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POLICY BRIEF

The Atlantic Forest Law
and protection of
the most endangered
Brazilian forest



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The Atlantic Forest Law and protection of the most endangered Brazilian forest

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SPECIAL SERIES
ESCOLHAS FELLOWSHIP OF ECONOMICS AND ENVIRONMENT

This policy brief is based on a doctoral thesis entitled “Evaluation of the tropical forest conservation policy: the case of the Atlantic Forest in Brazil”, by Ms. Keyi Ando Ussami, defended at the School of Economics, Business and Accounting of the University of São Paulo (FEA-USP), in the year 2022, under orientation of Prof. Dr. Ariaster Baumgratz Chimeli.

The policy brief is part of a series which presents results and recommendations of the academic research work supported by Instituto Escolhas¹.

The Escolhas Fellowship of Economics and Environment is a scholarship program that aims to collaborate with teaching and research in Brazil, focused on contemporary social environmental issues as well as on global topics based on an economic sciences approach.

The opinions expressed herein are those of the author, and the arguments used do not necessarily reflect the view of Instituto Escolhas board members.

¹
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Thanks to the Atlantic Forest Law,

1,6

million hectares of forests were protected.

The Brazilian Atlantic Forest was once one of the largest tropical forests in the Americas, covering 112 million hectares and supporting extensive biodiversity and endemism. Today, only 28% of the native forest remains. After a long negotiation process, started in 2006, these remaining areas are protected by Federal Law 11.428/2006, which defined a legal framework to preserve the remaining native Atlantic Forest vegetation in the country.

This study evaluated the effectiveness of the Atlantic Forest Law (AFL) using statistical analysis techniques that allow observe cause and consequence (causal inference techniques). We focused on the effects of the Law on the annual stock of native forest cover and on annual forest loss and recovery (i.e., the change in this stock)².

The effect of this policy was analyzed using the differences-in-differences method at municipal level, comparing municipalities sufficiently similar with respect to their response to the application of the AFL. The method estimates the effect of the AFL based on the premise that, if the AFL did not exist, the evolution of forest stocks in municipalities affected by it would have a parallel trajectory to that observed in municipalities outside the area covered by this legislation. To define which municipalities can be compared to each other (Figure 1), we used the Unit of the Federation³ to which the municipality belongs and other characteristics observable at the time before validity of the AFL⁴.

² Data from Mapbiomas, collection 6.0

³ The remaining native forest areas in the states of Rio de Janeiro, Espírito Santo, Paraná and Santa Catarina are protected by the Atlantic Forest Law. Since there are no municipalities in these states that are unprotected, they were disregarded in the analysis because they cannot be compared. Municipalities with partially protected territory by the law were also excluded from the analysis.

