology, and innovation projects		Low income, stagnant, dynamic		High income		
Financial limit in fixed investment		Mini/Micro	100%		100%		100%		100%		100%		100%	
		Small												
		Small-Medium			95%		90%				95%		90%	
		Medium	95%		85%		80%		95%		90%		85%	
		Large	90%		80%		70%		90%		80%		70%	
		Semi-arid region; sub-regions defined by the Ministry of National Integration and low income municipalities		Other locations		Low income; States of Acre, Amapá and Roraima; Border regions and sub-regions defined by the Ministry of National Integration		Other locations						
Limit for production costs and/or commercialization (not associated to investments) (R\$1.00)		Mini/Micro	270.000		200.000		235.000		175.000					
		Small	2.3 million		1.7 million		2 million		1.5 million					
		Small-Medium	10 million		7.8 million		9 million		7 million					
		Medium	25 million		19 million		13.5 million		10.5 million					
		Large	30 million		24 million									

* For the Northeastern Constitutional Fund for Financing, CPI analysts consider the Working Capital Financing Limits.

Note: The classification of mini/micro to large-sized producer is made according to the Gross Income of Agriculture in the three regions, which are defined by the National Monetary Council and by the Ministry of National Integration. Numbers in the table refer to 2017. However, there were changes in the 2017 spatial priorities compared to previous years: the sub-regions defined by the Ministry of National Integration are no longer spatial priorities of the Constitutional Funds. Thus, the differentiation of financing conditions based on this criterion ceased.

Elaboration: Climate Policy Initiative

Sources: Banco da Amazônia's Plan for the Application of Resources for 2017, Banco do Nordeste's Regional Programming FNE 2017, and Sudeco's Programming FCO 2017.

II. Farm Size Criteria in PRONAF and the ABC Program

PRONAF and ABC, which are important rural credit programs as described in Table 1 and Figure 1 above, have specific conditions depending on farm size measured in fiscal modules. Fiscal modules are a unit of area created by the National Institute of Colonization and Land Reform (*Instituto Nacional de Colonização e Reforma Agrária* - INCRA) in the 1980s that has remained unchanged. A fiscal module is defined as the minimum area where agricultural activity can provide, in each municipality, subsistence and social and economic progress to families who invest all their workforce in it. The size varies from five hectares to 110 hectares, according to the most prevalent land uses in each place.¹⁰

Figure 5 shows that fiscal modules are smaller in capitals and coastal municipalities. Almost 40 years after the definition of the size of the fiscal module was created for each Brazilian municipality, technologies and infrastructure have improved, increasing the productivity of lands that used to be considered infertile. Even though the fiscal modules did not incorporate important changes in Brazilian agriculture in the last decades, they still determine eligibility for important rural credit resources. Therefore, the gap between this outdated definition of fiscal modules and the policies based on the definition can lead to distortions in credit access.

