Rhodium Group

Economic Analysis and the Social Cost of Carbon

California's 2022 Climate Change Scoping Plan

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Rhodium Scoping Plan work streams

- Job and Economic Analysis
  - Analyze the economic impact of implementing the Scoping Plan scenarios using the IMPLAN model
  - Provide an estimation of economic impacts at the state and county level
  - Incorporate health impact data
- Social Cost of Carbon
  - Quantify the global benefits of California's GHG reductions

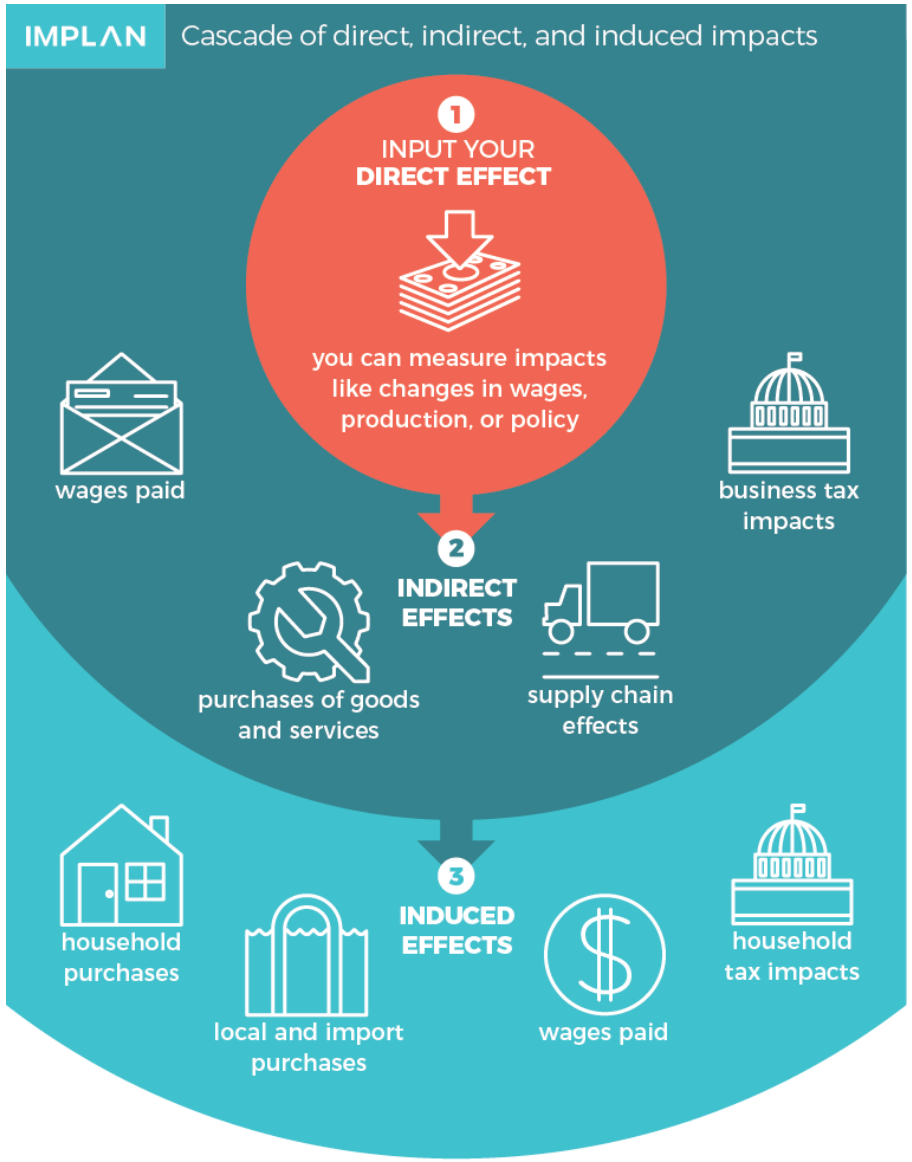
Section 1

Job and Economic Analysis

Macroeconomic impacts will be estimated using IMPLAN

- IMPLAN is an input-output modeling system that uses annual, regional data to map economic relationship across industries, households, and governments in an economy
- The data contains 546 sectors representing private industries in the US classified by NAICS code
- Impacts can be assessed at the state and county level
- IMPLAN data updated annually from more than 90 sources including:
  - US Bureau of Economic Analysis (BEA)
  - US Department of Agriculture (USDA)
  - US Bureau of Labor Statistics (BLS)
  - US Census Bureau
  - National Center for Education Statistics (NCES)

