Climate Change and Fiscal Sustainability

Roland Kangni Kpodar

(International Monetary Fund)

BANQUE DE FRANCE-FERDI–AFD CONFERENCE
WHAT FINANCIAL CHOICES FOR AFRICA IN THE FACE OF CLIMATE CHANGE?

June 29–July 1, 2021

Why the Climate-Fiscal Policy Nexus deserves urgent attention?

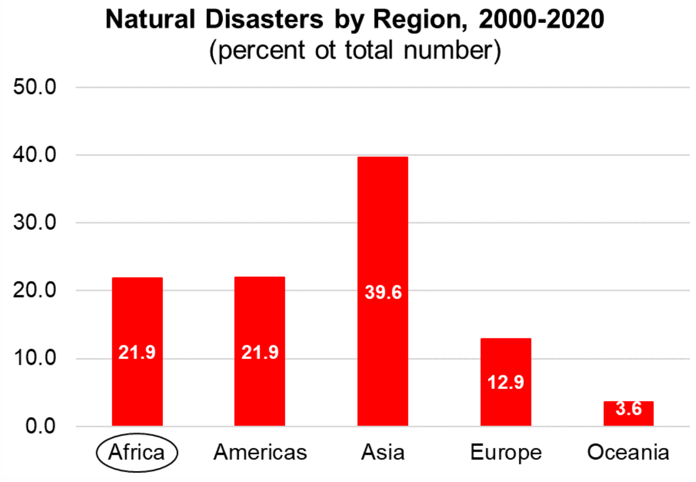
Climate change involves externalities that are not sufficiently internalized in private decisions; raises issues of inter-generational distribution ⟶ public interventions

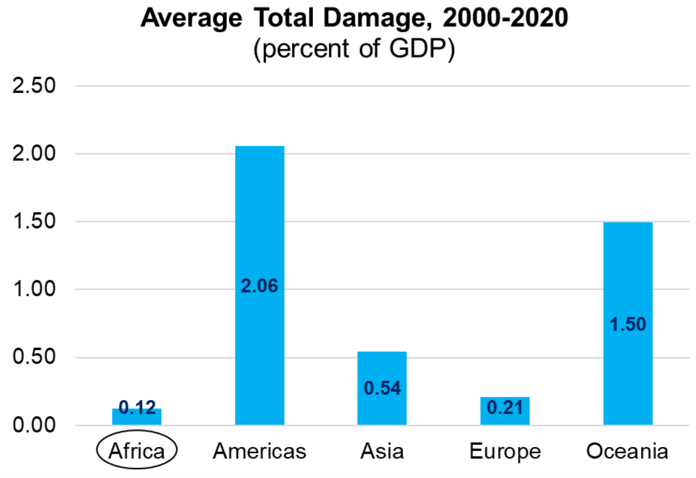
Climate change adversely impacts the budget, and public debt

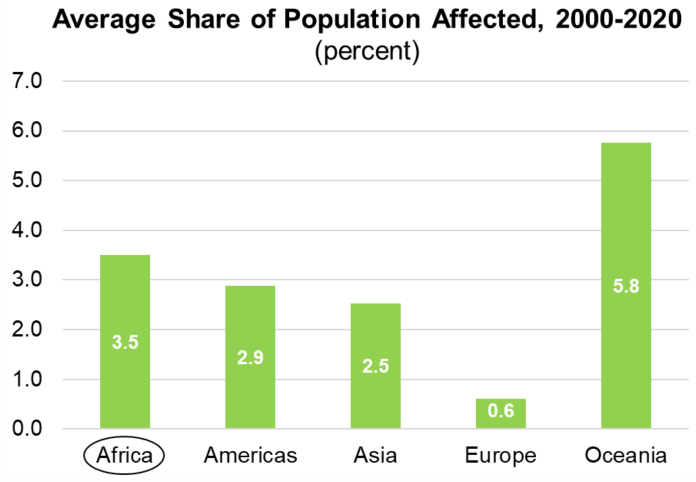
Mitigation and adaptation policies to address climate change have important fiscal implications; so are transition costs.