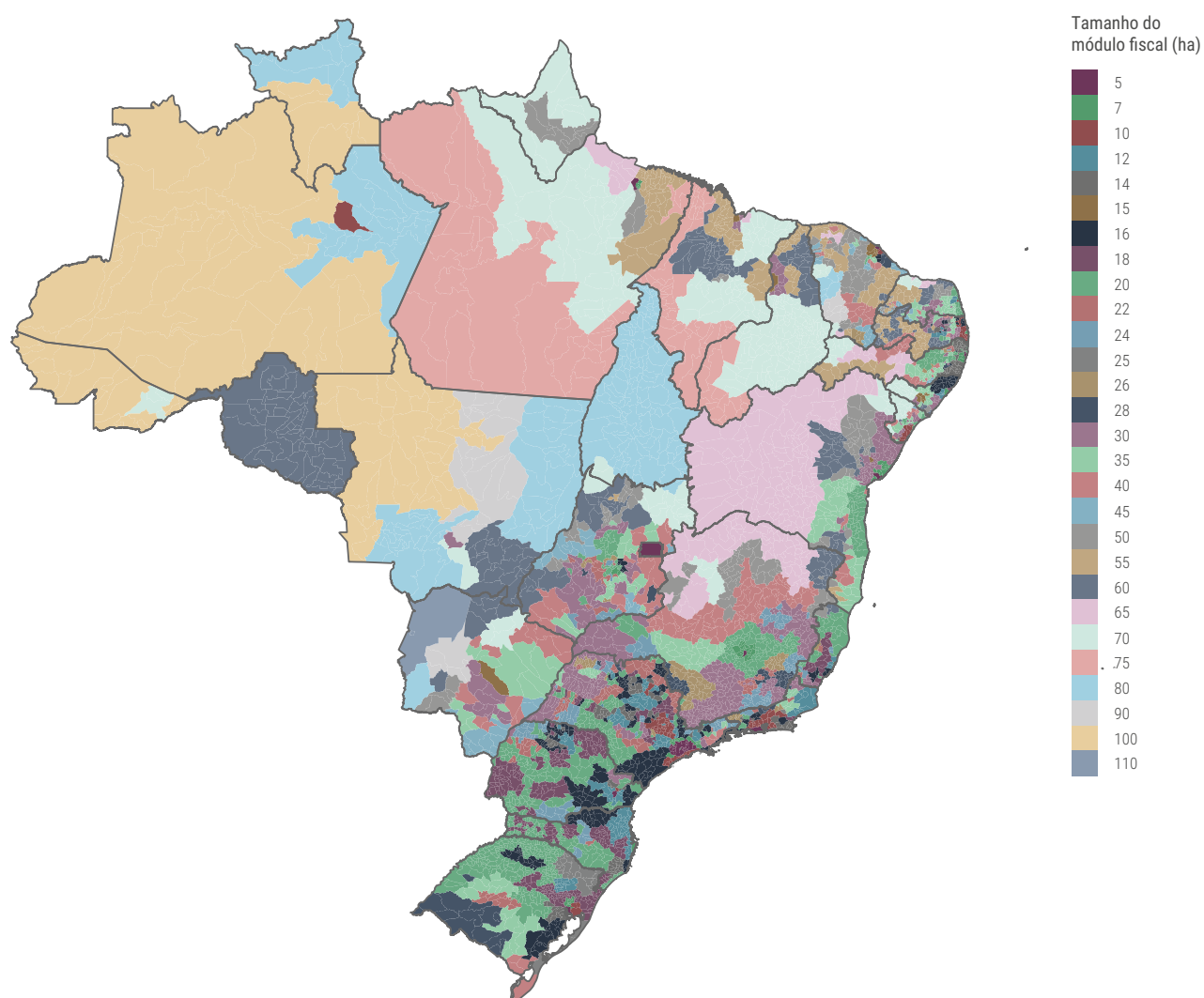
For example, the Brazilian Cerrado biome is characterized by soils that require intensive investments in fertilization, which were unprofitable until recent decades. Fertilizers and other technologies have since allowed agriculture to expand into this biome. Currently, while the region is distinguished by its important grain production, the fiscal module measures remain the same as those defined in the 1980s, characterizing these lands as having low agricultural productivity.

Figure 5 also shows a significant variation in fiscal modules' sizes inside states and regions. Several neighbor and nearby municipalities have considerably different fiscal module sizes. For instance, one fiscal module in the municipalities of Capão do Leão or in Pedro Osório (in the State of Rio Grande do Sul) corresponds to 16 hectares. These two municipalities share a large border with Arroio Grande, which has a fiscal module of 40 hectares. Even more extreme is the case of Manaus (in the State of Amazonas), where the fiscal module consists of 10 hectares, while some of its adjacent municipalities have fiscal modules of 80 hectares and 100 hectares.

