Session Keynote

Grounding the Understanding of Direct and Indirect Impacts: The Economic Dimension

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Defining direct and indirect impacts of disasters

Florent McIsaac (WBG Climate Change Group)
Climate disasters increasingly require a policy response
Integrating natural/Climate disasters in a macroeconomic model: Türkiye case study
Direct impact natural disaster – e.g., capital stock

Before Disaster

\[ K_t = (1 - \delta)K_{t-1} + I_t \]

After Disaster

\[ \tilde{K}_t = (1 - \delta)K_{t-1} + I_t - D_t \]

And loss of life, disruption to normal life, etc.
Indirect impacts

**Economic disruption:** Disasters can disrupt economic activity, leading to job losses, business closures, and a decline in economic output.

**Social disruption:** Disasters can disrupt social networks, leading to increased poverty, crime, and social unrest.

**Environmental damage:** Disasters can cause environmental damage, such as soil erosion, water pollution, and deforestation.
Indirect impacts can be as strong as direct impacts
Role of productivity

- Disasters affect the capital stock and TFP, through two independent processes.
- Best response to K shock and TFP shock is not the same.
- And these two channels are linked and their connection essential to design policy responses.

Remark
A more granular representation of productivity impacts would help design best response.
Importance of measuring reconstruction

- Disasters also a major demand shock through reconstruction

- If all investments are the same, and there is no structural constraints, then reconstruction should be (almost) immediate
  - Katrina’s damages in New Orleans are two weeks of US investments

- But there are multiple constraints:
  - Financial
  - Technical
  - Institutional
  - Incentives
How to prioritize reconstruction? The role of prices

Wages for qualified roofers in Miami, US, rose significantly after the 2004 hurricane season

- **Remark:** A more granular representation of the disaster impacts and reconstruction would help assess various monetary policy options (political economy and the role of “signaling”).

- Reconstruction investments have a higher return than greenfield investments, so there is a higher willingness to pay for them: **higher prices displace “normal” investments to accelerate reconstruction.**
- Interest rates can also play a role, by discouraging low-return investments so that resources can be concentrated on high-return reconstruction.
- **There are important redistributive effects. Are they better treated through transfers?**

Distinguish **public** and **private** capital

To account for different constraints

- decision-making processes
- funding sources
- timing constraints for rebuilding different types of assets
The role of heterogeneity in empirical estimates: different timelines, and different balance between supply and demand

- Meteorological vs. hydrological vs. agricultural vs. socioeconomic droughts
- Short/intense vs. long-moderate droughts
- Spatial extent (e.g., 2011 East Africa drought)

- Tropical vs. extratropical
- Intensity and spatial extent
- Wind damage vs. flood damages

- Coastal vs. pluvial vs. fluvial floods
- Thailand 2011 vs. Flash floods
- Rural floods vs urban floods
- Role of productivity-boost in agriculture
- Choices regarding reconstruction