Africa: a highly exposed region to natural disasters

- About 22 percent of natural disasters occurred in Africa during 2000-2020
- Estimated economic damage is typically lower in Africa, reflecting poorly developed infrastructure (possibly measurement errors as well); but the human cost is high.



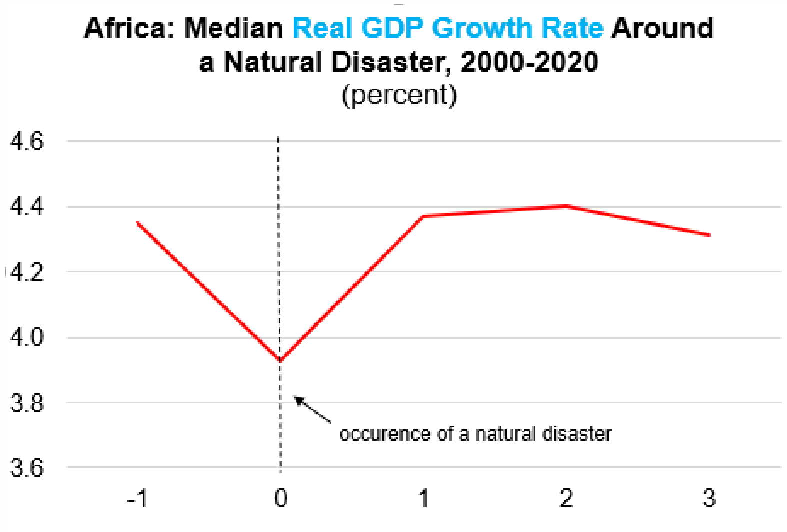


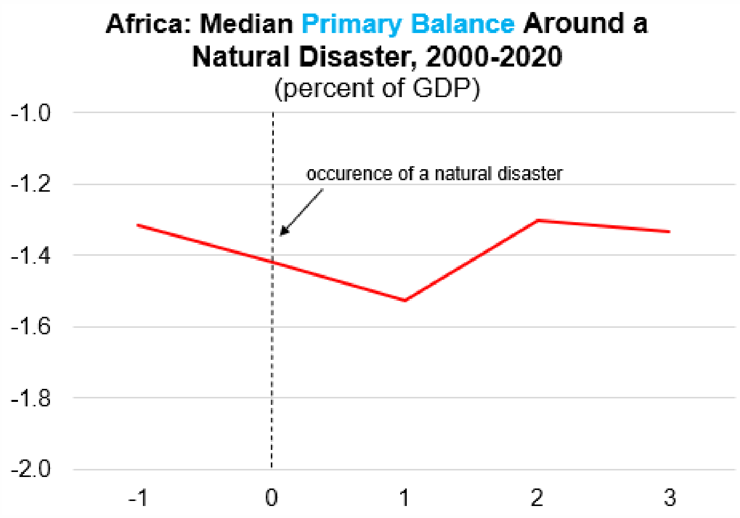


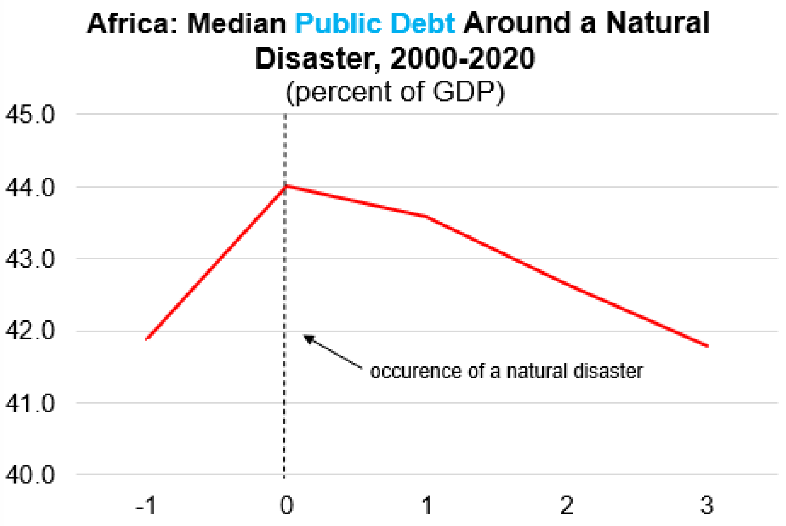
Source: EM-DAT database

Africa: a highly exposed region to natural disasters

- Macro-fiscal aggregates worsen around natural disasters







Sources: EM-DAT database, World Economic Outlook

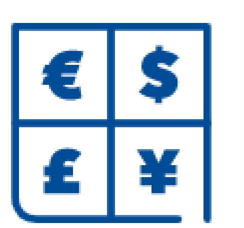
Climate change threatens fiscal sustainability

- Climate change leads to more intense and frequent extreme weather events, therefore undermining growth
- Agricultural, tourism and fishing sectors are more exposed, with declining production and low productivity.

- Low growth weakens tax collection, given the large share of climate-exposed sectors in GDP, particularly in Africa
- May lead to more distortionary taxes considering the limited tax base

- Reconstruction cost following extreme weather events weighs on the budget, crowding out essential public spending
- Social transfers to households affected by climate shocks
- Government subsidies to climate-exposed sector may increase (e.g. farmers)
- Pressure on existing infrastructure:
  - Sub-Saharan Africa is vulnerable to climate change: a 1°C increase in temperature could increase electricity consumption by about 6.7%, adding to the challenge of poor access to electricity (Yao, 2021), and high energy subsidies.
  - Climate change alters migration patterns, thus accelerating rural flight
  - Pollution causes health issues, straining the health system, which is mostly publicly funded

