Could the fight against poverty contribute to stop deforestation in Brazil?

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1. Results

Reducing poverty and increasing formal job availability has the potential to reduce deforestation.

Brazil
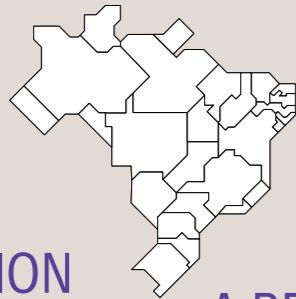
A REDUCTION OF 1%

of people living in a situation of **EXTREME POVERTY**

or

136

THOUSAND PEOPLE LIVING IN SUCH A CONDITION

has the potential to reduce deforestation by

↘**4**%

equivalent to

42.7

THOUSAND HECTARES.

A REDUCTION OF 1%

of people living in a situation of **POVERTY**

or

304

THOUSAND PEOPLE LIVING IN SUCH A CONDITION

has the potential to reduce deforestation by

↘**2.7**%

equivalent to

29

THOUSAND HECTARES.

AN INCREASE OF 1% IN FORMAL JOBS

in all Brazilian municipalities, which means over

462

THOUSAND DULY EMPLOYED PEOPLE

has the potential to reduce deforestation by

↘**8.2**%

equivalent to

87.6

THOUSAND HECTARES.

Note: Results are similar for all Brazilian municipalities and were calculated based on data from the year 2019.

Legal Amazon
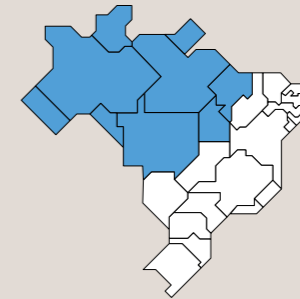
A REDUCTION OF 1%

of people living in a situation of **EXTREME POVERTY**

or

35

THOUSAND PEOPLE

has the potential to reduce deforestation by

↘**3.3**%

equivalent to

27

THOUSAND HECTARES.

A REDUCTION OF 1%

of people living in a situation of **POVERTY**

or

74

THOUSAND PEOPLE

has the potential to reduce deforestation by

↘**2.3**%

equivalent to

18.7

THOUSAND HECTARES.

AN INCREASE OF 1% IN FORMAL JOBS

in all municipalities of the Legal Amazon

or

42

THOUSAND DULY EMPLOYED PEOPLE

has the potential to reduce deforestation by

↘**8.4**%

equivalent to

67.2

THOUSAND HECTARES.

Note: Results are similar for all municipalities in the Legal Amazon and were calculated based on data from the year 2019.

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2.
Introduction

FOLHA DE S.PAULO
★ ★ ★

economia › inss dólar, bolsa e empresas bitcoin investimentos mpme imóveis esg

FÓRUM ECONÔMICO MUNDIAL

Pessoas destroem o meio ambiente porque precisam comer, diz Guedes em Davos

Fórum Econômico Mundial vê custo econômico em aquecimento global; para Trump, há alarmismo

Luciana Coelho
Alexa Salomão

DAVOS Sem o presidente Jair Bolsonaro em campo, o Brasil decidiu jogar na defensiva no Fórum Econômico Mundial em Davos. Diante da escolha da proteção do ambiente como eixo do encontro deste ano, a delegação do país se viu levada a responder —mesmo quando não foi diretamente questionada— sobre as ações do governo para a área, na tentativa de preservar as credenciais do país diante de investidores preocupados com o aquecimento global.

O ministro Paulo Guedes (Economia) respondeu a uma pergunta sobre como os governos deveriam agir diante do temor quanto aos danos ambientais com uma ressalva: "O maior inimigo do ambiente é a pobreza", disse, apontando que o Brasil precisava arrumar outras coisas antes de pensar nisso.

O ministro da Economia Paulo Guedes - Walter Duerst/Fórum Econômico Mundial

"PEOPLE DESTROY THE ENVIRONMENT BECAUSE THEY NEED TO EAT" (Paulo Guedes, former Minister of Economy - World Economic Forum in Davos in January 2020).

The idea that the poorest people clear the forest to survive, has several times been stated by Brazilian authorities in the sense that, by blaming the poor people, authorizes and legitimizes deforestation – which, in 2021, reached 16,557 km2 in all Brazilian biomes, representing a 20% increase over 2020. The Amazon biome alone was responsible for 59% of the country's deforested area in 2021[1].

However, the statement does not consider that many diverse individuals and groups are promoting slashing of the native vegetation, whether legally or not. But this mist enshrouding the theme should not hinder analysis of the relationship between poverty and deforestation in Brazil, which offers precious data regarding the set of actions necessary to combat deforestation.

Investigating whether economic deprivation could impact deforestation is not the same as blaming the poor. Many studies have already been conducted in this sense. Some of them identified that there is no univocal relationship between poverty and deforestation. In some cases, the lack of financial resources leads to the protection of forests, since these populations organize themselves based on economies without direct access to major consumer markets[2].

1
MAPBIOMAS. Annual Deforestation Report 2021 - São Paulo, Brasil. MapBiomas, 2022.

2
WUNDER, S. Poverty Alleviation and Tropical Forests – What Scope for Synergies? World Development, v. 29, n. 11, p. 1817-33, nov. 2001.

In 2020 and 2021, deforestation increased in the country by

20%

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Other studies concluded that poverty can be a determinant of deforestation, but only in specific contextual situations, where capital assets justify exploiting natural resources, promoting pro-deforestation policies, land speculation, and lack of property regulation[3]. The same occurs when there is a conjunction of high poverty rates, high agricultural remuneration, and high forest stock[4]. In Brazil, some studies concluded that the relationship between poverty and deforestation varies depending on the timeframe considered[5].

This study by Instituto Escolhas resumes the issue and allows, for the first time in Brazilian context, to study deforestation in its relation with forms of economic deprivation in an expanded geographic scale, encompassing the entire national territory with annual statistical data (2012-2019).

Considering that Brazil faces the challenge to combat poverty, to ensure conservation of the biodiversity and mitigate the effects from climate change, this study investigates whether social policies may generate indirect benefits for the environment by displacing workers toward economic activities not related with deforestation.

To which extent is deforestation impacted by changes in the number of people in a situation of poverty and extreme poverty and variations in the number of participants in the formal labor market in Brazil?

3
GEIST, H.; LAMBIN, E. Is Poverty the Cause of Tropical Deforestation? The International Forestry Review, v. 5, n. 1, p. 64-7, 2003.

4
MIYAMOTO, M. et al. Proximate and Underlying Causes of Forest Cover Change in Peninsular Malaysia. Forest Policy and Economics, v. 44, p. 18-25, jul. 2014.

5
DINIZ, M. B. et al. Dinâmica de curto prazo do desmatamento da Amazônia Legal: análise do papel das políticas públicas no período de 2000 a 2010. Economia Aplicada, v. 22, n. 4, p. 177-206, 1º dez. 2018.
DE BARROS, Pedro Henrique Batista; STEGE, Alysson Luiz. Deforestation and human development in the Brazilian agricultural frontier: an environmental Kuznets curve for MATOPIBA. Revista Brasileira de Estudos Regionais e Urbanos, v. 13, n. 2, p. 161-182, 2019.
DE CARVALHO, Abner Vilhena et al. Análise do Programa Bolsa Verde na Amazônia Legal sob a hipótese da Curva de Kuznets Ambiental. Revista Ciências Da Sociedade, v. 4, n. 7, p. 69-89, 2020.
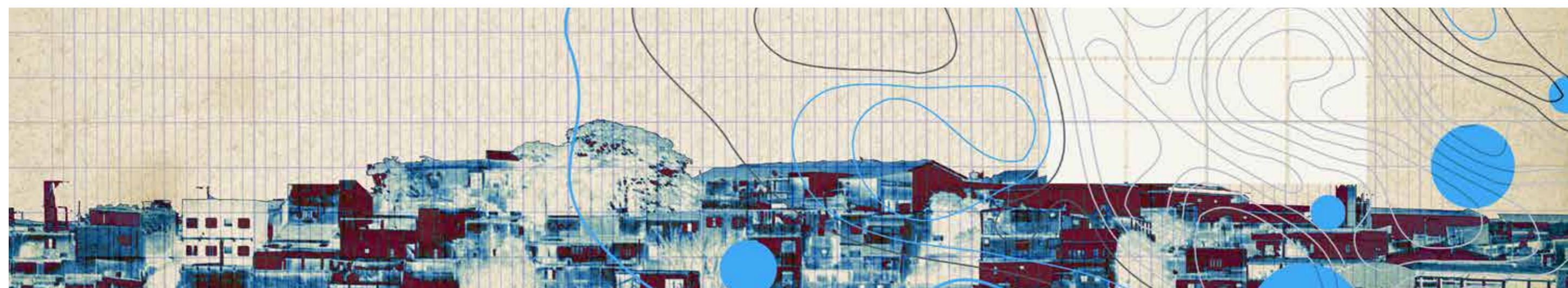
THE STUDY

The assumption that a reduction in quality and/or expansion of formal labor availability would entail a reduction in deforestation, by expanding opportunities for people to work in less unhealthy activities, was the basis of the study.

