

Amazonian Disease

Interactions between non-green and green natural capital

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This talk is based on various joint work with

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Future and World Bank

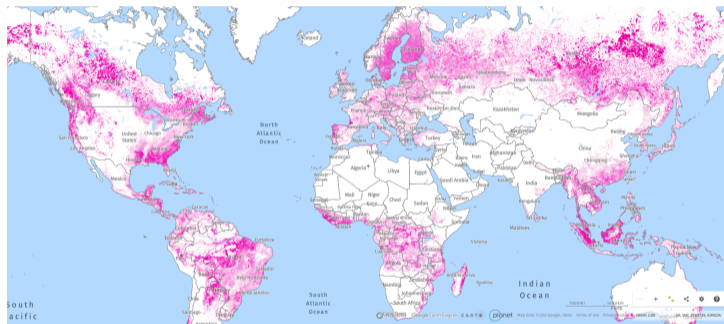
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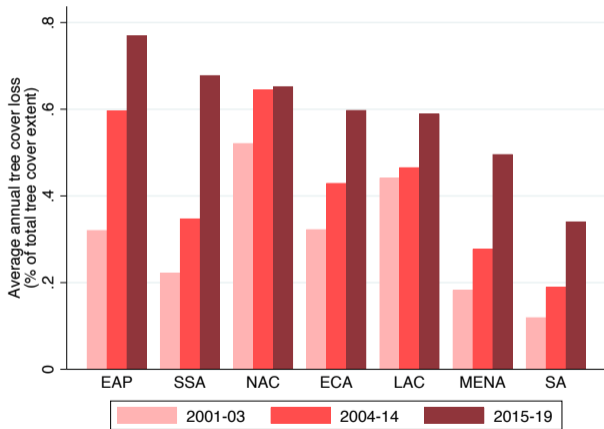
Motivation



Tree cover loss in pink between 2001-2021 from Global Forest Watch dashboard.

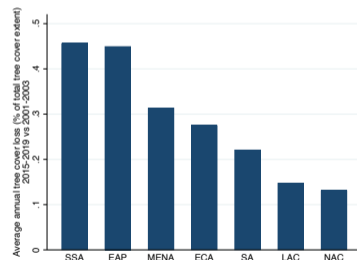
- The world has already lost half its forests
- Annual global deforestation is now \approx area of the UK
- Critical ecosystems affected like the Amazon, which has already lost 20% of its original extent

Africa's deforestation has increased



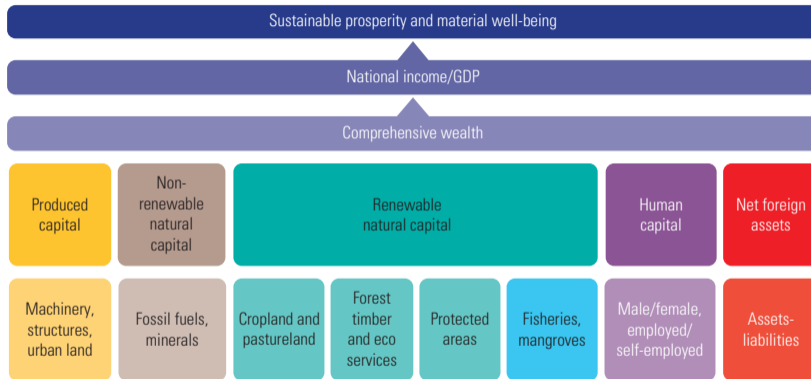
Source: based on Hansen et al (2013) via Global Forest Watch data.

- Annual deforestation has increased in the last two decades.
- Tree cover loss has accelerated since the end of commodity boom (2014).
- Sub-Saharan Africa had the fastest acceleration (3x vs before the boom).



Source: based on Hansen et al (2013).

Interactions between the value of different types of natural capital

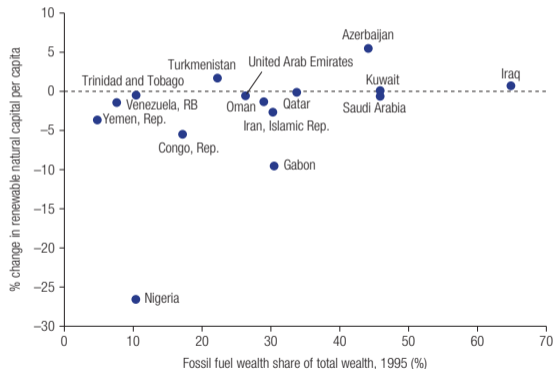


Source: World Bank.

