Forest Livelihood Briefs

Oil, macroeconomics and forests: Lessons for Central Africa

Key points

- Oil operations in tropical forests require some vegetation clearing, but that direct effect is likely to be minor compared to the areas of forest that oil and mineral earnings can potentially save through economy-wide effects.
- The net impact of increasing oil production in the tropics would probably be to reduce deforestation. When carried out in an environmentally responsible way, oil production can be a friend of the forest, rather than a threat.
- This surprising effect has nothing to do with the physical characteristics of oil, but with the foreign-exchange receipts from the sale of oil and from similar high-value sources like mineral exports, gas, workers' remittances from abroad and direct foreign investment. Basically these cash inflows relieve pressures on forests by curbing the expansion of agriculture and timber extraction.
- These export booms have powerful macroeconomic effects with global relevance, often called the "Dutch Disease". Their effect on forests is mediated by key domestic policy responses, such as exchange-rate management, trade policy, public-sector employment, agricultural subsidies, and road construction.
- Extra-sectoral, non-forestry policies often have larger impacts on forests than traditional forestry policy tools directly aimed at regulating forest-resource use. Gabon is an example where Dutch Disease and development policies combined to promote forest conservation - mostly unintentionally yet forcefully.
- The reverse impact of an oil bust, i.e. reduced rent inflows, fiscal cut-backs, sharp currency devaluation and harsh urban economic crisis can have dramatic deforestation impacts. This can drive people back to land-extensive swidden cultivation in the countryside, requiring much forested land to be converted. Post-1986 crisis-ridden Cameroon is an example in case.
- Gabon, on the edge of a sharp and lasting decline in its exceptionally high oil revenues, faces the prospects of an oil-bust transformation with economic decline. This policy brief outlines options to help Gabon adjust to the post-oil era, making sound economic policy choices without sacrificing its natural forest heritage. These policy options have much relevance for other oil- and mineral-exporting countries, in particular in Central Africa.

How does an oil or mineral boom affect forests?

Over the last two decades, rapid tropical deforestation and the associated loss of biological diversity have been a major global concern. Yet it has also become increasingly clear that what happens inside the forest and the forestry sector is normally just a tiny part of the causes of rapid forest loss. Often, strong external, underlying factors, especially in the macroeconomic sphere, play an important role in triggering land-use changes. An oil boom is one of these factors, and a particularly powerful one.

The causal mechanism at work is the following. The state starts spending oil or mineral windfall revenues on public services, employment and investment projects. This raises national income, labor costs, inflation and exchange rates. Oil and high-rent mineral countries simply become expensive economies. This is what economists call the 'Dutch Disease', referring to the experiences in the Netherlands with natural gas exports in the 1960s and 1970s. It favors urbanization, due to the expansion of urban services (construction, restaurants, etc.) and urban public-sector spending financed by state-owned resource rents.

On the other hand, rural economic sectors that are widely exposed to foreign competition, like agriculture and forestry, lose price competitiveness and market shares. Thus, they are crowded out by the boom, in absolute or relative terms. Figure 1 shows how Gabon's timber production, in particular exports, have historically been harmed during periods of low competitiveness, as implied by an appreciated real exchange rate index. But the decline of forestry and agriculture proved to be good news for forests. As people move from stagnant rural areas to the booming cities, pressure on forests for agricultural conversion (deforestation) and forest-product over-harvesting (forest degradation) tend to decrease. Deforestation typically slows down; in some cases, it is even reversed so that abandoned agricultural areas grow back into forests.

Does it matter?

A CIFOR study¹ found that about half of the area of tropical forests remaining in the world is concentrated in 24 countries that are specialized exporters of oil and minerals. They are also losing their large remaining forests at a significantly lower pace than other tropical countries. In other words, the macro-economic impact from oil and other high-rent minerals are important forest-protecting factors on a tropics-wide scale.

In a second, country-comparative study, CIFOR looked closer at the tropical oil-rich countries Cameroon, Ecuador, Gabon, Papua New Guinea and Venezuela, with supplementary studies of Indonesia, Mexico and Nigeria. In two of the eight countries (Gabon, Venezuela), periods of high oil revenues coincided widely with a significant national *forest-area expansion* on abandoned agricultural soils. In five other countries (Cameroon, Papua New Guinea, Mexico, Nigeria and Indonesia), we found that oil wealth would not stop deforestation entirely, but *forest loss slowed down significantly* during oil-boom periods, and accelerated correspondingly during economic crisis. The hypothesis of "oil protecting forests" was thus confirmed in relative terms, at the margin of other drivers of forest loss. Only one country (Ecuador) showed evidence in direct contrast, i.e. *deforestation accelerated* with oil wealth, due to specific national policy responses.