In order to test this hypothesis, an economic model was used[6] based on labor data from the municipalities in the period 2012 to 2019.

A. **Extreme poverty:** Family income under BRL 70.00 per individual (June/2011).

B. **Poverty:** Family income under BRL 140.00 per individual (June/2011).

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3.
The Study

The assumption that a reduction in quality and/or expansion of formal labor availability would entail a reduction in deforestation, by expanding opportunities for people to work in less unhealthy activities, was the basis of the study.

In order to test this hypothesis, an economic model was used[6] based on labor data from the municipalities in the period 2012 to 2019.

Variable	Explanation	Data Source
Deforested area	Observed variable, by the total extension of deforestation in km² per municipality, taking into account its effects to neighboring municipalities.	
Forest stock	Variable used to make a compensation for municipalities with low forest remnant values. Municipalities with higher forest stocks tend to deforest for longer periods.	MapBiomas (1988-2019)
Poverty indicators	Poverty and formal employment (in % of the municipal population) are the main variables applied in the model.	Ministry of Citizenship/ Cadunico (2012-2019) IBGE/ PNADc (2001-2019)
Workers in formal Labor Market	Poverty and formal employment (in % of the population of the municipality) are the main variables used in the model. More workers in informal labor may increase the chance for the individuals to work in activities related to deforestation.	RAIS/CAGED (2012-2019)
Infrastructure	Construction of new roads may increase the chance for deforestation in areas remote until then.	DNIT (2013; 2015; 2016; 2017; 2018; 2019)
Population	The population can exert pressures for a change in land use and expansion of activities.	IBGE (2012-2019)
Area of the Municipality	Larger municipalities may have higher total deforestation rates.	IBGE (2020)
Commodity Prices	This variable interferes in the expectation of financial return from deforested land.	SEAB (2012-2019)
Rainfall	This variable may cart technical difficulties to conduct deforestation.	CHIRPS (1981-2020)
Inspection and Fines	State performance in policing and fighting illegal deforestation interferes with deforestation.	Ibama (2012-2019)

[6]
A linear regression model with panel data and controls for permanent effects during time was used. To learn more about the method, please access the full report of the study here.

Cadunico – Federal Government Single Registrar of poor People. CAGED – General Registry of Employed and Unemployed Workers. CHIRPS – Climate Hazards Group InfraRed Precipitation with Station data. DNIT – National Infrastructure Department. Ibama – Brazilian Institute of the Environment and Natural Renewable Resources. IBGE - Brazilian Institute of Geography and Statistics. PNAD – National Household Sampling Survey. RAIS – Yearly Social Information Report. SEAB – Secretariat of Agriculture and Supply.

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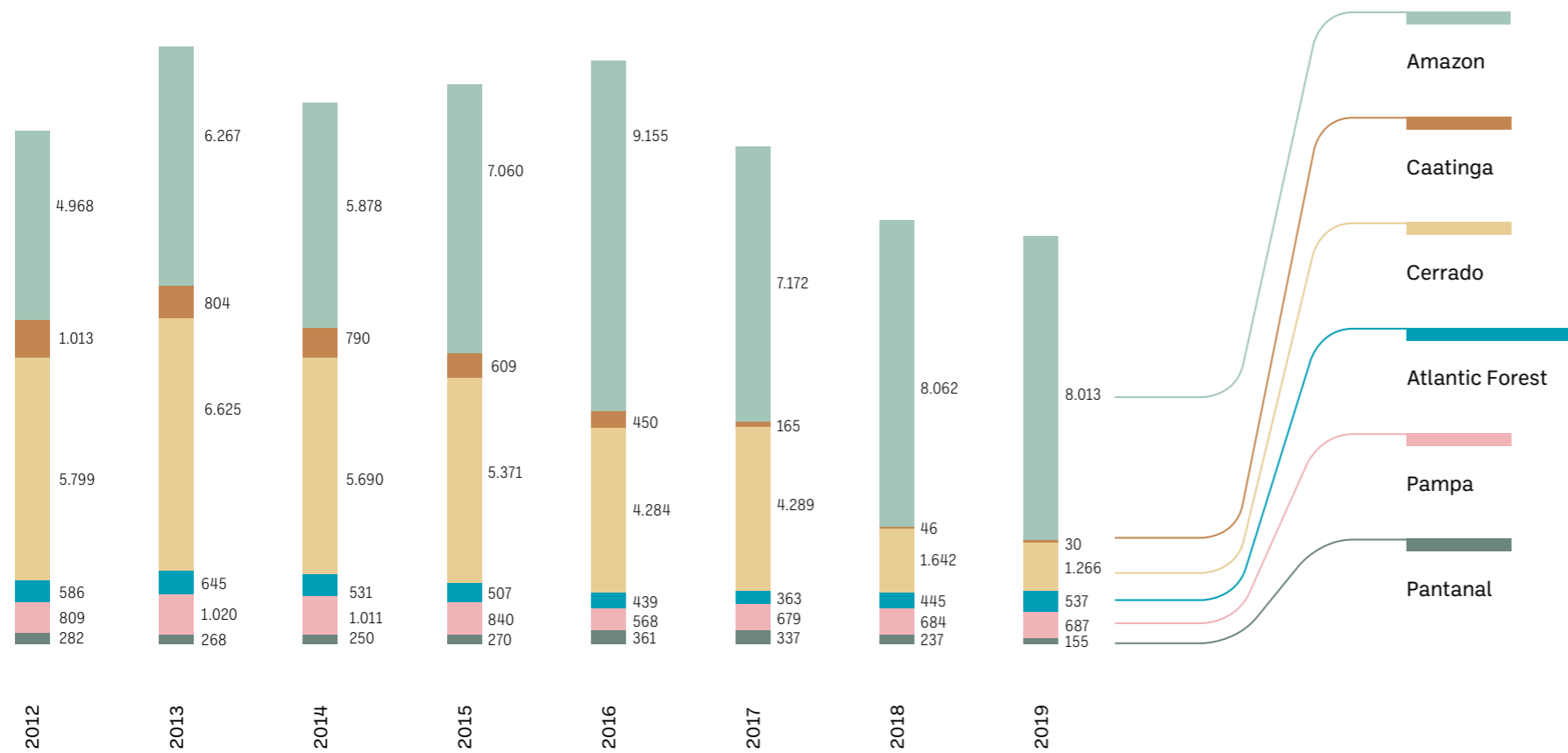
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4.
Deforestation