IMPLAN estimates the economic impact to changes in an economy



Source: IMPLAN

Inputs

Costs and savings from PATHWAYS representing changes in spending by businesses and households

Monetized health impact data to estimate the change in health expenditures that result from changes in air pollution

Outputs

Changes in spending and employment across the California economy, California businesses, households

Section 2

The Social Cost of Carbon

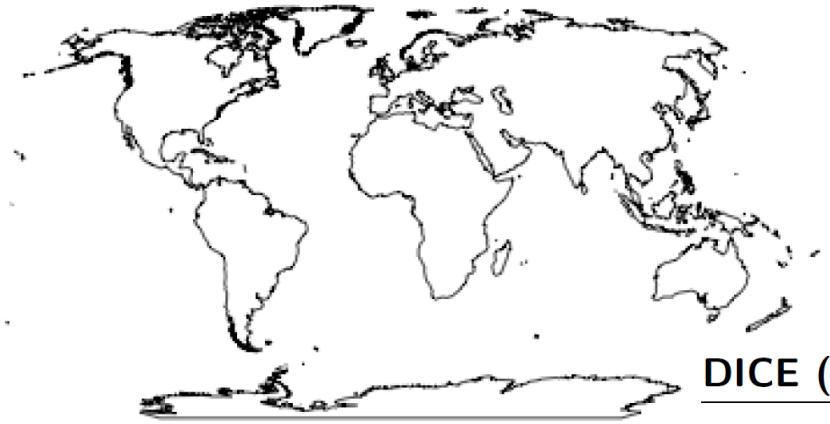
Climate Impact Lab and the social cost of carbon

THE UNIVERSITY OF CHICAGO · Berkeley UNIVERSITY OF CALIFORNIA · RUTGERS · Rh g RHODIUM GROUP

- The Climate Impact Lab combines historical economic and climate data and uses big data analytical tools to find ways of how a changing climate impacts society
- The Lab is estimating the relationship between a changing climate and human well-being using the most comprehensive climate and economic data sets ever compiled
- The Lab is monetizing and aggregating impacts to produce the world's first evidence-based estimate of the social cost of carbon – the cost to society and the economy from each ton of carbon dioxide emitted

Producing hyperlocal climate impact projections

Comparison with existing models

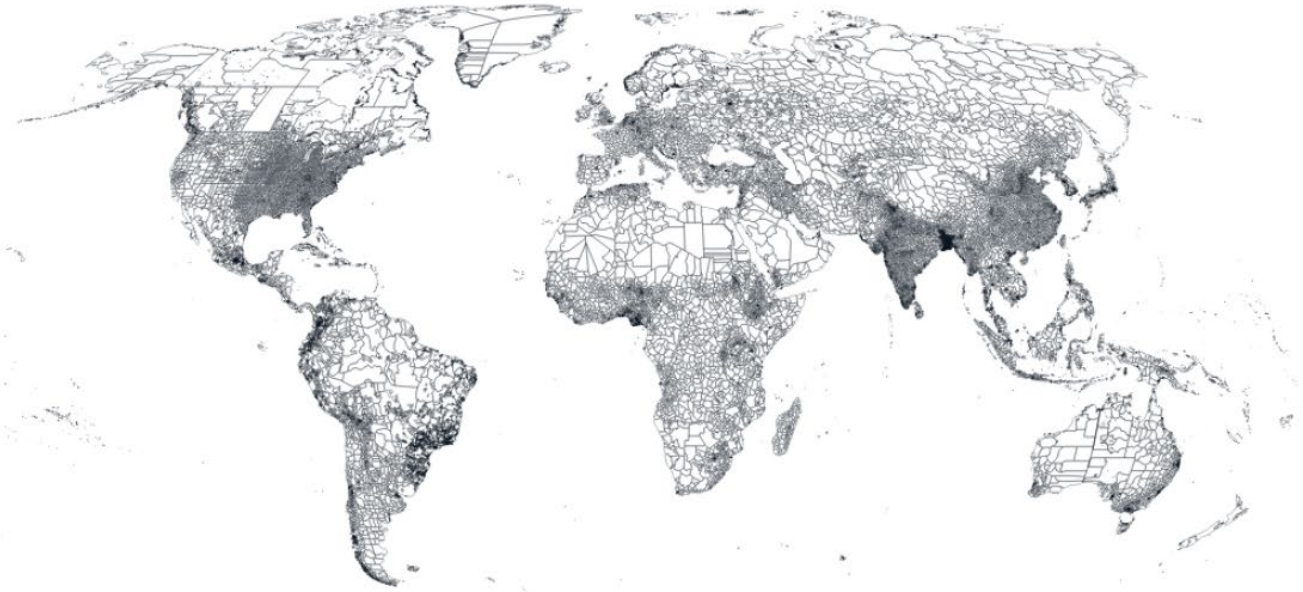


DICE (1992):