Figure 1. Timber production and real exchange rate, 1960-98: Historically, periods of an appreciated exchange rate and reduced price competitiveness have coincided with depressed timber production levels in Gabon.

The case of Gabon

Gabon is one of the countries that can best illustrate the effect of oil on forests, so CIFOR looked at it in greater detail³. Thanks to oil, Gabon has the second highest per capita income in sub-Saharan Africa. Thanks to oil, Gabon has seen a rapid growth in public employment, wages, urban infrastructure and transport. This has triggered a rural exodus to urban areas, especially of young people of working age. While urbanization caused some peri-urban deforestation, the rural land-use, forest-protecting effect is much stronger. As one village elder put it: "Nobody lives here anymore. The young are leaving, and the elephants and gorillas run freely through our gardens, destroying what little we grow to eat."

This is a familiar lament in rural Gabon. Agriculture's loss of competitiveness has been a blessing for forests. Over 80% of the country is still clothed in tropical forest. While this large forest stock is also due to Gabon's low population density, the *trend over time* is closely linked to oil: In spite of population growth of around 3%, forest cover has probably *risen slightly* over the last three decades.

Unfortunately for Gabon, oil deposits are running dry. At worst, a serious decline could occur over the next 5-10 years; at best, it may only happen in 15 years. Other non-renewable, rent-providing natural resources like natural gas and gold could with some luck fill part of the gap. Renewable resources like timber and fisheries could also be managed more intensively. But almost certainly even a combination of all these options will not make up fully for the loss of huge oil revenues. Gabon will become a less wealthy, less rent-driven and less costly economy.

Some value-added sectors could potentially benefit from that, but a general lack of entrepreneurial tradition, low-skill, high-cost labor and deteriorating infrastructure are serious obstacles. The most likely options are rural: some revival of export crops (e.g. cocoa, coffee), intensive high-value crops for urban consumption (e.g. legumes, fruits) and fall-back on forest extraction and swidden food crops. If swidden agriculture becomes the default response to economic crisis, the process of "re-ruralisation" would be land-extensive and require much forest conversion. The onslaught on the forest would be much less severe than in Nigeria and in post-1986 Cameroon, due to Gabon's much smaller population size and density. But the direction of change would be similar: people with no formal employment options would increasingly look to forest nutrient slash-and-burn for their survival.

What policy options for Gabon's post-oil period?

Adjusting to the downswing in oil wealth will necessarily trigger some land-use expansion and forest loss to meet human needs. But the trade-off between deforestation and welfare -the amount of forest to be sacrificed for alleviating economic crisis -will vary enormously between selected development paths. We make the following eight policy recommendations to strike a sound balance between economic and environmental concerns. Some of them are valid only for Gabon, yet many are relevant elsewhere, in particular to Central Africa with its predominant mineral export sectors and subsistence-oriented food-crop production.

1. *Stabilize the urban economy:* economic reforms, transparency and deregulation of the urban economy can help preserve urban employment - and thus help avoid mass rural return migration at the expense of forests.
2. *Reduce foreign debt:* the debt will become unserviceable once oil revenues diminish, and will then introduce enormous economic pressure to indiscriminately export natural resources (timber, cash crops, etc.).
3. *Develop alternative rent sources:* conservationists should support rather than oppose exploration for innovative non-renewable resources (e.g. gold, gas), as new revenues could help counteract "re-ruralisation".
4. *Confine deforestation spatially:* implementing spatial conservation priorities, restricting open-access deforestation, and favoring road improvement over new road construction are key actions to take.
5. *Keep trade policy liberal:* continue to allow imports of wheat, rice and meat, without raising trade barriers to over-protect inefficient domestic agriculture, which could increase deforestation markedly.
6. *Accept some cash-crop expansion:* new sources of foreign exchange and employment are needed. Cash crops like coffee and cocoa are more land-intensive and better assimilated to forests than swidden food crops.
7. *Timber-sector reforms:* Increase timber taxes and royalties to both capture higher stumpage values and to reduce timber extraction to levels that are sustainable in the long term, thus curbing forest degradation pressures.
8. *Consolidate protected areas:* Strengthen the dozen of national parks created in 2002, many of which are intended for luxury ecotourism, but also combine them with conservation easements and concessions providing direct private transfers in return for forest conservation.

Endnotes

¹ Sunderlin, W. and S. Wunder 2000. "The influence of mineral exports on the variability of tropical deforestation", *Environment and Development Economics*, vol.5, July, pp.309-32

² Wunder S. 2003. "Oil wealth and the fate of the forest. A comparative study of eight tropical countries", London: Routledge, ISBN 0-415-27867-80 (pp.432).

³ Wunder S. 2003a. "When the Dutch Disease met the French Connection. Oil, macroeconomics and forests in Gabon", Bogor: CIFOR and CARPE, (pp.67) (also published in French).

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