Climate Change: Some Winners, More Losers

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“Climate change describes the current trend toward higher average global temperatures and accompanying environmental shifts such as rising sea levels and more severe storms, floods, droughts, and heat waves. In coming decades, climate change—and efforts to limit that change and adapt to it—will have increasingly important effects on the U.S. economy. These effects and their associated risks are relevant considerations for the Federal Reserve in fulfilling its mandate for macroeconomic and financial stability.”
Temperatures Will Rise Without Action
Projected mean global temp. increases relative to 1986-2005, °C

Sources: IPCC, Moody's Analytics
We Assessed Six Impact Channels

- Sea level rise
- Agricultural productivity
- Heat and labor productivity
- Human health
- Tourism
- Energy demand
Emerging Economies Industrialize
India, economic concentration by sector, %

Sources: World Bank, Moody’s Analytics
Some Winners, More Losers
GDP % deviation from baseline in 2048, RCP 8.5

Source: Moody’s Analytics
Biggest Losers From Climate Change
Real GDP, % change, RCP 8.5, 2048

Saudi Arabia
Hong Kong
Malta
Malaysia
Algeria
Philippines
Bahrain
Singapore
Thailand
Qatar
Oman
Nigeria

-12 -10 -8 -6 -4 -2 0

Developed countries and territories
Developing countries
Oil producers

Sources: World Bank, Moody’s Analytics
Falling Demand Cuts Oil Prices

Reduction in oil prices, %

Sources: World Bank, Moody's Analytics
Productivity Will Fall in Every Country…
Reduction in potential productivity by 2048, %

Sources: World Bank, Moody’s Analytics
...But Tourism Impacts Are Uneven

Change in economic output due to tourism by 2048, % of GDP

Sources: World Bank, Moody’s Analytics
Biggest Winners Are in Northern Europe…
Real GDP, % change, RCP 8.5, 2048

Sources: World Bank, Moody’s Analytics
...Largest Economies Change Little...
Real GDP, % change, RCP 8.5, 2048

Sources: World Bank, Moody’s Analytics
…But Climate Stress Compounds Over Time
India, reduction in potential productivity, %

Sources: World Bank, Moody’s Analytics
Economic Research Limitations

» Costs of extreme weather events are not quantified
» Do not consider the impact of population dislocations and migration
» Geopolitical fallout is not considered
» Pollution mitigation costs are not assessed
» Horizon of economic scenarios is only 30 years
» Heightened uncertainty for economic projections
Costliest U.S. Disasters Occurred Recently

Costliest weather events in U.S. history, $ bil

- Hurricane Katrina, 2005
- Hurricane Harvey, 2017
- Hurricane Maria, 2017
- Superstorm Sandy, 2012
- Hurricane Irma, 2017

Sources: NOAA, Moody’s Analytics
Q&A

Questions?
Contact us at help@economy.com
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