Sawmill on the banks of an
Amazon River.
Photo: 123mn

Collected data surveys shows that
besides in the Amazon, deforestation
of the Pampa and Cerrado biomes
also deserves attention. In the
analyzed period, deforestation in the
Amazon biome accelerated, while it
decreased in the remaining biomes.
There was, therefore, a replacement
effect between the Amazon and other
regions, with highlight for the Cerrado,
where the annual deforestation volume
dropped from approximately 6,000
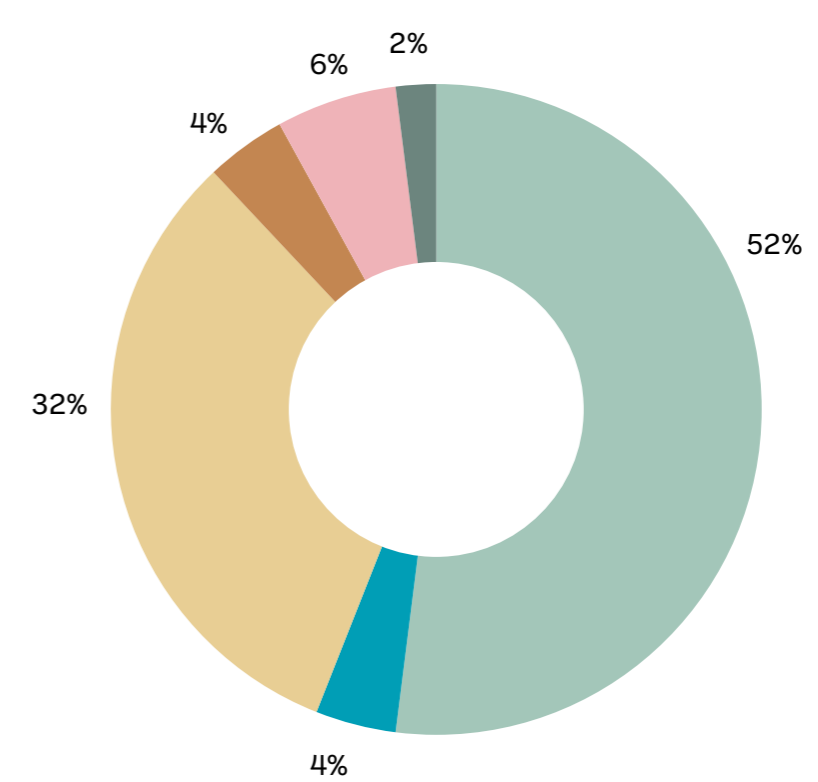km² to approximately 2,000 km² in the
analyzed timeframe[7].

7
It is relevant to highlight that,
in recent years, beyond the
period analyzed for this study
(2012-2019), the Cerrado
biome recorded an increase of
deforestation: 20.2% in 2021
over the previous year (2020),
according to the MapBiomas'
Annual Deforestation Report.

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Deforestation of primary vegetation in Brazil (Km²)

Biome
Amazon
Caatinga
Cerrado
Atlantic Forest
Pampa
Pantanal

2012: 4.968 / 1.013 / 5.799 / 586 / 809 / 282
2013: 6.267 / 804 / 6.625 / 645 / 1.020 / 268
2014: 5.878 / 790 / 5.690 / 531 / 1.011 / 250
2015: 7.060 / 609 / 5.371 / 507 / 840 / 270
2016: 9.155 / 450 / 4.284 / 439 / 568 / 361
2017: 7.172 / 165 / 4.289 / 363 / 679 / 337
2018: 8.062 / 46 / 1.642 / 445 / 684 / 237
2019: 8.013 / 30 / 1.266 / 537 / 687 / 155

Evolution with historical average by type of biome (%)

2% · 6% · 4% · 52% · 32% · 4%

Source:
MapBiomas
File 6 (2022).

In the Pampa and Cerrado, the suppression of vegetation computed by MapBiomas is impressive when compared to the remnant native vegetation. Despite representing only 2% of the native vegetation area of Brazilian biomes, the Pampa accumulated 6% of the total deforestation from 2012 to 2019. The Cerrado, on the other hand, which represents 19% of the native vegetation of Brazilian biomes, reached 32% of the total accumulated deforestation between 2012 and 2019.

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Representativeness of each Brazilian biome in the territory and accrued deforestation (2012-2019)

Biome	(A) Remnant Vegetation (%)	(B) Portion of deforestation 2012-2019 (%)	B/A
Amazon	61	52	0,85
Cerrado	19	32	1,68
Pampa	2	6	3,00
Caatinga	9	4	0,44
Atlantic Forest	6	4	0,66
Pantanal	2	2	1,00

Source: MapBiomas File 6 (2022).

Deforestation area
for agricultural tillage
in the Amazon.
Photo: João Ramid
Brarymi
Borges

Stilt house in
Amazonas River.
Photo: Alessandro
Zappalorto

The allocation by land tenure typology showed that, in the period from 2012 to 2019, private properties accounted for 77% (86,650 km²) of the entire deforestation area observed in the country in that period (108,032 km²). Within this category, large private properties (44.4%) were responsible for the highest deforestation, followed by medium (14.6%) and small properties (23.3%). However, medium and small properties had proportionally higher deforestation if we consider their remaining vegetation area (graph below).

The remaining land categories accounted for 34% (37,193 km²) of the accrued deforestation in Brazil in the period 2012 to 2019. Among these land tenure categories, rural settlements presented the highest deforestation (38.4%) followed by areas without property tenure (31.8%). Rural settlements are also those that presented a proportionally greater deforestation in relation to the area of their remaining vegetation (only 6.9% of the total of non-private landholding categories). Indigenous Lands and Conservation Units registered an inverse situation: less deforestation compared to the remaining categories. See the graph below.

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Proportion of deforestation of the native vegetation compared to the proportion of remaining vegetation on private properties – accrued from 2012 to 2019, Brazil
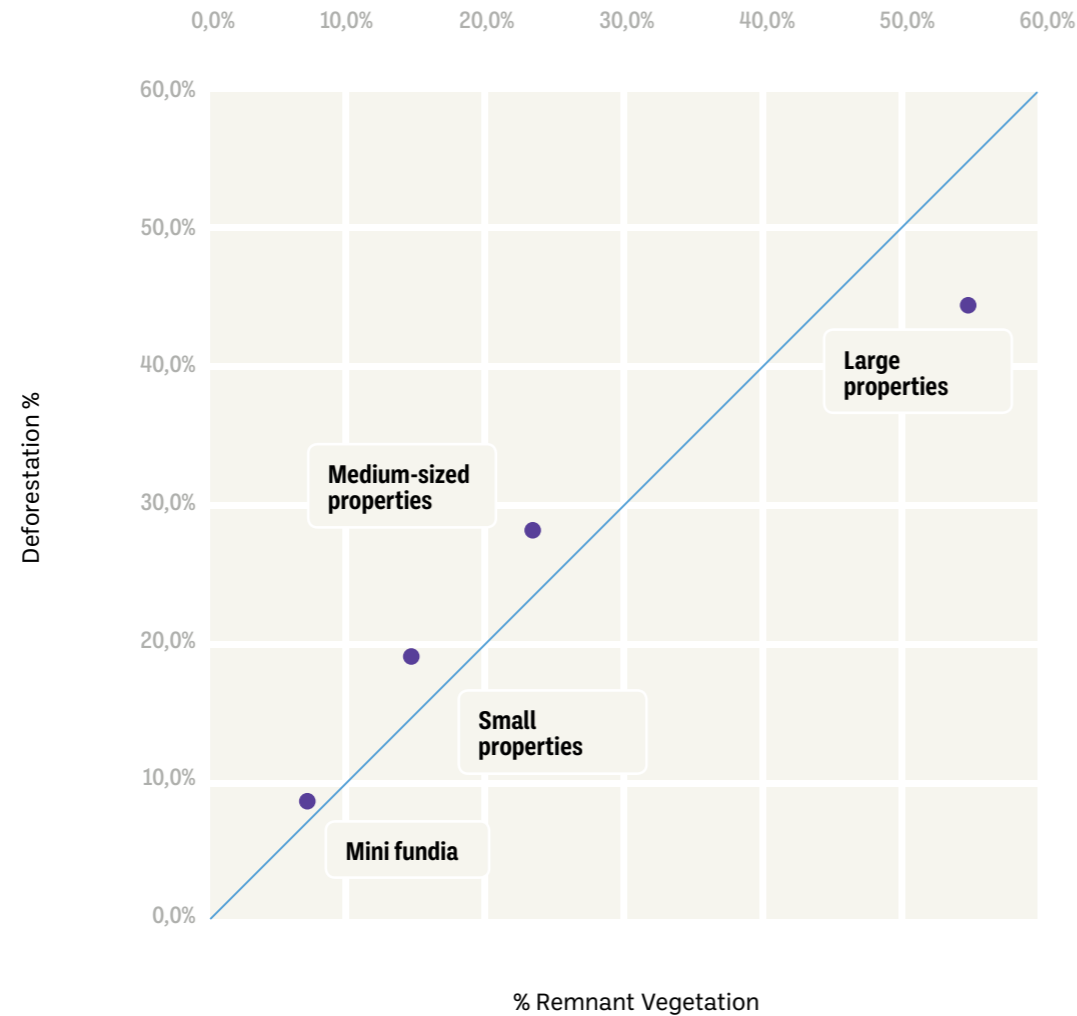
Source:
MapBiomas Set
6 (2022) and
Imaflora (2022).