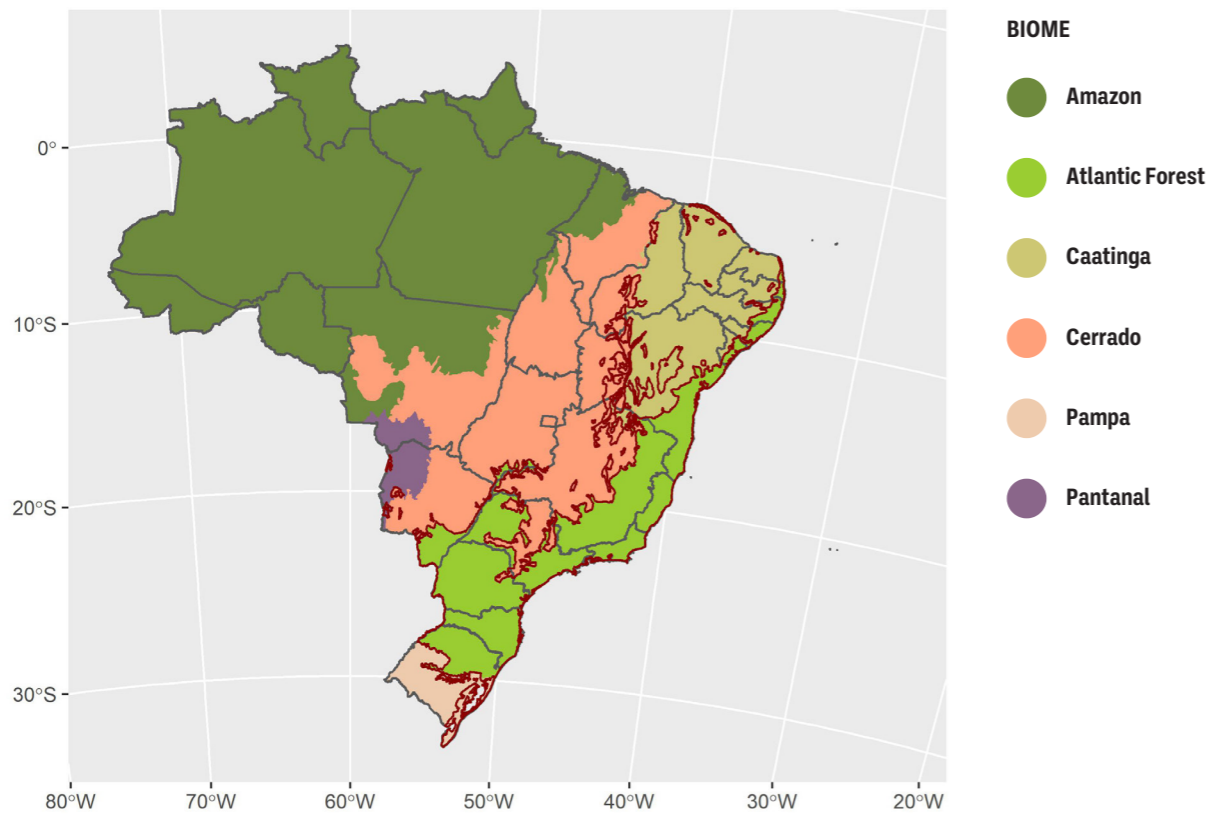
⁴ Such as GDP, GDP per capita, added value from agriculture and cattle farming, urbanization rate, infant mortality rate, area protected by Conservation Units and the forest stock itself (all variables refer to the period before the AFL came into effect).

Our study indicates that the AFL had a positive and significant effect on native forests stock, even without significant changes in deforestation rates after its final approval. Such a result is explained because there is an increase in the recovery process, in which native vegetation grows back, either naturally or through active actions such as planting seeds or seedlings. The effects were observed in 2007, immediately after the AFL came into effect^{5 6 7}.

The analysis points to a relative increase of 1.6 million hectares of native forest stock in the year to date 2020⁸ in municipalities protected by the AFL in relation to those unprotected. From 2007 to 2020, these municipalities recorded an increase of 0.5 million hectares in the stock of native forests, which means that the AFL not only influenced the entire forest expansion observed in these areas but also avoided an additional reduction of 1.1 million hectares in the period.