The impact of these variations on credit access is substantial. PRONAF aims to channel resources to family farmers and land reform settlements. Producers are eligible for PRONAF only when they have a maximum of four fiscal modules of land, contiguous or not. In this context, farmers who live in neighboring municipalities and have the same amount of land

¹⁰ The calculation of a fiscal module considers (a) the prevalent type of land exploration in the municipality (fruit, vegetables and animal production, permanent crop, temporary crop, livestock, or forestry); (b) the income obtained from the prevalent exploration; (c) other existing types of production in the municipality that, although not predominant, are significant in terms of income or area used; and (d) the concept of "family ownership," defined by Brazilian law 4,504/64.

Figure 5: Fiscal Module per Municipality



Elaboration: Climate Policy Initiative

Source: Instituto Nacional de Colonização e Reforma Agrária (INCRA)

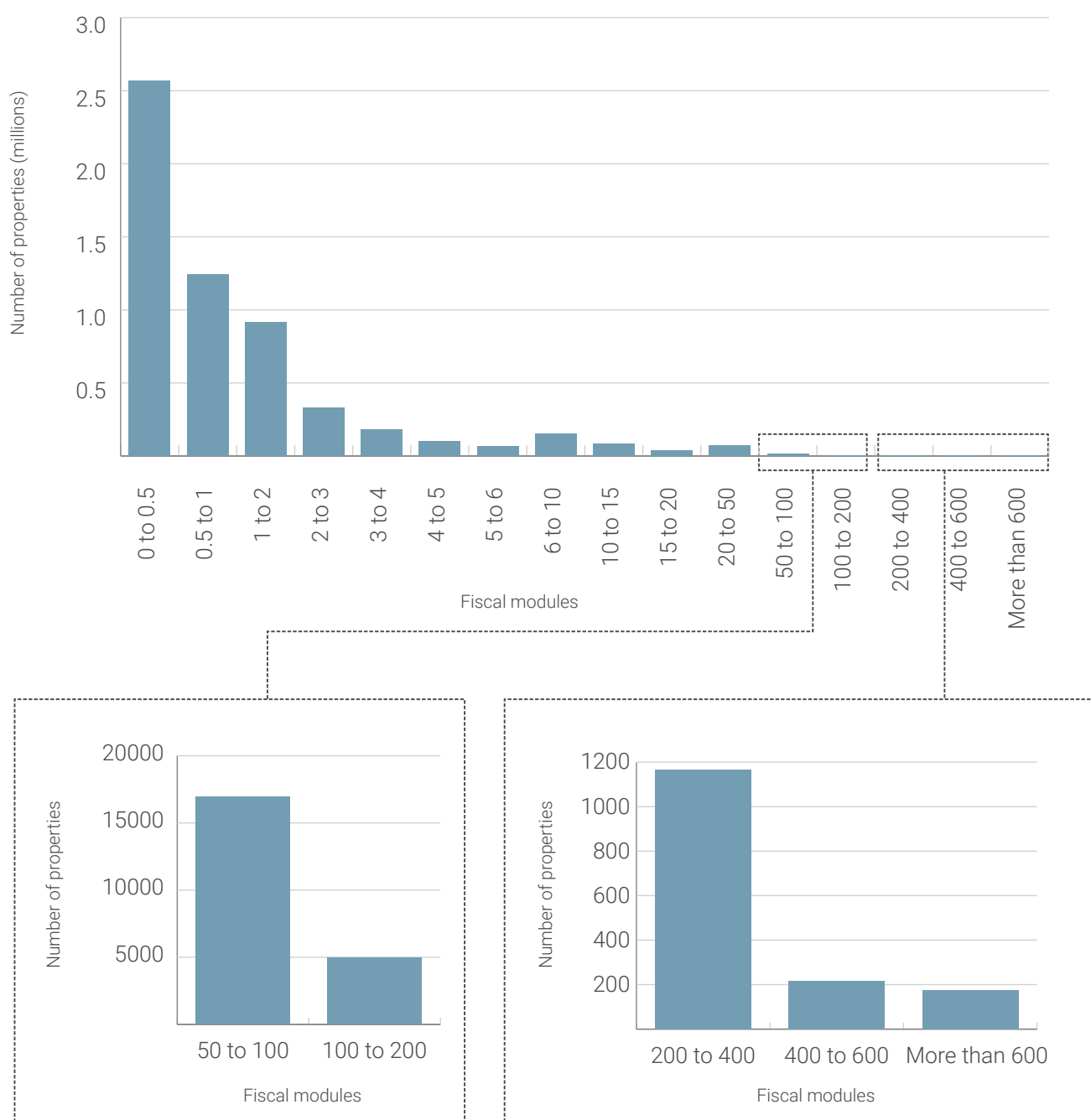
have a different classification in terms of size: one can be a family farmer, while the other may be considered the owner of a medium or even a large property.¹¹

