# How Much Will Global Warming Cool the Planet Ishan Nath, Valerie Ramey, and Pete Klenow

# Sea Level Rise and Urban Adaptation in Jakarta Allan Hsiao

Comments: Samuel Kortum

Yale Climate, Environment, and Economic Growth Conference 2023

November, 2023

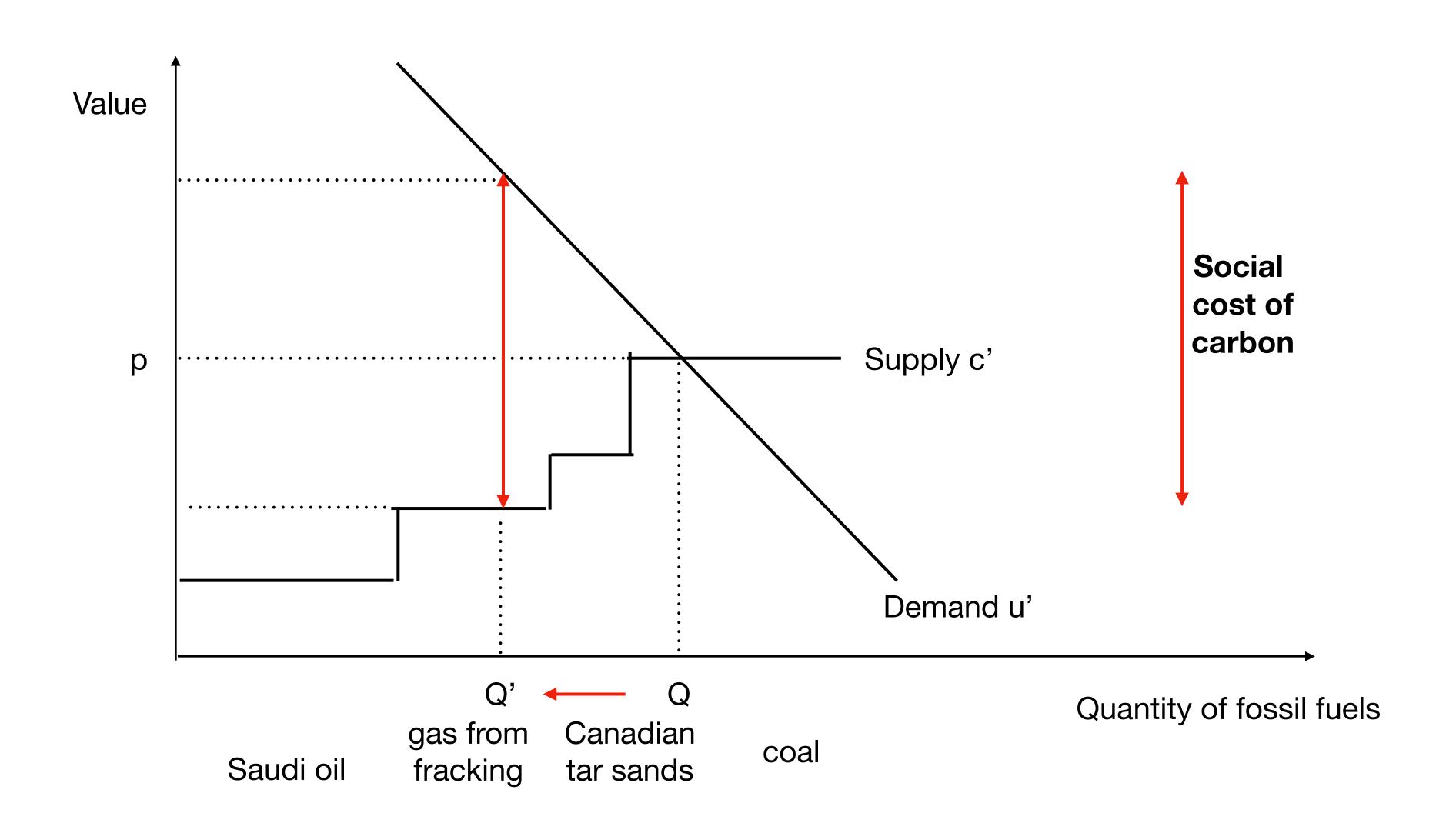
- What can economists contribute to estimates of the global social cost of carbon?
  - ... conditional on how carbon emissions raise sea level and temperature