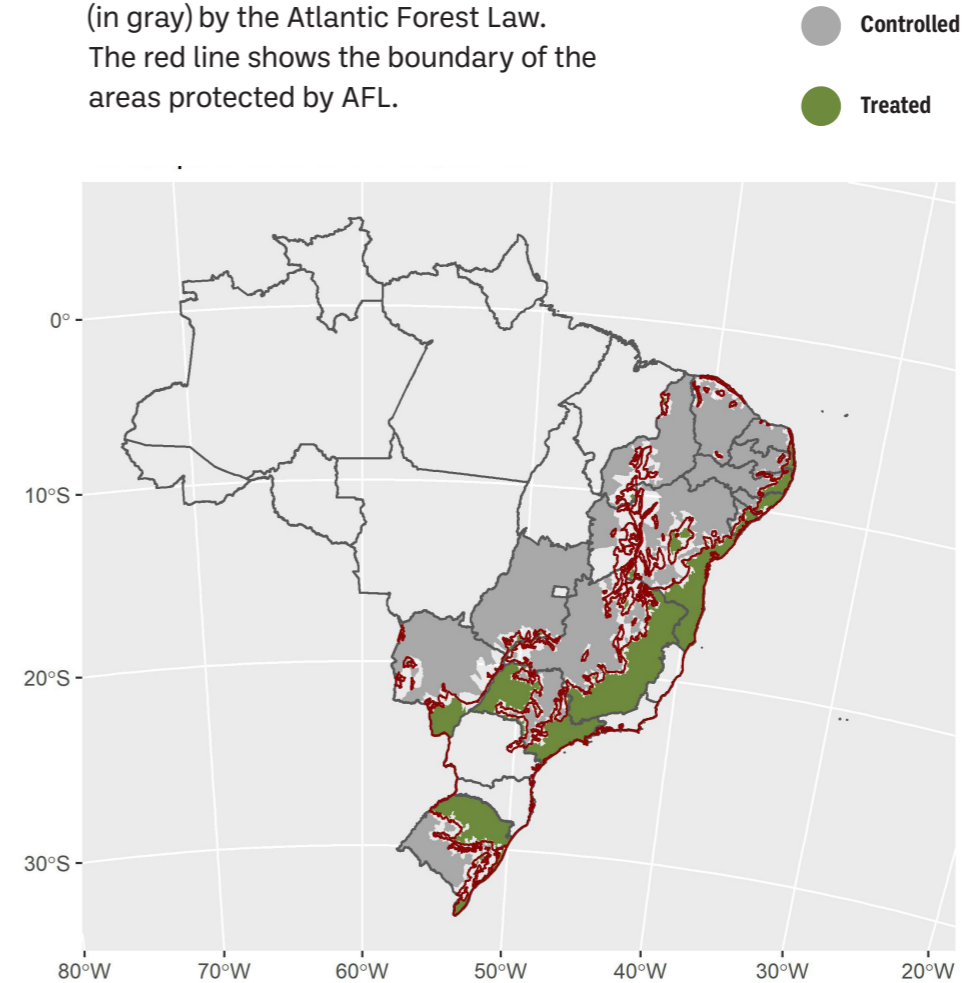
PROTECTED AREA BY THE ATLANTIC FOREST LAW

Figure 1 – Biomes of Brazil. The red lines and dots indicate the boundaries of areas protected by the Atlantic Forest Law.



MUNICIPALITIES INCLUDED IN THE ANALYSIS

Figure 2 – Protected municipalities (in green) and unprotected municipalities (in gray) by the Atlantic Forest Law. The red line shows the boundary of the areas protected by AFL.



5 In addition, we found evidence of a deforestation anticipation effect in the period from one to three years before the final approval of the Atlantic Forest Law. In this period, concurrent with the approval of the Bill in the House of Representatives, we observed an increase in deforestation in the areas that later became protected. This previous deforestation caused an average delay of ten years before the net benefits of the policy could be reaped.

6 The results remain the same when limiting the sample to only those municipalities that had up to 25% of their territory covered by native forests in the period prior to the enactment of the AFL. In this condition, all municipalities have a strong restriction on deforestation due to their reduced stock at baseline, which makes them even more comparable to each other.

7 It is unlikely that our results are being affected by the variation in commodity prices, because we did not identify any significant increase in agricultural cover in the protected areas, when compared to the areas not protected by the AFL.

8 In the three-period-ahead reference specification, which excludes the states of Rio de Janeiro, Espírito Santo, Paraná, Santa Catarina and municipalities within the boundaries of the Atlantic Forest Law's area of application.



The results suggest, therefore, that the increased legal certainty provided by the forest law played a central role in the protection of native Atlantic Forest⁹ – even considering that part of the benefits were neutralized by the deforestation that occurred in the few years prior to the effectiveness of the AFL, in anticipation of the restrictions that were to come.

