

How Will Climate Change Impact Urban Quality of Life in California? An Economist's Perspective

Matthew E. Kahn
UCLA and NBER and IZA
Institute of the Environment
Department of Economics
Department of Public Policy
Anderson School of Management
UCLA Law School

Introduction

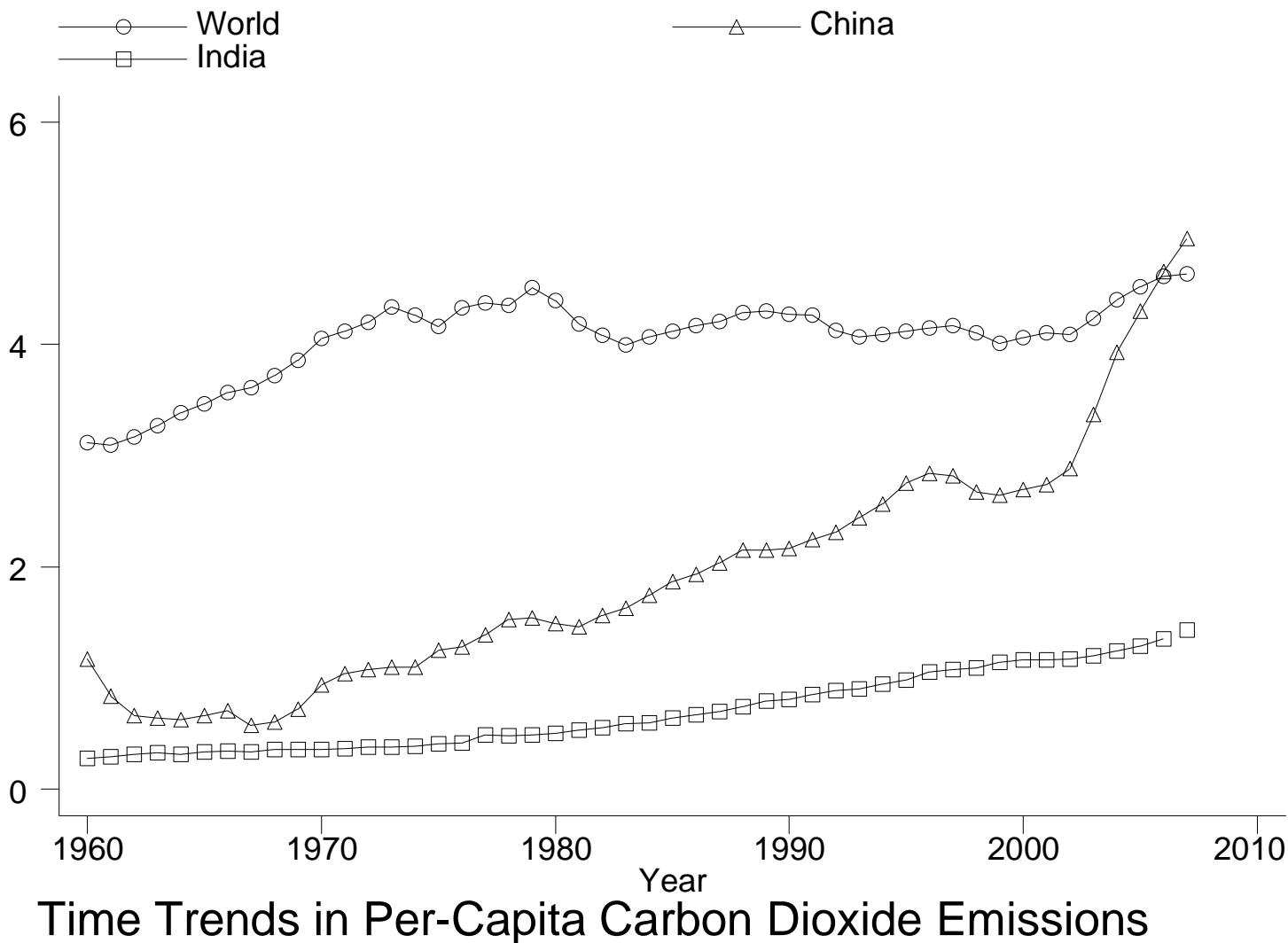
- California's unique urban quality of life entices millions of households to live and work here.
- Over the next decades climate change will pose a set of serious "known unknowns".
- How will our quality of life be affected?
- In the year 2060, will our kids want to live here?
- Should I sell my Westwood house?

Challenges and Opportunities Created by Climate Change

- How does California's AB32 carbon mitigation legislation help the state (and the world) to adapt to changing conditions?
- Could capitalism help us to cope with many of the new problems we have unleashed?
- What new business opportunities do these anticipated challenges create?
- Anticipated crisis → opportunity → solutions → adaptation!