Source: [The Changing Wealth of Nations 2021](#)

Motivation

FIGURE 11.9 Change in Renewable Natural Capital per Capita in Countries Whose Share of Fossil Fuel Wealth in Total Wealth Was Greater than 5 Percent in 1995, 1995–2018



Source: World Bank staff calculations.

- Decline/stagnation in renewable natural capital per capita in many fossil fuel producers
- Large declines in renewable natural capital per capita in six SSA countries (Benin, Burundi, the Democratic Republic of Congo, Gabon, Liberia, and Madagascar)
- Key causes include loss of forest assets and loss of value of croplands

Source: [The Changing Wealth of Nations 2021, chapter 11.](#)

What happens to forests when oil and gas become less profitable?

Country	2013	2016	↑ %	Oil Exp
Brazil	19,500	53,800	176	✓
Indonesia	11,400	24,200	113	✓
USA	17,400	22,600	30	X
DRC	9,200	13,800	50	✓
Bolivia	1,800	4,700	162	✓
China	4,400	7,200	63	X
Malaysia	3,300	5,700	70	✓
Vietnam	1,300	3,500	167	✓
Lao P.D.R.	2,000	3,900	89	X
Australia	2,600	4,300	66	X

- Global forest loss jumped from 200k sq km in 2013 to 300k in 2016
- Most of top ten biggest contributors are oil exporters
- 70% of the world's tropical forests are found among major oil and mineral exporters

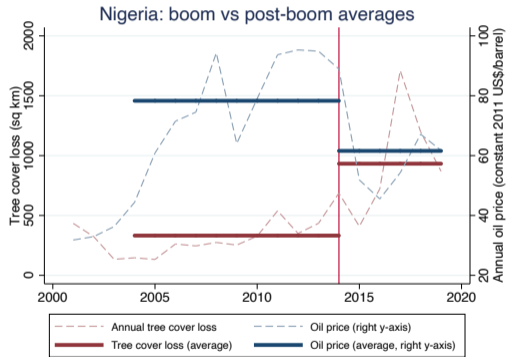
Annual deforestation in sq km

The case of Brazil

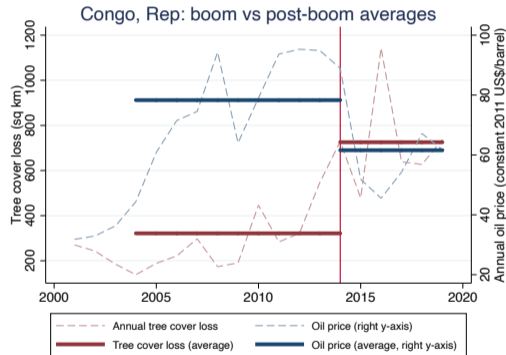


- Brazil's annual deforestation jumped from an average of 27,000 sq km (boom) to 34,000 sq km (post-boom)
- Over 10% of the global shares pre/post

Nigeria and Republic of the Congo



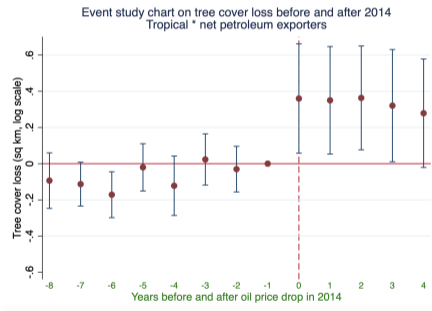
based on Hansen et al (2013) via GFW.



Source:

Source: based on Hansen et al (2013) via GFW.