Furthermore, the effectiveness of the AFL appears to have been based on a set of different initiatives by various stakeholders. The public sector contributed by increasing the number of protected areas, while the private sector favored an increase in private protected areas (Private Natural Heritage Reserves, or RPPNs), as well as enforcement on private land, compared to areas not protected by the law. The stock of native forests within pre-existing Conservation Units was positively affected by the AFL, possibly by a combination of initiatives by the public and private sector.

In this context of multiple and decentralized initiatives, the challenge is to estimate the costs involved in intervention actions in order to prioritize them based on a cost-effectiveness analysis.

EFFECTS ON THE TERRITORIES

- Municipalities with a lower percentage of their territory covered by forest in 1985¹⁰ had a stronger protection effect, that is, those that had already lost a significant portion of their forests were the ones that protected them the most after the law came into effect. On the other hand, the municipalities with the highest percentage of forests in 1985 saw the reduction of native forests after the law came into effect.
- The positive effects of the AFL on the stock of native forests occur both within private lands and within Conservation Units pre-existing before creation of the law.
- The total area included as Protected Areas was positively affected by the AFL, in all categories of Protected Areas analyzed, including private Protected Areas (RPPNs), which shows that the private sector also responded positively to the Law, by increasing the number of protected areas.

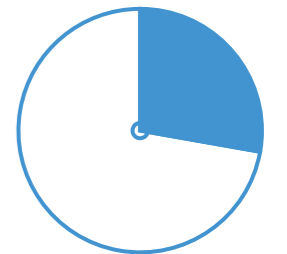
- The results differ by state, suggesting that state characteristics (including physical, environmental, social and institutional characteristics) are determinants of potential effects. The role of different monitoring and enforcement processes (particularly in rural properties), under responsibility of state governments, and the differences in state legislation, are highlighted here.
- It is important to recognize that the AFL has not been able to prevent deforestation in the Atlantic Forest, which requires strengthening actions to combat it. This means that, even with the increase in the forest stock, the older areas are being replaced by younger forests, which can have negative effects on the conservation of tropical biodiversity as a whole, since many species depend on more structurally developed habitats with greater biodiversity.

⁹

We note, however, that our impact assessment cannot isolate the effects of this law from those of other initiatives aimed at protecting the Atlantic Forest (such as, for instance, civil society engagement).

¹⁰

The timeframe before any initiative to protect the Atlantic Forest through legal instruments existed.



Presently, only

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MP 1150 – The Atlantic Forest under threat *

This policy brief, by evaluating the effects of the Atlantic Forest Law, shows the relevance of this legal instrument for protection and conservation of the biome. However, in contrast to the results achieved after the law came into effect, the Provisional Measure (MP) No. 1150 of 2022 may threaten the gains already obtained.

In addition to amending the New Forest Code (Law No. 12651 of 2012) by increasing the deadline for adherence to state Environmental Regularization Programs (PRA) for rural property owners (the original theme of the proposal), the MP also proposed changes to the Atlantic Forest Law. Among these changes are the exemption of a Previous Environmental Impact Study (EIA) and environmental compensation measures for linear enterprises (power transmission lines, gas pipelines or public supply systems), except in Permanent Preservation Areas. Furthermore, even if there is a technical or site alternative for the project, secondary vegetation in a medium stage of regeneration may be cut down for public utility purposes.

Another alteration is the removal of the state environmental agencies' competence to issue prior consent for the deforestation of vegetation in a medium stage of regeneration in urban areas or land parceling for subdivision or construction - processes that are now the exclusive responsibility of municipal environmental agencies.

Disregarding the persistent challenge to reduce deforestation, these measures relax provisions of the law that could prevent the clearing of forests or compensate for deforested areas - and thus put at risk the maintenance of the good results that the legislation has already provided.

* The text on this page is the responsibility of the executive team of Instituto Escolhas and does not necessarily reflect the opinion of the author or members of the board.



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