1 global region

FUND (1996):

16 regions



Climate Impact Lab

25,000 regions

Social cost of carbon and AB 197

AB 197

> “social costs” means an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year

Climate Impact Lab

The Social Cost of Carbon is meant to be a comprehensive estimate of climate change damages and includes changes in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning

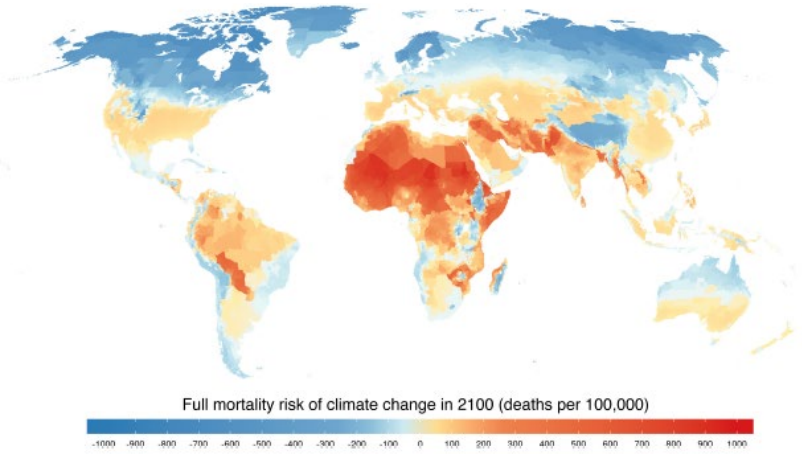
Quantifying global benefits using the updated social cost of carbon

- Rhodium will quantify the global benefits of the GHG reductions using the Climate Impact Lab's updated social cost of carbon estimates
- The Lab's update will bring the social cost of carbon up to date with the frontier of science & economics
- The Lab's forthcoming social cost of carbon update is following the Biden administration's Executive Order on updating the SCC and recommendations from the National Academies
- Updates include adequately accounting for climate risk, environmental justice, and intergenerational equity

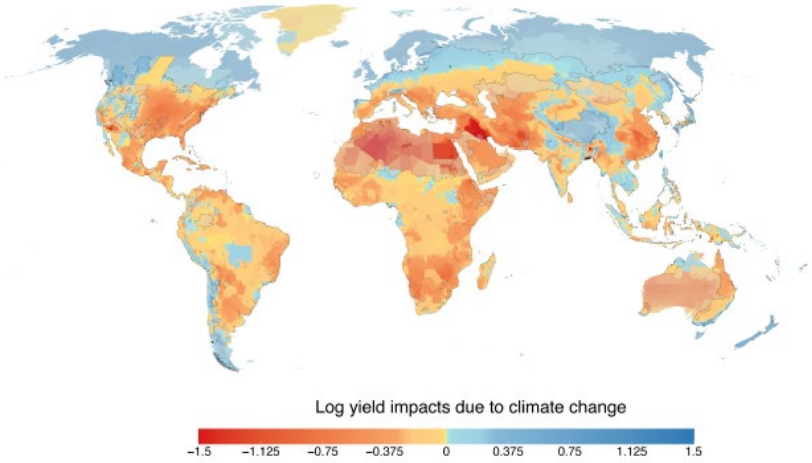
Projected global climate impacts across six categories