- What can economists contribute to estimates of the global social cost of carbon?
  - ... conditional on how carbon emissions raise sea level and temperature
- Hsiao: bottom up
  - adaptation costs are part of the SCC

- What can economists contribute to estimates of the global social cost of carbon?
  - ... conditional on how carbon emissions raise sea level and temperature
- Hsiao: bottom up
  - adaptation costs are part of the SCC
- Nath, Ramey, and Klenow: top down
  - GDP per capita is our favorite macro metric

- What can economists contribute to estimates of the global social cost of carbon?
  - ... conditional on how carbon emissions raise sea level and temperature
- Hsiao: bottom up
  - adaptation costs are part of the SCC
- Nath, Ramey, and Klenow: top down
  - GDP per capita is our favorite macro metric
- Why is it so important to get it right? ...

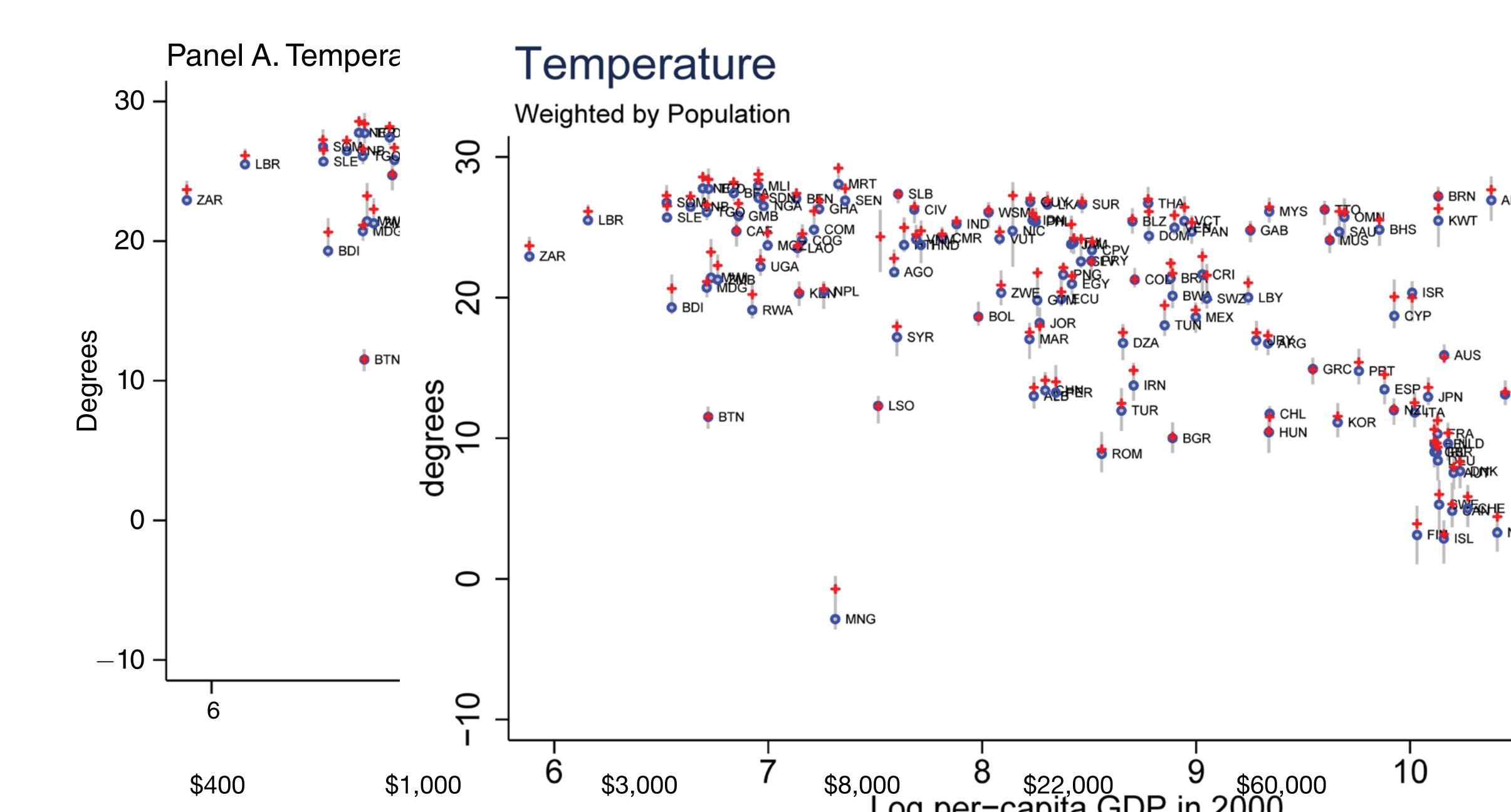
## Global Carbon Policy



- Top down approach looks within, not across, countries
  - that approach was established by Dell, Jones, and Olken

- Top down approach looks within, not across, countries
  - that approach was established by Dell, Jones, and Olken
- Implies extrapolating from a small amount of variation in temperature
  - and that variation may be misleading, given adaptation

- Top down approach looks within, not across, countries
  - that approach was established by Dell, Jones, and Olken
- Implies extrapolating from a small amount of variation in temperature
  - and that variation may be misleading, given adaptation
- Challenge is nicely illustrated with a scatter ...



- Given the challenge, NRK's treatment is the best I've seen
  - careful analysis of the dynamic responses of GDP and temperature itself to a temperature shock

- Given the challenge, NRK's treatment is the best I've seen
  - careful analysis of the dynamic responses of GDP and temperature itself to a temperature shock
- How to think about a temperature shock