Climate change threatens fiscal sustainability



- Climate change can raise the cost of financing:
  - Risk premium can increase with exposure to climate shocks
  - Climate shocks raise financing needs, in some cases forcing governments to borrow at excessive rates to finance emergency spending

- Climate change heightens fiscal risks, leading to deviations of fiscal outcomes from budget forecasts:
  - Contingent funds are typically small or inexistent; governments have little room to respond to climate shocks within budget parameters.
  - Contingent liabilities (implicit or explicit) from guaranteed debts may arise; market insurance may be unavailable or unaffordable at actuarially fair rates in many African countries

- Climate change weighs on public debt, on the back of rising debt vulnerabilities.
  - Public debt in sub-Saharan Africa increased to 58 percent of GDP in 2020, the highest level in almost 20 years and a jump of more than 6 percentage points in just one year amid the pandemic.

Fiscal instruments have a key role in mitigating and adaptation strategies to address climate change

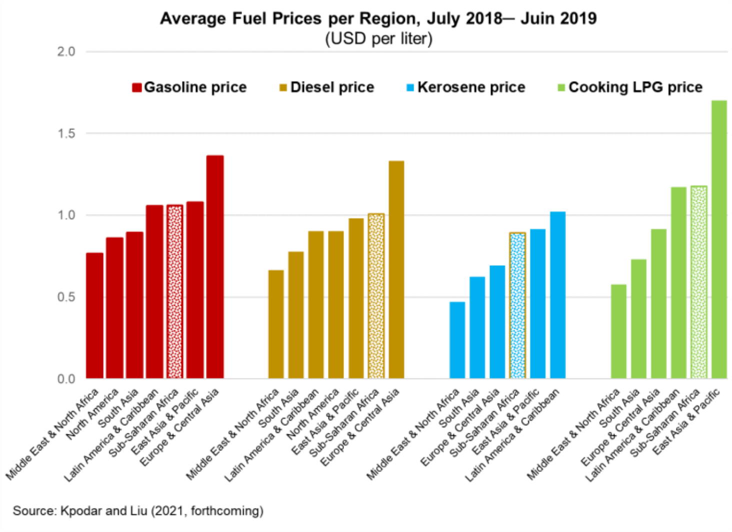
- **On the revenue side, carbon tax is a powerful tool to reduce greenhouse gas emissions, with several advantages**:
  - The proceeds can enable a reduction in distortionary taxes, an increase in public spending (resilient infrastructure, social safety nets) or a reduction in public debt; easy to administer
  - Lower greenhouse gas emissions spurs growth in the medium term, with favorable effects on future government revenues
  - Current carbon tax levels are low, giving rise to sizeable energy subsidies. Removal of these subsidies improves income distribution, as the bulk of the subsidies is captured by well-off households. But vulnerable households are exposed to fuel subsidy reforms.

