

Industrial Policy in Africa

Comments on:

Kaaria, et al

"The effects of Tax Incentives on Green goods in Kenya"

Rivi, et al

"Critical Minerals and Green Transition in Africa: Policy Trade-Offs Between Industrial Growth and Environmental Sustainability"

Gonhi, et al

"Spatial agglomeration of foreign direct investment and green productivity in African manufacturing: A policy dilemma between leverage and ecological trap"

Richard Newfarmer

International Growth Centre

February 18, 2026

Papers provide wonderful analyses directed at at important policy questions...

Kaaria: How can **tax incentives** be used effectively to promote green growth?

Rivi: How can **mining resources** drive industrial development?

Gonhi: How can Africa **use and channel FDI** – from different sources – to promote growth through green productivity?

Are there ways that their conclusions could be made more persuasive to policymakers?

Tax incentives

Question: To Do tariff/VAT reductions in Kenya on green imports lead to an increase? What type of firm is doing the importing?

Import: Standard recommendation of the WBG to reduce tariffs on green products.

Findings:

Cookstoves: Firms may tend to decrease imports and then respond after the policy is implemented.

Solar/wind: Clearing and forwarding agents even decrease the imports of solar and wind altogether. There may be other barriers to navigate for them in this market.

Tax incentives... methodological questions

- How to handle extremely **noisy policy environment**? Repeated VAT changes, overlapping EAC duty waivers, duty remission scheme/stays of application, COVID in 2020 – make it difficult to anchor change in one particular moment.
- Should the paper differentiate between **VAT exemptions and tariff** exemptions?
- Dif-in-dif: **Parallel trends assumption** violated Solar/wind specification shows clear pre-trends making post-treatment coefficients hard to interpret. Clean stoves show significant negative pre-trends interpreted as "anticipation," but consistent with mean reversion.
- **Treatment and control groups**: Dropping all products that "ever had a 0% VAT rate" from control group could create selection bias in remaining controls – worth discussing whether remaining products are systematically different?

Tax incentives... Policy and Possible Future Directions

The paper argues imports increased, but policymakers might ask:

With incentives and tariff reductions, what happened to:

- Prices and production response?
- Actual green technology adoption increase?
- More stoves/solar panels in Kenyan homes ...or just reshuffling of market shares?

What was the fiscal cost?

- Foregone VAT and customs revenue?

What were the environmental benefits (a la Susanna Berkouwer)?

- • Did households actually switch from charcoal/firewood to clean cookstoves?
- • Switch from diesel generators to solar?
- • Estimate: CO₂ emissions avoided, health improvements, time savings

Cost-effectiveness: How does cost per ton CO₂ avoided compare to alternative climate policies?

Critical minerals and natural resources

Research question: Can critical minerals drive Africa's industrial transformation? What are the environmental trade-offs?

Findings: Mineral exports, education, and infrastructure quality are the primary drivers of industrial value-added (INDVA), with foreign capital inflows playing no significant role.

Some methodological questions...

Dependent variable: Why only industrial value added? Why do we care only about industry – as opposed to other sectors that could lead to productivity gains, including commercial agriculture and higher value added services?

- Job creation...hence the focus on manufacturing...but several other sectors create high productivity jobs
- Unconditional convergence... but several activities have potential similar to manufacturing...

Country choice limits external validity: DRC, Namibia and Zimbabwe.

Endogeneity: Industrial value added **includes mining**, so using mining growth on both sides of the regression estimation might require attention. Very large coefficients (2.75) might indicate this should be examined a bit more closely. One option: use manufacturing rather than industry.

Environmental damages: Does focusing on per-capita CO₂ emissions ignore huge, more pressing environmental impacts (e.g., water contamination, air pollution, sickness)?

Mining ... policy considerations...

Policy:

- • Develop Human Capital for the Green Transition
- • Align Infrastructure with Industrial and Environmental Goals
- • Encourage Technological and Industrial Upgrading
- • Accelerate Renewable Energy Integration
- • Strengthen Environmental Governance and Oversight

... but these cry out for country specificity, starting with “foundational elements”

DRC: Need for peace in the Eastern Congo; accord with Rwanda on supply chains; international support and foreign investor involvement

Zimbabwe: Stable macro

Mining ... possible future directions

Worth reformulating question? How can mining be used to produce sustainable **growth more broadly**? Specifically, what are the mechanisms through which **increases in mining VA** are **transmitted** to growth (e.g., linkages, rent transfers, spillovers, agglomeration)?

Tapping into country experiences that seem to have had success (e.g., Botswana, Chile)

Chile

- Superstar: One of Latin America's best performers. In the four decades after 1980, moved from LMIC to OECD.
 - **Manufacturing** has not grown as share of GDP. It remains 9-12% of GDP
 - **Mining** still accounts for 60% of export earnings (2024); Copper + lithium represent >50% of merchandise exports
 - **Services** (especially finance, tourism, business services) - now 57% of GDP
 - **High-value agriculture** (salmon, wine, fruit) - niche export success
- ...and **pollution** has steadily fallen throughout the country.

Chile became a dynamic service economy, not a manufacturing economy... through their fiscal policy, taxation of mineral sector, industrial policy toward SMEs, and educational investments? Can these mechanisms be used in African countries to channel resource rents into sustainable growth?

Gonhi: Spatial agglomeration of FDI and green productivity

Questions: To what extent does the spatial agglomeration of FDI influence green productivity in the African manufacturing sector? Is there a difference between Chinese and non-Chinese behavior in clustering and in driving green productivity?

Findings:

- FDI agglomeration is not automatically green-productivity enhancing. Manufacturing development conditions the FDI–green productivity nexus
- The origin of FDI critically shapes green productivity outcomes
- Most gains come from technical efficiency, not innovation
- Without strategic governance, FDI agglomeration may become an ecological trap

Some methodological questions...

It is not clear to me why we would expect ex ante that FDI agglomeration – measured in geographic area – would lead to improved *green* productivity; it may help to distinguish between TFP growth and green TFP growth? Studies have shown -- Asongu et al. (2023), Meniago & Lartey (2021), Abebe et al. (2022) – that FDI increases TFP.

Is geospatial concentration of FDI the mechanism of TFP growth? Wouldn't one expect for FDI in natural resources to be concentrated where the oil or copper is, or manufacturing FDI in industrial parks, or service FDI in capitals?

GML index includes only CO₂ emissions? Other environmental problems – air pollution, water contamination, deforestation -- associated with FDI or industrialization generally are not considered, yet may be more important

FDI ... Policy and Possible Future Directions

Policy:

- Establish a **national FDI evaluation** committee implementing mandatory scoring that integrates environmental criteria and FDI origin
- Develop **special industrial zones** with low manufacturing development, offering progressive **tax exemptions** tied to green technologies
- Introduce a **progressive carbon tax** on emissions in FDI clusters
- Negotiate a **regional protocol** setting minimum environmental standards for FDI

Comment:

Not clear that analysis is sufficient to convince policy makers:

- Is **environmental selection criteria too narrow**? Would countries refuse entry to FDI if it scored low... but had other positive benefits (e.g., job creation)?
- Wouldn't it be desirable to **tax all emissions** not just those of FDI?

Strengthen the mechanism story:

- Is it FDI working through agglomeration or through other channels?
- Are Chinese projects more concentrated in renewables, power grids, industrial parks?

Future directions: Subregional analysis; sectoral analysis; differentiating FDI origins?

Key takeaways and questions for discussion...

All three are provocative and promising – and are well worth the investment of more time.

All the papers deal with important instruments of industrial policy... can conference participants think of ways of focusing on key messages that are likely to convince policy makers to move on these issues?