POLICY BRIEF

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Photo credit: Yann le Polain de Waroux

To eliminate deforestation in South America, reduce differences in regulations across regions and actors.

Rapid deforestation for soy and cattle in South America has prompted governments and private actors to adopt new regulations and enforcement strategies for forest conservation. These initiatives differ in design, adoption, and implementation across regions, crops, and actors, creating loopholes that impede their effectiveness. To curb deforestation, governments and companies should adopt forest conservation policies that apply similarly to all regions where commodities are sourced from and to all actors involved directly or indirectly in deforestation.

KEY RESULTS

- Effective deforestation regulations are implemented in places with high conservation value and low opportunity costs.
- Restrictive deforestation regulations drive away large-scale farms that rely on forest clearing.
- Increasing regulations do not slow down agricultural expansion, suggesting that large farms avoiding regulations are replaced by smaller farms.
- Increasing deforestation restrictions makes production costlier, causing major importers to shift to cheaper, less-regulated areas.
- This shift is partially compensated by rising domestic consumption, and by increasing demand from quality-driven importers.

WHAT'S AT STAKE?

The expansion of soy and cattle production has caused extensive deforestation in South American biomes such as the Amazon, the Cerrado, the Atlantic Forest and the Gran Chaco. This has prompted the emergence of new environmental governance initiatives.

These include: (a) reducing the amount of forest that can be legally cleared, (b) improving the ability of enforcement agencies to identify and track illegal deforestation, (c) certifying farms that have not deforested recently, and (d) refusing to purchase products from land that has been deforested recently.

Agriculture in the Argentine Chaco

Yet, the design, adoption and implementation of anti-deforestation policies has been highly unequal across regions. For example, the amount of forest that must be conserved on private properties varies from 80% in the Brazilian Amazon ecological region to 35% in the Brazilian Cerrado, and under 10% in many areas of the Argentinian, Bolivian, and Paraguayan Chaco. Complete bans on deforestation have been imposed in most of the Atlantic Forest across all countries. Likewise, major private zero-deforestation initiatives, whereby companies agree not to purchase soy or cattle grown on lands deforested after a certain cutoff date, have focused on a single biome – the Brazilian Amazon– and pertain mainly to direct suppliers to the companies who have signed the agreements. Similarly, adoption rates of soy and beef certification vary across the region, as does the availability of information such as satellite imagery for enforcement.

RESEARCH APPROACH

In this study, we used interviews with farmers, satellite images, agricultural census data, and literature reviews to analyze the origins of regional discrepancies in deforestation regulations and test whether these discrepancies had influenced dynamics of agricultural investment, expansion and trade in the main soy and cattle regions of South America. We first examined what factors were associated with the adoption of successful anti-deforestation policies in major soy and cattle regions of South America, based on a review of existing literature. Then, we analyzed whether large-scale farmers tended to favor areas with lower regulations for new investments. In order to do so, we linked investment data from interviews conducted with 82 companies totaling 2.5 million hectares of properties in the Gran Chaco and Chiquitano biomes (in Argentina, Bolivia and Paraguay, to data on the characteristics of the destinations of these investments. Finally, we analyzed trends of soy and pasture expansion at the municipality level, and of soy and beef trade at the regional level, for Argentina, Bolivia, Brazil, Paraguay and Uruguay, to test whether changing deforestation regulations had affected agricultural expansion and trade patterns in a way that might impede their effectiveness.

KEY FINDINGS

Effective deforestation regulations are implemented in places with high conservation value and low opportunity costs.

Unequal adoption of anti-deforestation policies by public and private actors can be explained by geographic differences in agricultural and environmental interests, and in the costs of policy implementation. This research shows that adoption of effective policies is more likely in regions where the agricultural sector represents a small part of GDP, where forests store abundant carbon and a great number of different species, were land is mostly public, and where there is low compliance with forest reserve regulations on private lands to start with.

Restrictive deforestation regulations drive away large-scale farms that rely on forest clearing.