Change due to warming, end of century, RCP 8.5

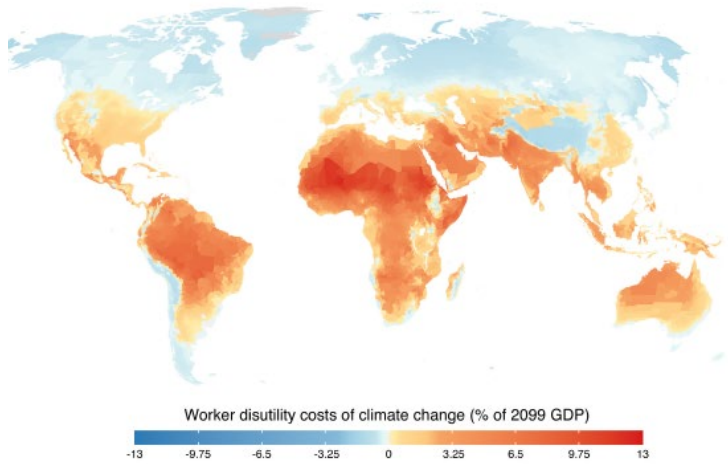
All Cause Mortality



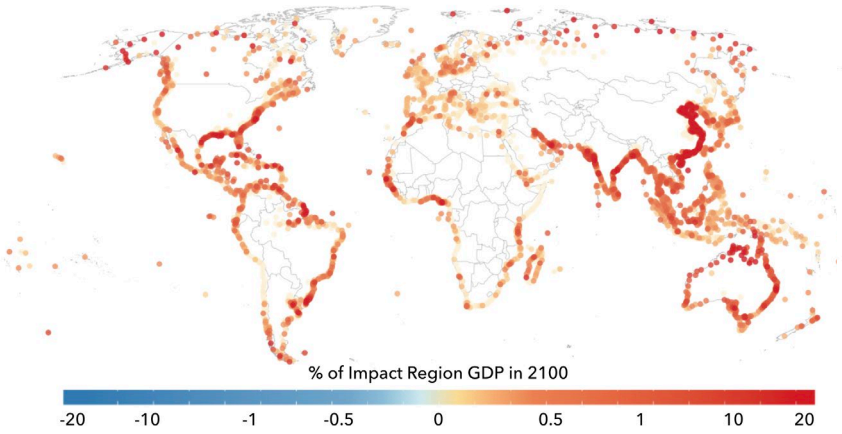
Agriculture (e.g. Maize)



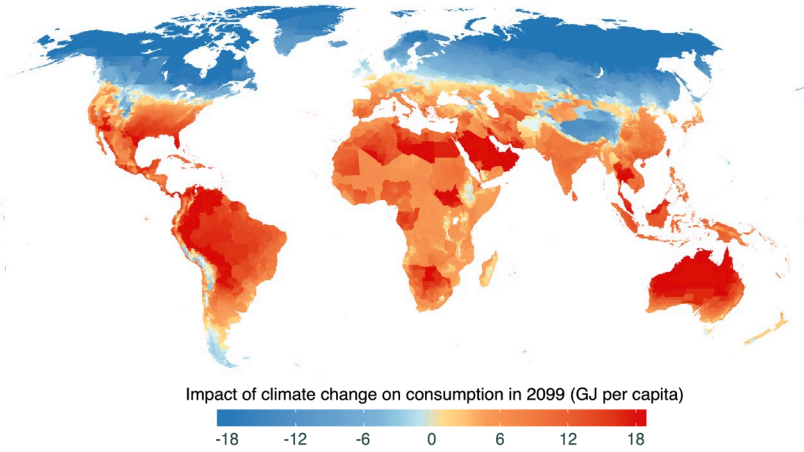
Labor



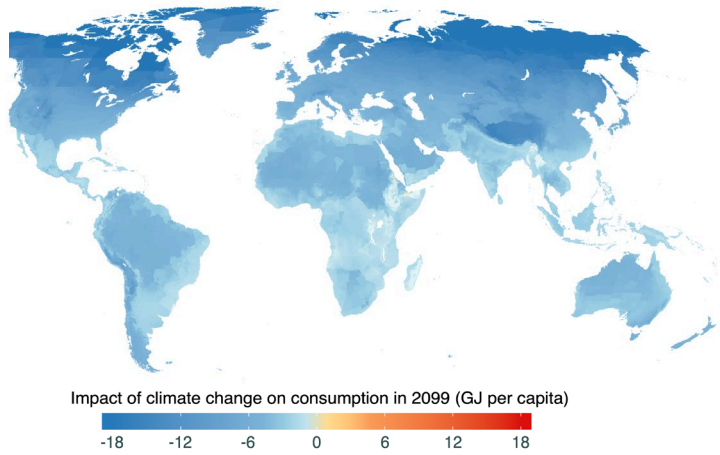
Sea Level Rise



Electricity



Other Fuels



Economic Analysis and Climate Impacts

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