Climate Change Around the World

Author:Per Krusell, Anthony A. Smith Jr.

Date:2022-08-01

Keyword:NA

Url:[click here](https://www.nber.org/papers/w30338)

Attachment:[click here](https://www.nber.org/system/files/working_papers/w30338/w30338.pdf)

From:NEBR-working\_paper

The economic effects of climate change vary across both time and space. To study these effects, this paper builds a global economy-climate model featuring a high degree of geographic resolution. Carbon emissions from the use of energy in production increase the Earth's (average) temperature and local, or regional, temperatures respond more or less sensitively to this increase. Each of the approximately 19,000 regions makes optimal consumption-savings and energy-use decisions as its climate (or regional temperature) and, consequently, its productivity change over time. The relationship between regional temperature and regional productivity has an inverted U-shape, calibrated so that the high-resolution model replicates estimates of aggregate global damages from global warming. At the global level, then, the high-resolution model nests standard one-region economy-climate models, while at the same time it features realistic spatial variation in climate and economic activity. The central result is that the effects of climate change vary dramatically across space---with many regions gaining while others lose---and the global average effects, while negative, are dwarfed quantitatively by the differences across space. A tax on carbon increases average (global) welfare, but there is a large disparity of views on it across regions, with both winners and losers. Climate change also leads to large increases in global inequality, across both regions and countries. These findings vary little as capital markets range from closed (autarky) to open (free capital mobility).