Figure 6 shows that 91% of farms in Brazil have fewer than four fiscal modules even though their areas comprise 29% of farming land. In the agricultural year 2016-2017, the 1.3 million PRONAF contracts corresponded to 71% of the total number of rural credit contracts and to 14% of rural credit volume. **Since PRONAF uses farm size to define its recipients, variations in the outdated fiscal module sizes among municipalities determine access to the main credit line for the majority of farmers in Brazil.**

11 Using fiscal module criteria, properties' size is determined as follows: a) Smallholding – rural properties with area less than one fiscal module; b) Small property – rural properties with area greater than or equal to one and less than or equal to four fiscal modules; c) Medium property – rural properties with area greater than four and less than or equal to 15 fiscal modules; d) Large property – rural properties with area greater than 15 fiscal modules.

The ABC program, which supports investments aimed to improve the take-up of low-carbon agricultural practices and to reduce the environmental impact of agricultural activity, also uses fiscal modules as criteria for credit provision. Each recipient can borrow up to R\$2.2 million from the program, except when they are financing the planting of commercial forests. In that case, the limit raises to R\$3 million, for producers who own up to 15 fiscal modules, and to R\$5 million, for producers with more than 15 fiscal modules.

Figure 6: Total Number of Rural Properties by Fiscal Module



Elaboration: Climate Policy Initiative

Source: Sistema Nacional de Cadastro Rural, Instituto Nacional de Colonização e Reforma Agrária (INCRA), INCRA

III. Farm Revenue Criteria in PRONAMP and the Constitutional Funds

Farm revenue also determines rural credit access and conditions in two cases: 1) PRONAMP, which offers favorable conditions for medium-size producers, defines a revenue limit for its recipients; and 2) the three Constitutional Funds offers different financial terms based on a producer's revenue.

The maximum revenue under which a producer classifies as medium size for PRONAMP's purposes increased significantly from R\$500,000 to R\$1.76 million from agricultural year 2010-2011 to agricultural year 2016-2017. In a particularly drastic year, the eligibility limit doubled from the agricultural year 2012-2013 to the agricultural year 2013-2014 (from R\$800,000 to R\$1.6 million). This means that the eligible beneficiaries of the programs shifted significantly, too.

For the Constitutional Funds, Table 2 shows that credit conditions change substantially with farm size, as defined by the annual gross agricultural revenue. As in the case of PRONAMP, the definition of farm size for the Constitutional Funds' rules also changed substantially (see Table 3). In 2001, farmers with revenues between R\$40,000 and R\$80,000 were classified as small, and those with revenues between R\$80,000 and R\$500,000 were considered medium. In 2011, a new category was created: the small-medium properties. The small-medium properties were given access to financial terms similar to those offered to small farmers. Furthermore, the definitions of farm size changed considerably from 2010 to 2011. In 2010, medium producers were those in the R\$300,000 - R\$1.9 million revenue range, and large producers were those with more than R\$1.9 million. In 2011, the revenue ranges jumped: small-medium properties were designated as those with annual revenue between R\$2.4 million and R\$16 million and medium properties as those from R\$16 million up to R\$90 million. These alterations meant that many producers who were previously classified as medium or large started having access to more favorable financial terms.