- … **but carbon tax has also downsides**:
  - It can generate an economic cost in the short-term as output and employment in energy intensive sectors suffer from higher taxation, and resources are allocated away from these sectors.
  - Lower fossil fuel consumption will reduce income for SSA fuel exporters and depreciate the value of their oil reserves.
  - Carbon tax will affect the poor, hence the need for compensatory mechanisms

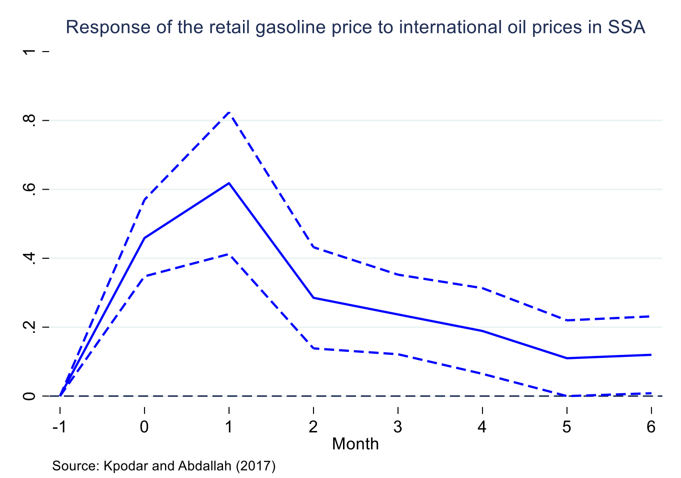
Source: Kpodar and Abdallah, 2017

Fiscal instruments have a key role in mitigating and adaptation strategies to address climate change

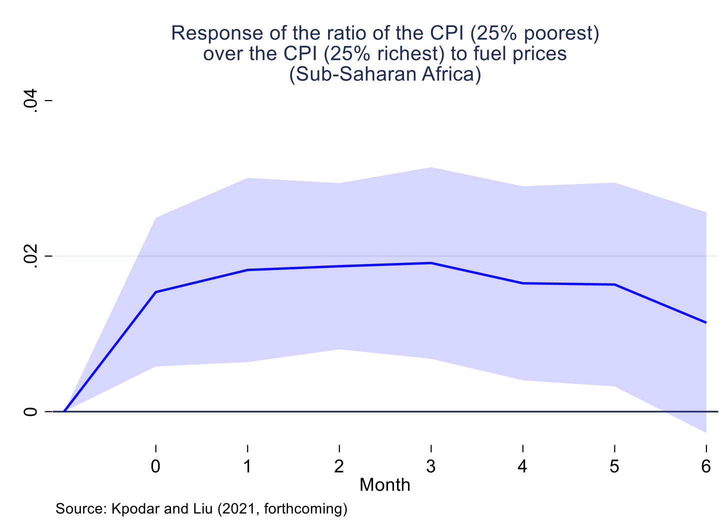
Fuel prices are high in SSA…



…but pass-through is low…



… and has distributional consequences…



… with the export sector also highly vulnerable

Appendix table 4. Real Export Growth and Gasoline Price Changes by Regions and Size of Fuel Subsidies