Results from event study



- 2014 oil price crash
- ↑ global forest loss
- Estimated impact on post-2014 dummy: 0.46***
- A roughly 48% increase in deforestation from the event, in tropical oil exporters

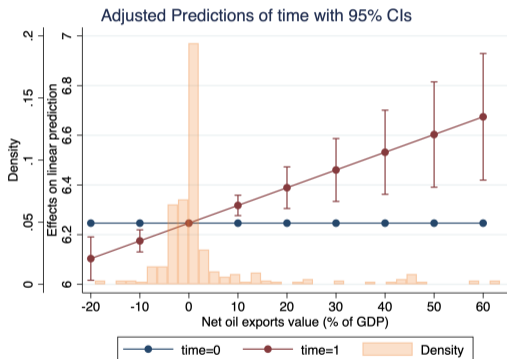
Event study: post 2015 x Amazonian disease exposed countries

	(1)
	Log tc loss
post	0.328*** (0.107)
post × AD	0.200* (0.120)
FE	Country year
obs	3197
countries	179
r2	0.10

Standard errors clustered at country level and country year fixed effects. *post* is a dummy that takes the value of 1 after 2015. *AD* is a dummy that takes the value of 1 for 17 countries exposed to the Amazonian disease.

- Focus on Amazonian disease affected countries (high forest cover, high oil)
- The results show that the oil price crash in 2014-2015 saw an average increase of tree cover loss of about 33 percent globally;
- And an additional 20 percent increase in tree cover loss in the 17 countries that are most exposed to the Amazonian disease.

Results for net exporters



Countries with cumulative deforestation greater than 1% of total area.

- The effect is **much** larger for large net oil exporters
- For those countries exposed to the Amazonian disease, each 1 percentage point increase in net oil exports share in GDP was associated with an additional 2.7 percent of tree cover loss.

The proposed mechanism: Dutch disease affects the forest

- Oil causes Dutch disease
- Dutch disease makes traded sectors less competitive
- Oil boom => Traded sectors contract => exports falls, imports rise (Harding & Venables, 2016)
- Forest version: Oil boom raises income and prices => agriculture may lose competitiveness
- Oil boom => Less deforestation and degradation
- Can we prove that Dutch disease affects the forest?

The proposed mechanism: 'Amazonian disease'?

- Amazonian disease: it's like Dutch disease in reverse
- Consider an oil price crash
- Fall in oil prices reduces Dutch disease effects
- Oil prices \downarrow \Rightarrow Makes agriculture more competitive \Rightarrow Expand agriculture output
- Oil crash \Rightarrow Increases deforestation pressure \Rightarrow 'Amazonian disease'
- Can we prove that this led to more deforestation?



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Regular article

Public governance versus corporate governance: Evidence from oil drilling in forests[☆]



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ABSTRACT

Petroleum companies look for oil and gas in some of the most remote and biodiverse forested areas on the planet. To study how local environmental footprints vary across countries and companies, we combine global company-level geo-coded data on oil drilling with high resolution data on forest loss. We find that oil wells drilled in countries with better public governance, measured by democracy scores, are associated with substantially lower forest loss in the period after drilling. In contrast, we do not find evidence of less forest clearance among companies with presumptively 'better' corporate governance practices, such as major international companies, publicly listed companies, or members of an industry association committed to high environmental standards. These results do not support a "pollution halo" effect, whereby companies might bring better environmental practices with them, exceeding domestic environmental standards.

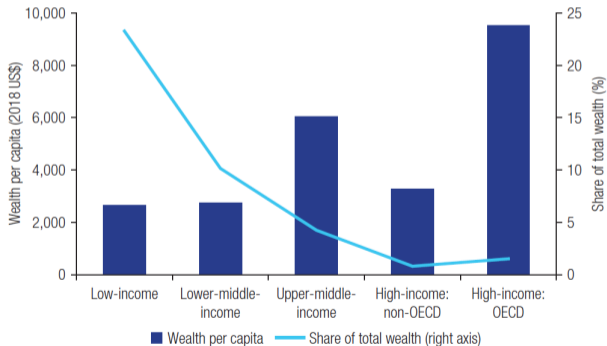
- "Protecting and enhancing the value of renewable natural capital is associated with better economic performance overall." (CWON 2021, ch. 11.)

Rich countries have higher value of their natural capital

Renewable Natural Capital per capita rises with income level, but share of total wealth declines

- Renewable natural capital remains critically important for low-income countries, accounting for 23 percent of their total wealth in 2018
- But natural capital per capita increases w/development
- The route to prosperity need not come at the expense of nature—the opposite is true

Renewable Natural Capital: Share of Wealth (line) and US\$ Per Capita Value, 2018



Source: [The Changing Wealth of Nations 2021 \(slide deck\)](#)