For instance, producers with revenue of R\$2 million who applied for the Midwestern Constitutional Fund's resources in 2010 would have been classified as large. In the following year, assuming that their revenue remained the same, these producers would have been defined as small, meaning that they would now have access to more favorable interest rates and credit limits.

These facts suggest that the eligibility criteria for rural credit programs may be used as a political instrument to favor specific groups of producers. Therefore, political gamesmanship can add to the distortions in rural credit access.

Table 3: Classification of Rural Property Size in the Constitutional Funds for Financing, 2001-2016

Year	Farm Size				
	Mini	Small	Small - Medium	Medium	Large
2001	< R\$40,000	R\$40,000 - 80,000	-	R\$80,000 - 500,000	> R\$500,000
2002	< R\$40,000	R\$40,000 - 80,000	-	R\$80,000 - 500,000	> R\$500,000
2003	< R\$80,000	R\$80,000 - 160,000	-	R\$160,000 - 1 million	> R\$1 million
2004	< R\$80,000	R\$80,000 - 160,000	-	R\$160,000 - 1 million	> R\$1 million
2005	< R\$80,000	R\$80,000 - 160,000	-	R\$160,000 - 1 million	> R\$1 million
2006	< R\$80,000	R\$80,000 - 160,000	-	R\$160,000 - 1 million	> R\$1 million
2007	< R\$110,000	R\$110,000 - 220,000	-	R\$220,000 - 1.4 million	> R\$1.4 million
2008	< R\$150,000	R\$150,000 - 300,000	-	R\$300,000 - 1.9 million	> R\$1.9 million
2009	< R\$150,000	R\$150,000 - 300,000	-	R\$300,000 - 1.9 million	> R\$1.9 million
2010	< R\$150,000	R\$150,000 - 300,000	-	R\$300,000 - 1.9 million	> R\$1.9 million
2011	< R\$240,000	R\$240,000 - 2.4 million	R\$2.4 - 16 million	R\$16 - 90 million	> R\$90 million
2012	< R\$360,000	R\$360,000 - 3.6 million	R\$3.6 - 16 million	R\$16 - 90 million	> R\$90 million
2013	< R\$360,000	R\$360,000 - 3.6 million	R\$3.6 - 16 million	R\$16 - 90 million	> R\$90 million
2014	< R\$360,000	R\$360,000 - 3.6 million	R\$3.6 - 16 million	R\$16 - 90 million	> R\$90 million
2015	< R\$360,000	R\$360,000 - 3.6 million	R\$3.6 - 16 million	R\$16 - 90 million	> R\$90 million
2016	< R\$360,000	R\$360,000 - 3.6 million	R\$3.6 - 16 million	R\$16 - 90 million	> R\$90 million

Note: The table considers the gross annual agricultural income from all agricultural activities and products.

Elaboration: Climate Policy Initiative

Source: Implementation Plans for the Constitutional Funds for Financing, 2001-2016

CONCLUSION

The multiplicity of funding sources and programs for rural credit, coupled with a complex set of eligibility criteria and financial conditions in each credit line, make it hard for both producers and local lenders to pin down which loan contract is the most suitable for producers in each case. This brief identifies the sharp variations in rules based on geographic criteria, farm size, and revenue and points out numerous situations in which similar farmers have different credit access and loan conditions. This complexity creates obstacles to transparency and monitoring, opening space for rural credit to be used in political maneuvering.

Consequently, the fragmentation of rules creates distortions in access to credit and financial terms, unrelated to producers' needs and skills. Furthermore, significant variation in credit rules from one agricultural year to the next adds to farmers' uncertainty and potentially leads to underinvestment and lower agricultural productivity.

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