  - don't think of it as a shock that ruins this year's crop (then you'd see a bounce back)
  - instead, think of it as a shock that interferes with productivity investments (so persistent)
  - falling behind creates potential for technological catch up (so not a growth effect)

- Given the challenge, NRK's treatment is the best I've seen
  - careful analysis of the dynamic responses of GDP and temperature itself to a temperature shock
- How to think about a temperature shock
  - don't think of it as a shock that ruins this year's crop (then you'd see a bounce back)
  - instead, think of it as a shock that interferes with productivity investments (so persistent)
  - falling behind creates potential for technological catch up (so not a growth effect)
- Bottom line is a much higher estimate of the GDP cost of a temperature shock
  - So a higher SCC (but much lower than one built on permanent growth effects)

- The top down approach needs to be done well; this paper is a major contribution
  - but there's a leap of faith in taking such results too seriously

- The top down approach needs to be done well; this paper is a major contribution
  - but there's a leap of faith in taking such results too seriously
- Preferable to build up from tangible cases as is nicely done in Allan Hsiao's paper
  - that will take much longer, and we need rough answers ASAP

- The top down approach needs to be done well; this paper is a major contribution
  - but there's a leap of faith in taking such results too seriously
- Preferable to build up from tangible cases as is nicely done in Allan Hsiao's paper
  - that will take much longer, and we need rough answers ASAP
- A promising approach in between is a recent paper by Bilal and Rossi-Hansberg
  - "Anticipating Climate Change ...", but I call it "Capital and the Cost of Climate Change"
  - ... a dynamic macro/spatial analysis of localized shocks (severe storms) that damage capital