Minifundia: areas smaller than 1 fiscal module

Small properties: areas larger than 1 and up to 4 fiscal modules

Medium-sized properties: areas larger than 4 and up to 15 fiscal modules

Large properties: areas exceeding 15 fiscal modules

Public Areas include the following areas: Military, Public Forest, Public Properties of the Land Management System of the National Institute for Colonization and Agrarian Reform (INCRA/Sigef) and Land without defined Tenure.

Rural Settlements: set of agricultural units installed by INCRA on a rural property for purposes of land reform.

Empty spaces: areas for without geospatial information, usually due to lack of property rights.

Proportion of deforestation of native vegetation compared to the proportion of remaining vegetation by category of land tenure[8], except private properties – accrued in the period 2012-2019, in Brazil.
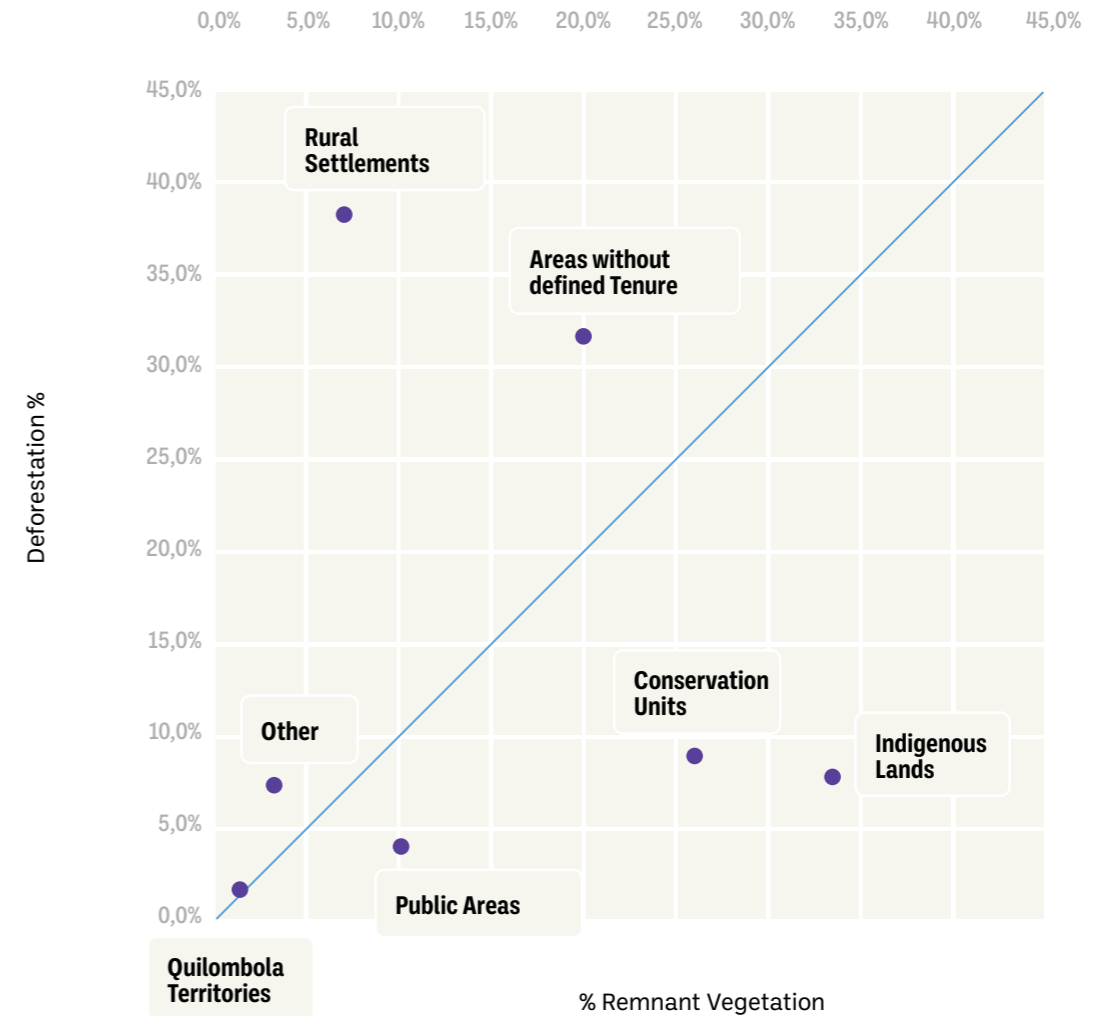
Source:
MapBiomas Set
6 (2022) and
Imaflora (2022).

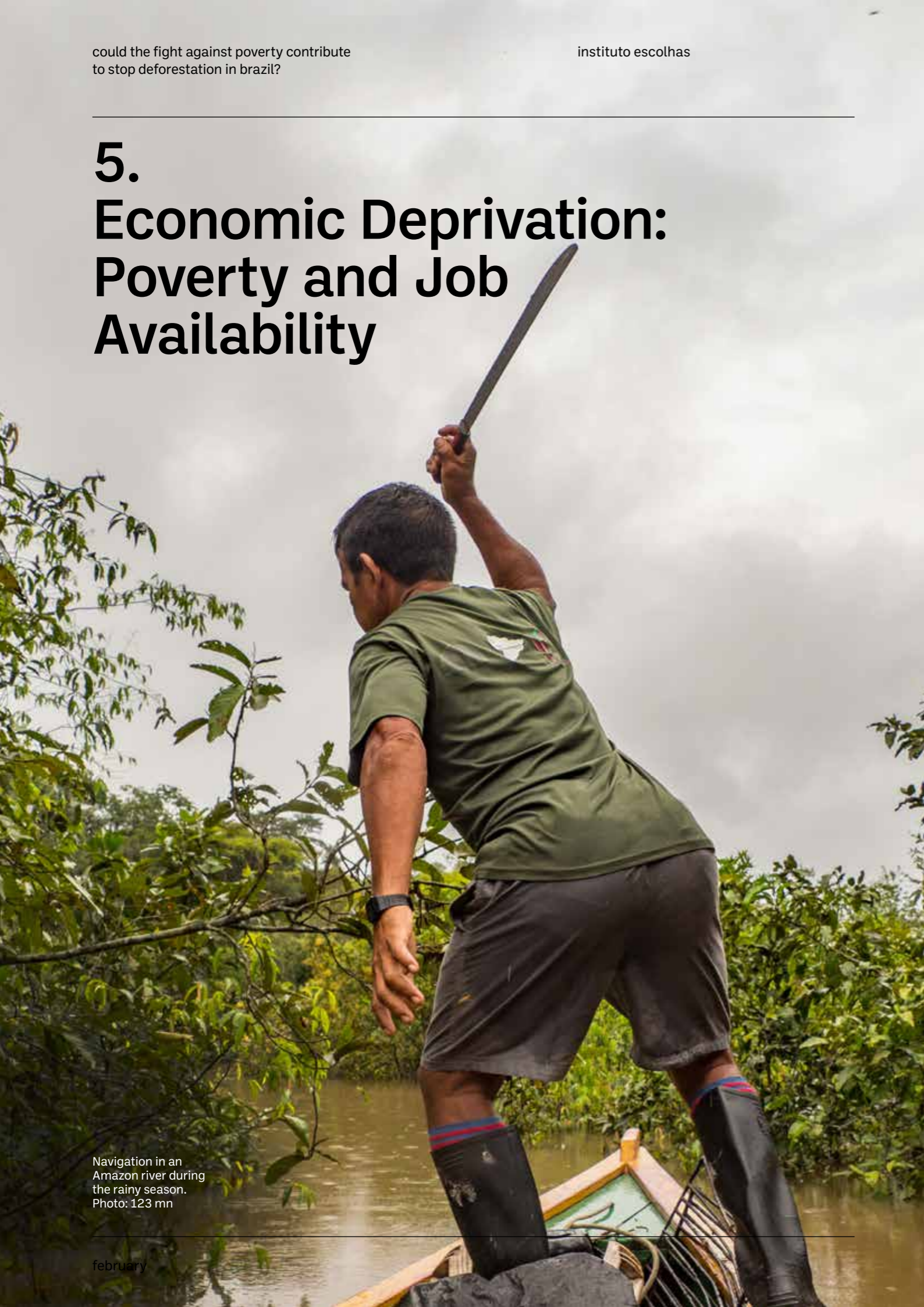**Others: grouping of the classes:** Water Bodies, Transport Network and Urban Areas.