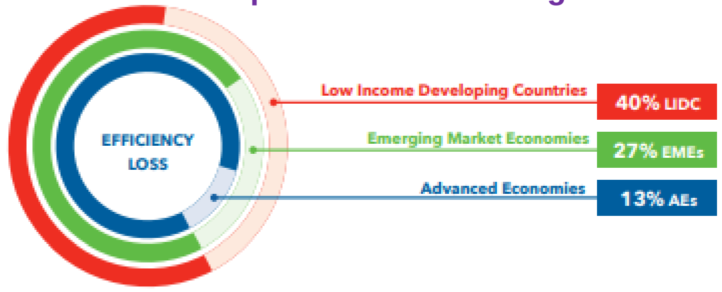
	FE (1) Low fuel subsidies	FE (2) High fuel subsidies	FE (3) Asia	FE (4) Latin America	FE (5) Sub-Saharan Africa
Change in gasoline pump price (t-1)	–0.715 [0.143]***	–0.681 [0.289]**	–0.509 [0.126]***	–0.265 [0.104]**	–0.727 [0.160]***

Source: Kpodar, Fabrizio and Eklou (2021)

Fiscal instruments have a key role in mitigating and adaptation strategies to address climate change

- **On the spending side:**
  - Adaptation is critical for withstanding the effects of climate change
  - Resilient infrastructure reduces expected losses from natural hazards, raise returns to private investment, employment and output.
  - Intertemporal mismatch: the upfront cost of investing in structural resilience is significant but benefits that typically accrue over the medium to long run can exceed costs by a large margin (IMF, 2019).
    - ✓ For Seychelles, the cost of the investment projects identified in the Nationally Determined Contribution amounted to 40 percent of 2016 GDP (lower bound). Only 3 percent of GDP have been budgeted for in the 2017-19 public investment program.
  - Extra cost of building resilience in power, water and sanitation, transport, and telecommunications infrastructure is only 3 percent of overall investment needs (Hallegatte, Rentschler and Rozenberg, 2019). At the same time, the IMF estimates that poor infrastructure governance results in a 40 percent cost overun in infrastructure projects in low-income countries.
  - Maintenance cost will also increase as the stock of public capital expands.
  - Need to strengthen social safety nets, support adjustment in energy-intensive sectors, and encourage investment in renewable energies

Losses from poor infrastructure governance



Source: IMF (2019)

Policy recommendations

Create fiscal space

- Step up domestic revenue mobilization
- Improve expenditure efficiency and prioritize growth-enhancing public spending
- Recognize and better assess fiscal vulnerability due to climate change

Safeguard debt sustainability

- Mobilize domestic savings and private sector financing
- Prioritize external concessional financing
- State-contingent debt instruments, debt-for-climate swaps

Leverage climate financing

- Call for major donors to meet pledges on climate financing
- Access to climate financing, easing complexity & capacity constraints

Credit photo: CGTN Africa

References

- Hallegatte, S., J. Rentschler and J. Rozenberg, 2019, *Lifelines : The Resilient Infrastructure Opportunity,* Washington, DC: World Bank.
- International Monetary Fund 2019. “Building Resilience in Developing Countries Vulnerable to Large Natural Disasters”, Washington DC. https://www.imf.org/-/media/Files/Publications/PP/2019/PPEA2019020.ashx
- Kpodar, K. and C. Abdallah, 2017, “Dynamic Fuel Price Pass-Through: Evidence from a New Global Retail Fuel Price Database” *Energy Economics*, Vol. 66, pp. 303-312
- Kpodar, K., S. Fabrizio and K., 2021, “Export Growth - Fuel Price Nexus in Developing Countries: Real or False Concern?”, *Energy Journal*, Vol. 43, No 3.
- Kpodar, K. and B. Liu, 2021, “Assessing the Response of Inflation to Changes in Fuel Prices and the Distributional Consequences”, IMF working paper (forthcoming).
- Yao, J. (2021). “Electricity Consumption and Temperature: Evidence from Satellite Data”, IMF working paper WP 21/22