

## **Stressed economies respond more strongly to climate extremes**

Topic: Agent-Based Modeling and Input-Output Analysis - II

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Economies experience stress for various reasons such as the global Covid-19 pandemic beginning in 2020. The associated lock-downs caused local economic losses and the disruption of international supply chains. In addition, such stress alters the effects of short-term shocks as caused by climate extremes, especially their propagation through the economic network and the resulting repercussions. Here we show that the combined adverse impacts of tropical cyclones, river floods, and heat stress on global consumption is strongly enhanced when the economy is under stress. This increase results from aggravated scarcity causing higher consumer prices. Modeling climate impacts during Covid-19, we find that in a stressed economy with the current network structure, consumption losses due to climate extremes double in the US and triple in China. The simulated effects intensify when climate shocks grow stronger. Our results emphasize the amplifying role of the interaction between climate change and its socioeconomic backdrop.