Indigenous Lands: Territories traditionally occupied by indigenous peoples. This group includes regularized lands (declared, approved and legalized) as well as non-regularized lands.

Quilombola Territories: lands occupied by descendants of quilombola communities and community lands.

Conservation Units: protected areas, including Full Protection and Sustainable Use Conservation Units.

8
FREITAS, F. L. M. DE et al. Nota técnica: Malha fundiária do Brasil, (Brazilian land tenure mesh) v1812. In: Atlas – A Geografia da Agropecuária Brasileira. [s.l: s.n.]. (Geography of Brazilian Agriculture and cattle farming)

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5.
Economic Deprivation: Poverty and Job Availability

Navigation in an
Amazon river during
the rainy season.
Photo: 123 mn

Poverty and extreme poverty are phenomena that stand out in the North and Northeast of the country. Moreover, these regions are in an opposite position to the others in terms of poverty incidence and formal employment rates.

In the case of formal employment rates, the North and Northeast present approximately half those of the South, Southeast and Midwest Brazil. Likewise, poverty rates in the North and Northeast are, on average, three times higher. Thus, it is to be expected that changes in the level of economic deprivation will have a greater potential effect on environmental variables in the North and Northeast.

Compared to the remaining regions, poverty rates are higher in the North and Northeast of Brazil

3x

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Evolution of poverty and formal employment variables, by political-administrative region (2012-2019)

BRAZIL

MIDWEST

NORTHEAST

NORTH

SOUTHEAST

SOUTH

Poverty (%)   Formal jobs (%)

Correlation between poverty and formal employment, by political-administrative region in the period 2012-2019.
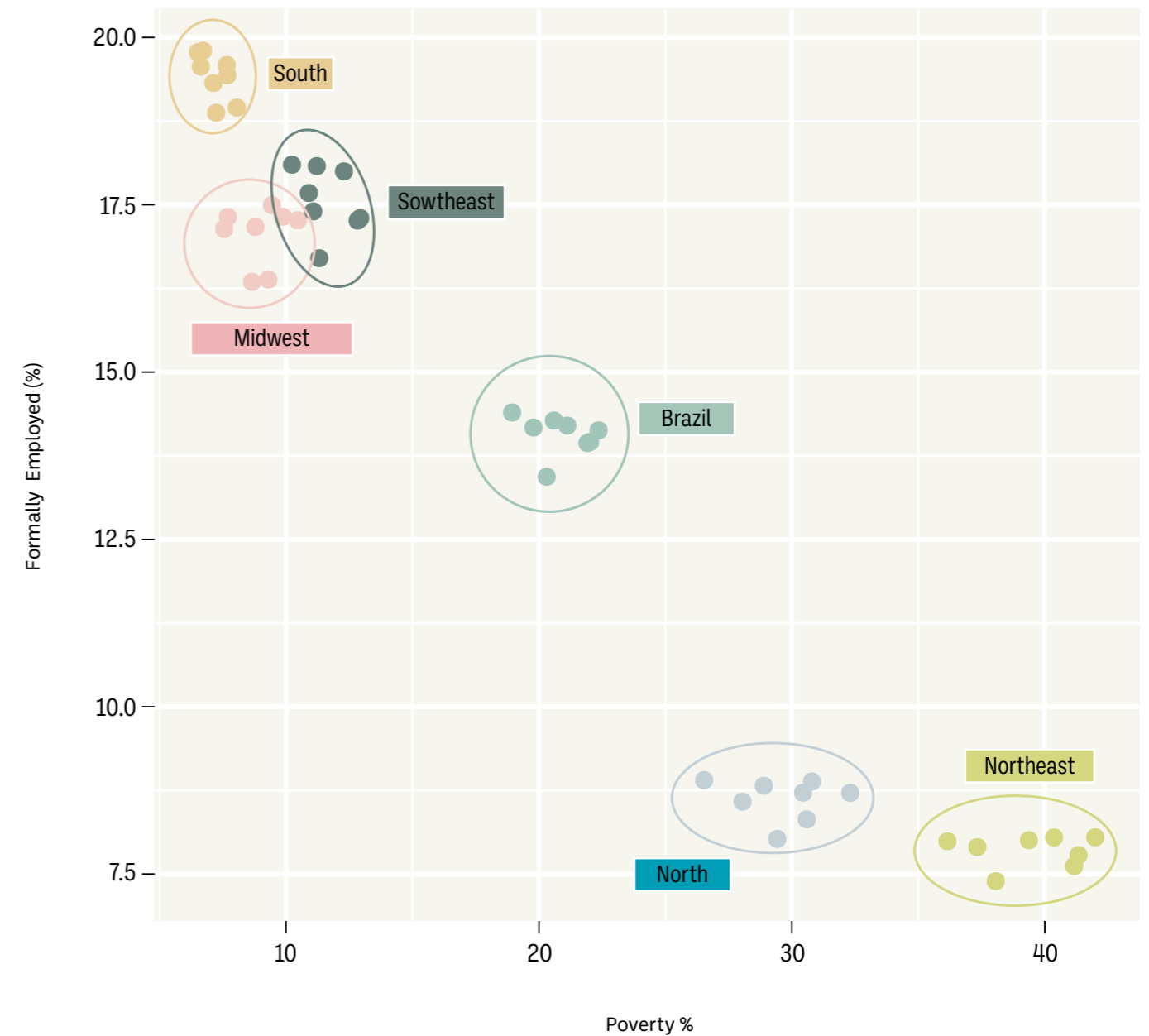
Formally Employed (%)

Poverty %

South

Sowtheast

Midwest

Brazil

Northeast

North

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Geographical distribution of extreme poverty rates in Brazil (2012-2019), applying Kernel density as estimation factor.
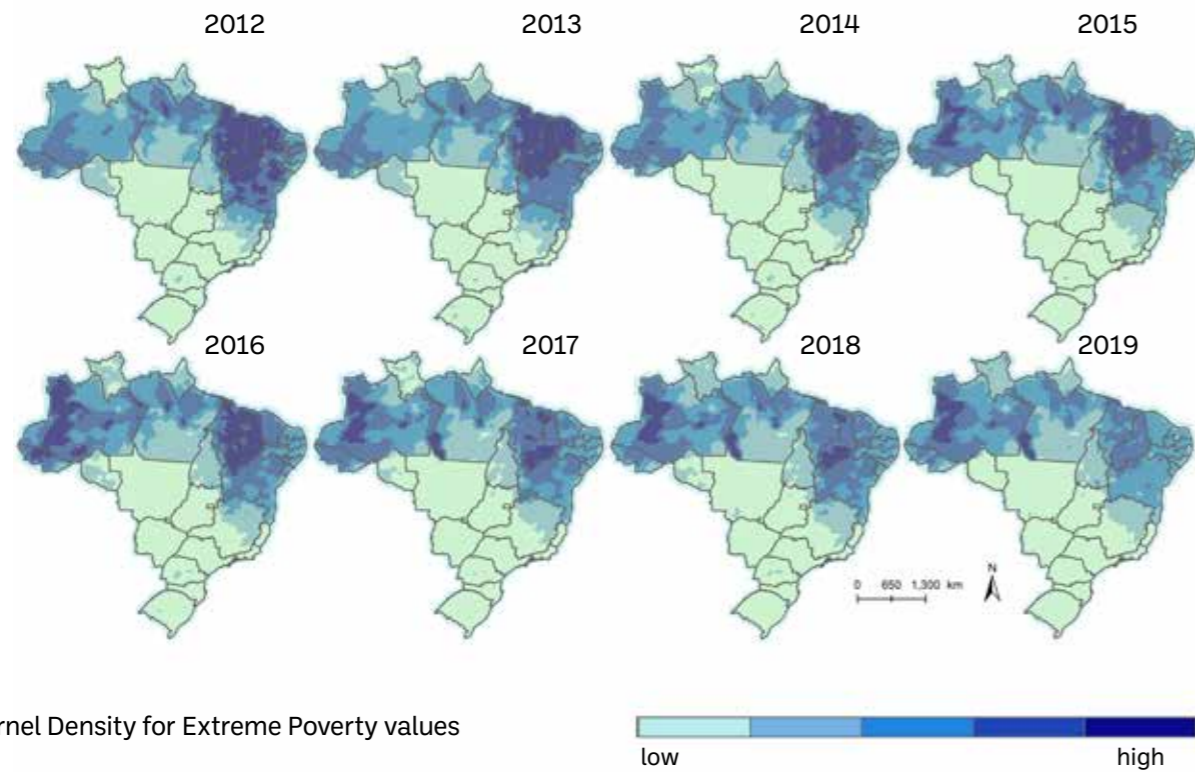
Kernel Density for Extreme Poverty values