Increased costs associated with regulations can lead some farmers to avoid highly-regulated regions. In the Gran Chaco and Chiquitano biomes, this study found that large-scale farmers, when they acquire new forestland for agricultural expansion, tend to avoid areas with stringent deforestation regulations. As much as 8 percent of these farmers' land investments may have been displaced from Argentina to Bolivia and Paraguay as a result of Argentina's increased regulations in the 2000s. Such movements of actors to new regions in response to regulations cause a displacement of deforestation from more- to less-regulated regions that can decrease the overall effectiveness of these regulations.

Increasing regulations do not slow down agricultural expansion, suggesting that large farms avoiding regulations are replaced by smaller farms.

Contrary to what we would expect if all farmers were escaping regulations, the study found no evidence that increased deforestation restrictions had slowed down soy or pasture area expansion, except within the Brazilian Amazon. This suggests that, while large-scale farmers avoid regulations, other actors are taking their place, likely smaller farms. Why smaller farms? Monitoring deforestation and enforcing deforestation regulations is harder on small properties. Moreover, small-scale cattle farmers may avoid selling directly to slaughterhouses that participate in market exclusion initiatives. Additionally, for these farmers with limited financial resources, moving to escape regulations might not be an option.

Increasing deforestation restrictions makes production costlier, causing major importers to shift to cheaper, less-regulated areas.

Following increases in anti-deforestation regulations in South America, major consumption countries, such as China, Russia, and Saudi Arabia, decreased their soy and beef imports from highly regulated areas. Such a shift in demand towards less-regulated regions can cause a displacement of deforestation to these regions.

This shift is partially compensated by rising domestic consumption, and by increasing demand from quality-driven importers.

Some European countries have demonstrated a preference for soy that is certified to meet sustainability criteria — hence the name "quality-driven importers", as opposed to importers driven mostly by prices. Because of that preference, European countries imported more soy from more regulated regions, as they had a greater guarantee that their soy was not directly causing deforestation. For beef, decreases in exports from more regulated regions to international consumers were compensated by increases in domestic demand. In South America, domestic demand for beef is much larger than the export market.

In sum, soy and cattle production has continued relatively unabated in most regions with increasing forest conservation policies, due to a restructuring of the actors engaged in agricultural production and consumption. On one hand, small farmers have substituted for large farmers. On the other hand, quality-driven importers or domestic consumers have replaced certain international consumers.

POLICY INSIGHTS

Harmonizing deforestation governance efforts across regions, particularly for multi-national zero-deforestation commitments, can reduce incentives for large farms to escape regulations.

As long as major differences in anti-deforestation regulations exist between regions, especially neighboring ones, differences in land use governance will incentivize farmers to seek out less regulated regions. It will be challenging to increase public regulations and enforcement in most South American countries. However, it is possible to harmonize zero-deforestation commitments by private companies across regions, reduce disparities in monitoring capacity, and enhance transparency of land use and sourcing practices across all regions. Recent initiatives such as the Accountability Framework (led by Rainforest Alliance) and the Collaboration for Forests and Agriculture, for example, are promoting greater harmonization.

Closing loopholes for small or indirect suppliers and domestic consumption markets will avoid displacing deforestation to other supply chain actors.

The varying impacts of deforestation policies on different actors (e.g., those selling to small-scale or informal municipal versus to international slaughterhouses and traders) allow deforestation to persist. To reduce these loopholes, market exclusion mechanisms must require a full traceability of products being purchased, to verify their origin. Zero-deforestation commitments by private companies must also be extended to domestic markets, including for example small-scale municipal slaughterhouses and soy buyers. Some steps have recently been taken in that direction: in 2015, Brazil's public prosecutors forced signatories of the Amazonian zero-deforestation cattle agreements, including major domestic beef retailers, to audit their supply chains and verify their compliance with these agreements.

This brief was authored by R.D. Garrett, E.F. Lambin, and Y. le Polain de Waroux. It draws on key findings from three papers: "Conditions influencing the adoption of effective anti-deforestation policies in South America's commodity frontiers", "Land use policies and corporate investments in agriculture in the Gran Chaco", and "The restructuring of South American soy and beef production and trade under changing environmental regulations". The research was conducted at Stanford University and Boston University.

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