CLIMATE CHANGE AND THE SPATIAL REALLOCATION OF LABOR

TATYANA DERYUGINA

UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
HOW WILL CLIMATE CHANGE AFFECT THE SPATIAL DISTRIBUTION OF LABOR?

1. There is a lot of scope for spatial reallocation of labor, at least in the US
2. Most people move for job-related reasons and fairly early in life ⇒ Future productivity of places is important for future spatial distribution of labor
3. There is a lot of uncertainty about future productivity of places
4. Many people live in seemingly sub-optimal locations, and we don’t really understand why
Most people move across states for job-related reasons. Source: Jia et al. (JEL forthcoming)
HIGH TEMPERATURES ARE BAD FOR PRODUCTIVITY...

Dashed lines correspond to estimates for both urban and rural counties. Source: Deryugina and Hsiang (2017)
...BUT ACCOUNTING FOR ADAPTATION MATTERS

Change in total income 1991-2100 (NPV median trajectory relative to no warming)

Change in total farm income 1991-2100 (NPV median trajectory relative to no warming)

full adaptation (cubic) model, stratifying counties by urban vs. rural

Source: Deryugina and Hsiang (2017)
IN THE LONG RUN WE ARE ALL DEAD

- There is evidence of *cross-sectional* adaptation

- But no evidence of adaptation to high temperatures in 40 years of US data

Source: Deryugina and Hsiang (2017)
Speed of adaptation matters

- Fast adaptation eliminates about 75% of damage (NPV), slow adaptation eliminates about 20%.

- There is a lot of uncertainty about future productivity of places.
MANY PEOPLE LIVE IN SEEMINGLY SUB-OPTIMAL LOCATIONS

Hurricane Katrina improved victims’ long-run real incomes and survival

Sources: Deryugina, Kawano, and Levitt (2017), Deryugina and Molitor (2020), respectively
RELOCATION DUE TO CLIMATE CHANGE MAY BE MINIMAL

• Mathes (2022) uses administrative Medicare data for 65+ year-olds to calibrate a spatial equilibrium model where location affects health and mortality:
  • Climate change will lower life expectancy at age 65 by 0.18 years, but few 65+ year-olds will relocate in response
  • The annual welfare value of being able to relocate in response to climate change is only $7 per capita, tiny compared to the annual welfare value of being able to relocate more generally ($2,085)
• Would similar conclusions be reached by studying the working-age population?
The fastest-growing metro areas already have hot climates.

Source: Jia et al. (forthcoming JEL)

Migration is defined as moving in 2018-2019.
WE NEED TO UNDERSTAND WHY PEOPLE REMAIN IN SEEMINGLY “SUBOPTIMAL” PLACES

Offsetting amenities
Social networks
Lack of information
Habit formation