low   high

In Brazil, in general, poverty changed by approximately 15 percentage points in the period 2012-2019, presenting a process of inequality concentration/increase among the municipalities: a 4 percentage points increase in the 10% of municipalities already with highest poverty rates and a reduction of 10 percentage points in the 10% of municipalities already with the lowest rates.

Extreme poverty, on the other hand, had a positive variation of approximately 22 percentage points in the period 2012-2019 and also showed a process of increasing concentration/inequality: it increased 4 percentage points in the 10% of municipalities that already had the highest extreme poverty rates and fell 16 percentage points in the 10% of municipalities already with lowest rates. This pattern is also valid for the Legal Amazon.

Poverty and extreme poverty in Brazilian municipalities and Legal Amazon (2012-2019), with cutout for the 10% highest and lowest poverty rates in the base year.

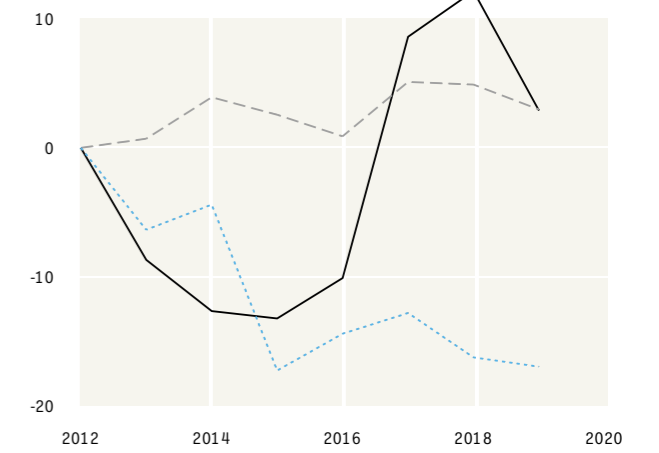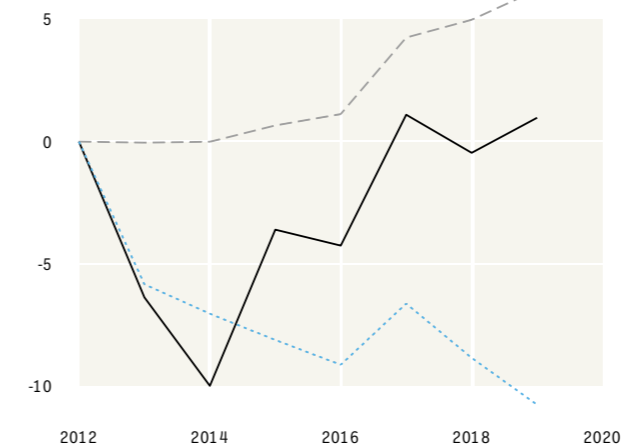BRAZIL: POVERTY (RATE) -
% VARIATION FROM 2012
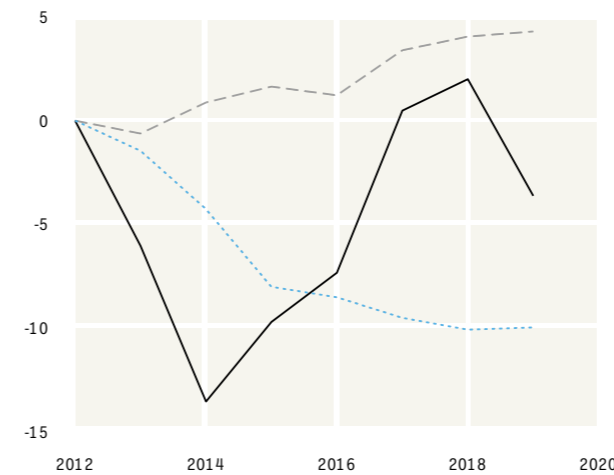
BRAZIL: EXTREME POVERTY (RATE) -
% VARIATION FROM 2012

10% highest (decil=10)   all   10% lowest (decil=1)

LEGAL AMAZON: POVERTY (RATE) -
% VARIATION FROM 2012

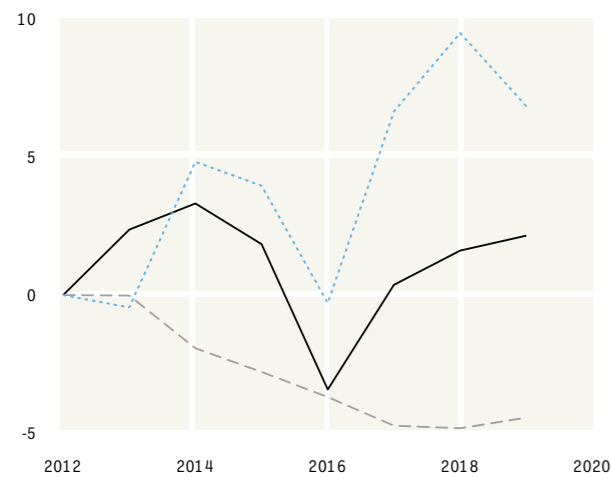LEGAL AMAZON: EXTREME POVERTY (RATE) -
% VARIATION FROM 2012
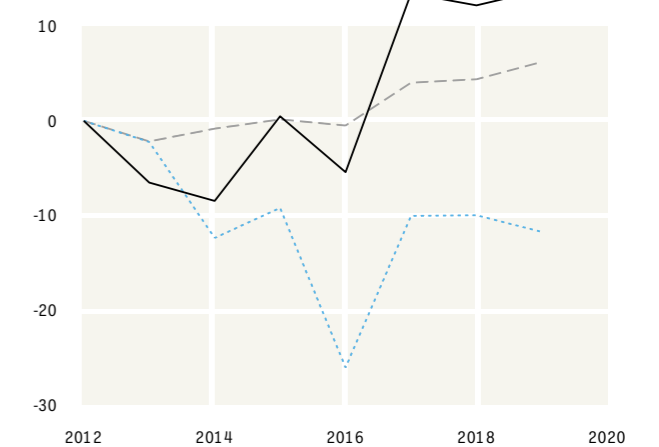
Note: the graphs have been normalized to start from 0 in 2012. Vertical axis values represent percentages. For instance, the value +10 indicates a 10% increase over 2012.

Source: Data from PNADc and MDS (2022).

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Formal employment, on the other hand, had relatively low variation in the period between 2012 and 2019: approximately 6 percentage points. Moreover, it showed convergence dynamics: it increased in the 10% of municipalities that had the lowest levels of formal employment in 2012 and fell in the 10% of municipalities with highest levels (F). This pattern is valid for both Brazil and the Legal Amazon.

Formal employment in Brazilian municipalities and Legal Amazon (2012-2019), with a cutout for the 10% with higher and lower levels of employment in the base year.

BRAZIL: FORMAL EMPLOYMENT (RATE) - % CHANGE FROM 2012

LEGAL AMAZON: FORMAL EMPLOYMENT (RATE) - % CHANGE FROM 2012
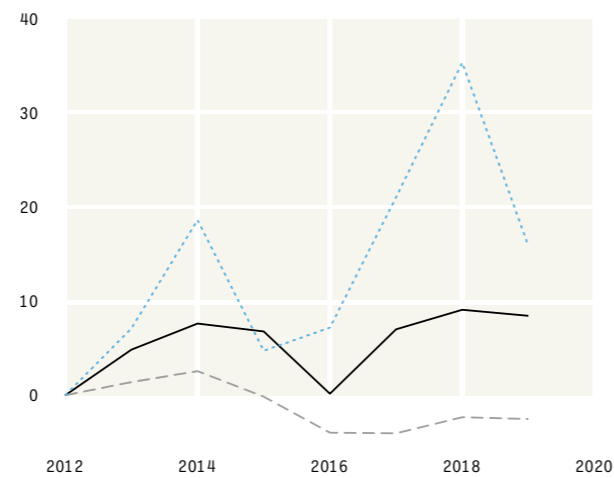
10% highest (decil=10)

All

10% lowest (decil=1)

Note: the graphs have been normalized to start from 0 in 2012.
Vertical axis values represent percentages. For instance, the value +10 indicates a 10% increase over 2012.

Source: Data calculated based on RAIS/ME (2022).

Dry season mooring in Tabatinga.
Photo: 123mn

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6.
Economic Deprivation and Deforestation

Man carrying bananas
on a rainy day in the
Amazon hinterland.
Photo: 123mn

REDUCTION OF POVERTY AND INCREASE IN FORMAL EMPLOYMENT ARE ASSOCIATED WITH A DECREASE OF DEFORESTATION

According to the econometric modeling with 2019 data as reference, found results simultaneously across **all municipalities in the country** are as follows:

- **A reduction of 1% in the variable of the population in extreme poverty is equivalent to approximately 136,000 less people in that condition.** This is associated with a reduction of ~4%, or 42.7 thousand hectares, of the country's total deforestation; an area equivalent to the size of the municipality of Curitiba in the State of Paraná.

- **A reduction of 1% in the variable of the population in poverty, means 304,000 fewer people in that condition.** This is associated with a ~2.7% reduction in total deforestation, or approximately 29,000 hectares for Brazil as a whole.

- **Increase of 1% in formal jobs, equivalent to 462,000 additional people with formal employment.** This data is related to the decrease in deforestation in the country by ~8.2% (87.6 thousand hectares), an area larger than the size of the municipality of Goiânia in the State of Goiás.

These impacts are entailed by an improvement in social indicators that would occur, hypothetically, simultaneously in all municipalities in Brazil. In this context, the effect on deforestation operates through two components: one materializes within the municipality itself - the improvement in social indicators impacts deforestation within its borders - and another that goes beyond municipal borders, affecting deforestation in neighboring municipalities.

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Evaluating the magnitude of these components, the model indicates that, in the case of the variable "extreme poverty", only one third of the impact occurs within the municipality. The other two thirds derive from effects of neighboring municipalities. In the case of the "poverty" variable, a little less than a third of the effect occurs within the municipality itself. In the case of the "formal employment" variable, only 20% of the impact comes from within the municipality itself. Thus, the social indicators of neighboring municipalities account for a larger part of the impact on deforestation than the indicators of the municipality proper. The regressions suggest the possibility of a causal relationship in which reductions in poverty (or extreme poverty) would lead to a reduction in deforestation. However, the methodology employed does not allow us to rule out the possibility of reverse causality – i.e., decreases in deforestation causing decreases in poverty and increases in formal employment.

The relationship found is valid for Brazil as a whole and for the Legal Amazon specifically. In the other parts of Brazil, the relationship found was not valid. The Brazilian Legal Amazon, by having the largest concentration of remaining primary vegetation, the highest rates of deforestation and one of the highest concentrations of population in poverty and extreme poverty, is dominating the behavior of the model with respect to Brazil as a whole.
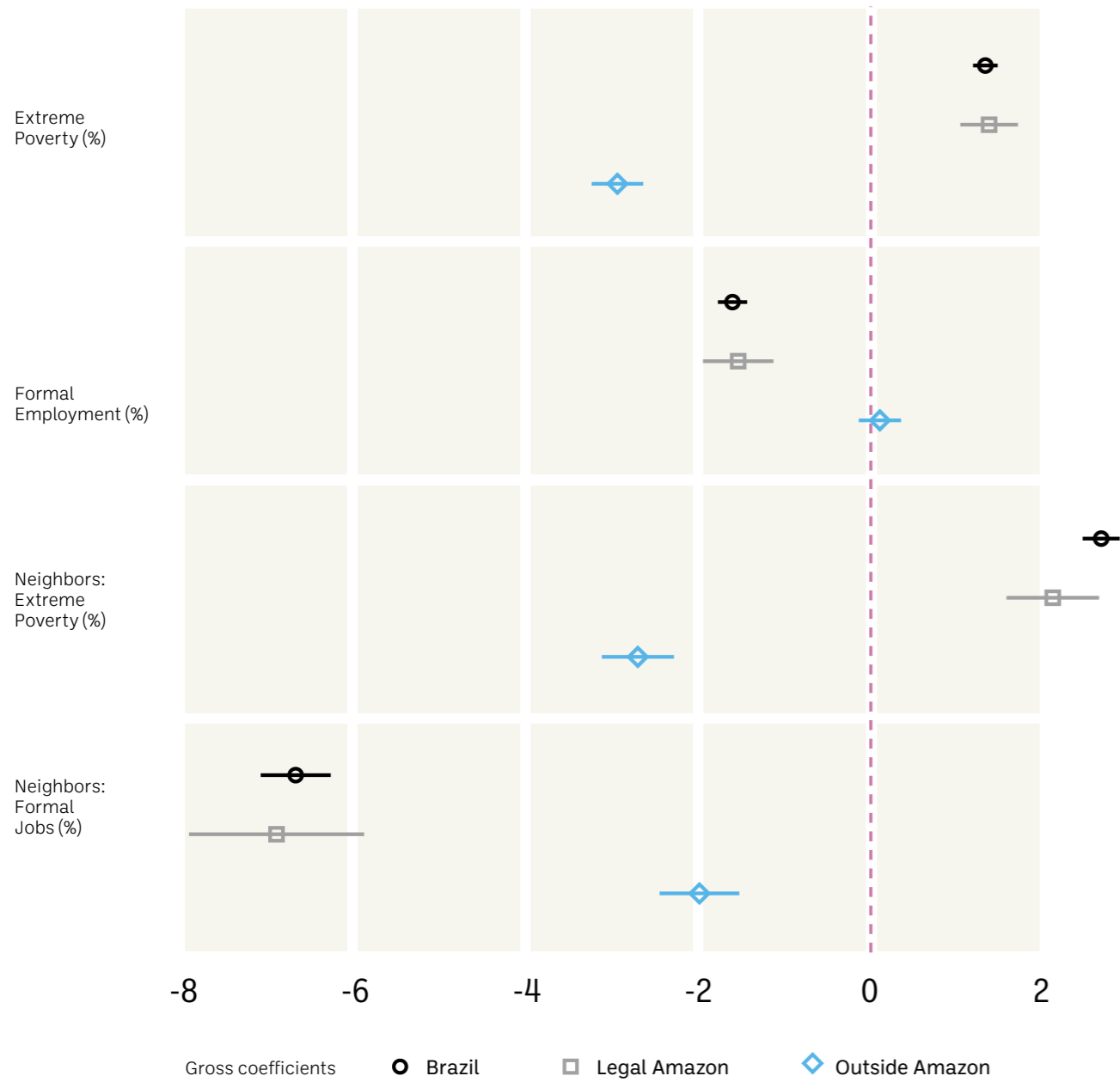
According to the econometric modeling and taking 2019 data as a reference, the results found simultaneously across all municipalities in the **Legal Amazon** are as follows:

- Reducing the number of people living in **extreme poverty**, by 1%, which corresponds to 35,000 people leaving this condition, has the potential to reduce deforestation in the Legal Amazon by 3.3%, equivalent to 27,000 hectares, an area larger than the size of the municipality of Recife in the state of Pernambuco.

- Reducing the number of people living in **poverty** by 1% in all the region's municipalities, which corresponds to 74,000 people leaving poverty, has the potential to reduce deforestation in the region by 2.3%, approximately 18,700 hectares.

- A 1% increase in **formal jobs** in all the region's municipalities, equivalent to 42,000 additional people formally employed, has the potential to decrease deforestation by 8.4%, or 67.2 thousand hectares, an area larger than the city of Florianópolis, in the State of Santa Catarina.

The following graph illustrates the coefficients captured by the model for the impact of the variables "extreme poverty" and "formal employment," with and without neighborhood control, on deforestation. It can be seen that these variables are jointly relevant for Brazil and for municipalities located in the Legal Amazon region, with positive coefficients for "extreme poverty" and negative for "formal employment". In the case of municipalities outside the Legal Amazon, poverty and deforestation show an inverse or insignificant relationship.

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to stop deforestation in brazil?

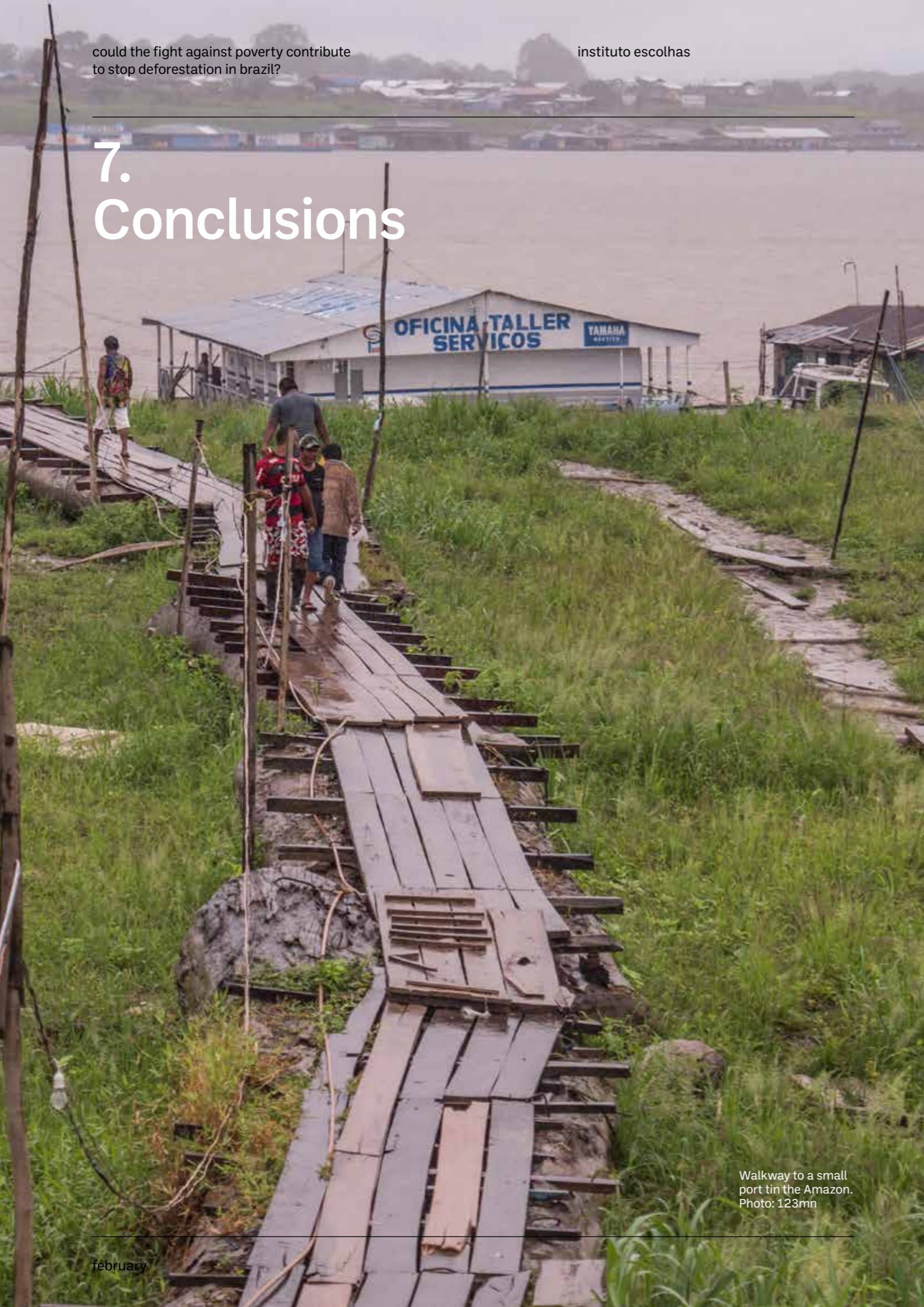instituto escolhas

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Variation of gross coefficients, which represent the impact on deforestation of the main variables of the econometric model, considering Brazil, the Legal Amazon and the municipalities outside of the Legal Amazon.

Seizure of illegally extracted logs from Indigenous Land In Piriti, Roraima. Photo: Felipe Werneck/Ibama

Extreme Poverty (%)

Formal Employment (%)

Neighbors: Extreme Poverty (%)

Neighbors: Formal Jobs (%)

-8   -6   -4   -2   0   2

Gross coefficients   ◯ Brazil   ▢ Legal Amazon   ◇ Outside Amazon

Source: elaboration by the authors.
Indexes crossing the zero axis have coefficients without statistical significance.
In the fixed effects econometric specification, variables intrinsic to the municipalities and unchanged in time are automatically controlled. The model uses a weighting based on the remaining vegetation stock in 2012.

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7.
Conclusions

Walkway to a small
port tin the Amazon.
Photo: 123mn

The relationship between economic deprivation and deforestation is strongest in the North of Brazil. In general, the economic literature on the subject suggests that the effect would be conditioned to the presence of high land income (profitability of activities from land use, such as agriculture and cattle ranching), high rates of economic deprivation and substantial volumes of primary vegetation stocks. It is justly in the Amazon region that such conditions are found.

The results of this study indicate, for instance, that policies aimed at increasing the number of formal jobs could be a channel to reduce poverty and deforestation, while also promoting sustainable growth. Additionally, when considering the effects of poverty reduction and increased job offers in neighboring municipalities, the geographical analysis shows that such social public policies should be promoted regionally to increase the potential for a reduction of deforestation. Isolated policies tend not to be very effective, due to the scope and connection of factors associated with deforestation among the municipalities, such as labor migration.

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These results allow us to state that policies of command-and-control of deforestation must be allied with policies of labor formalization and combating poverty in order for the country to achieve zero deforestation.

The deforestation activity itself is unhealthy, hazardous, undesirable, and mostly carried out via informal and low-paid work.Individuals in situations of extreme poverty and poverty (with a monthly family income of up to R$140 per person) are the ones who have the least access to formal employment opportunities and who, for this reason, are recruited as labor for deforestation activities. The opportunity to access a different activity, with compatible remuneration and lesser risks would change this picture.

The solution to the deforestation problem is therefore, to offer decent working conditions for these people and, at the same time, to fight deforestation in its different magnitudes, holding accountable mainly those who profit from the activity.

It is important to remember that, if on one hand, ending deforestation affects the most vulnerable people who work in tree cutting and related activities[10]; on the other hand, it is also the poorest people who suffer most intensely the impacts from deforestation in the short, medium, and long term, both in rural and urban areas. Droughts, heavy rains, flooding, increased food prices, and land tenure conflicts impact socially vulnerable individuals and communities first and most strongly. One way or another, it is urgent to include the fight against poverty in the climate change mitigation and sustainable development agenda.

[10]
Another study by Instituto Escolhas already showed that in a zero deforestation scenario, salaries of less qualified workers suffer greater reductions than for those of qualified workers, due to the fact that more intensive farming techniques require less qualified labor.
Learn more: What is the Impact caused by zero deforestation In Brazil?