Why We Need AB32

- The global greenhouse gas emissions (GHG) challenge
 - World population growth
 - World per-capita income growth
 - No global incentive to reduce GHG emissions



Why I Support AB32

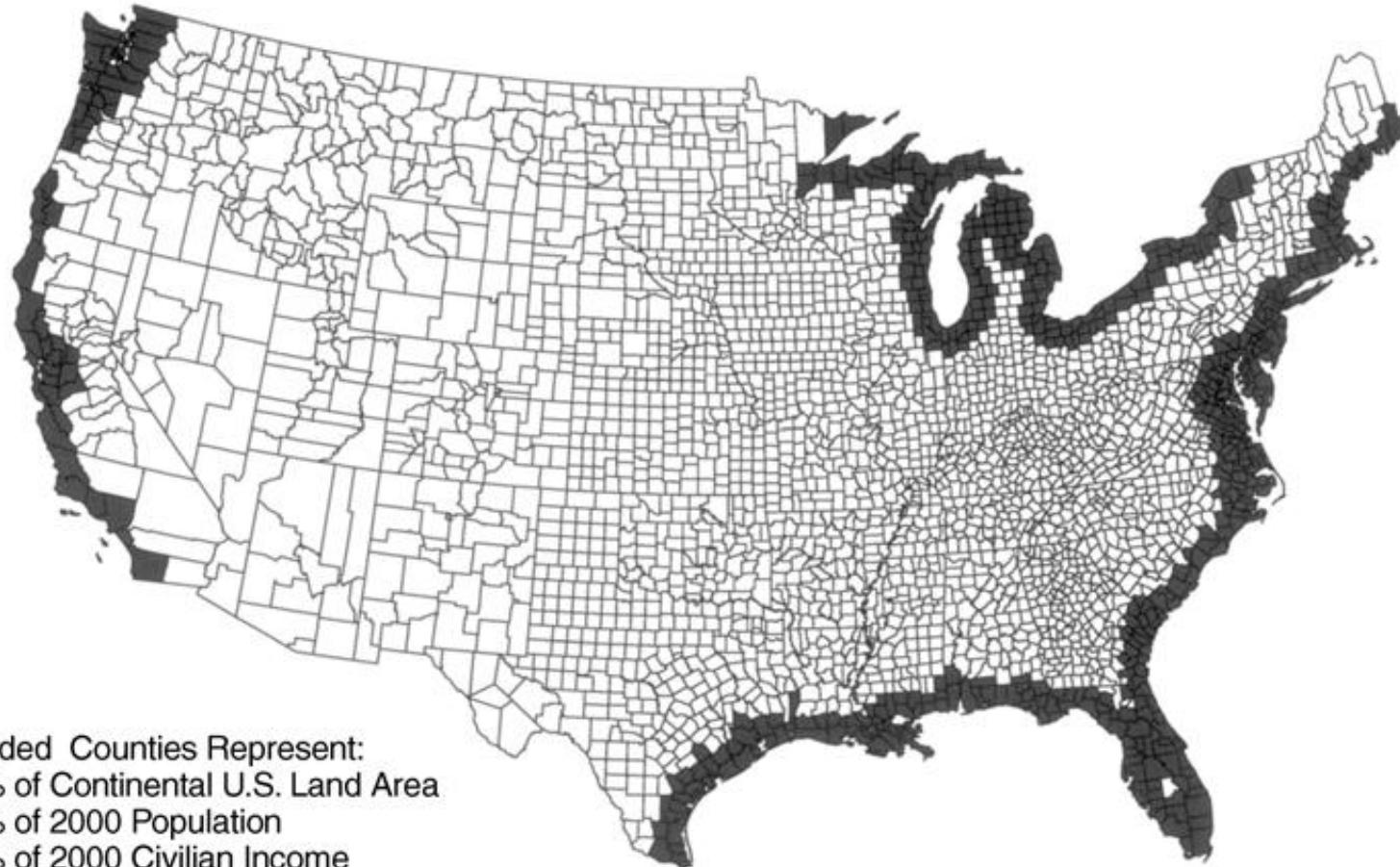
- We have unleashed climate change
- It represents a set of “known unknowns”
- The future challenges our children will face will be easier to cope with if we can achieve the “win-win” of achieving ongoing economic growth while sharply reducing our economy’s carbon intensity
- Ideas are public goods and the world needs “green” guinea pigs!

Quality of Life is California’s “Golden Goose”

- The total value of buildings in Los Angeles County is \$1.1 Trillion dollars!
- Millions of people are “voting with their pocket book” that California is great!
- Will home owners regret this bet?
- In this footloose age, those cities with great quality of life will attract and retain the skilled.
- Human capital as the engine of modern growth.

The United States as a Coastal Nation

Counties with centers within 80 km of an ocean or Great Lakes coast



The Economics of Climate Adaptation

- Around the world, we have chosen to place many of our cities in “harm’s way”
- Partially due to;
- 1. productivity effects --- access to shipping routes
- 2. historical factors
- 3. amenities of water access and climate amenities

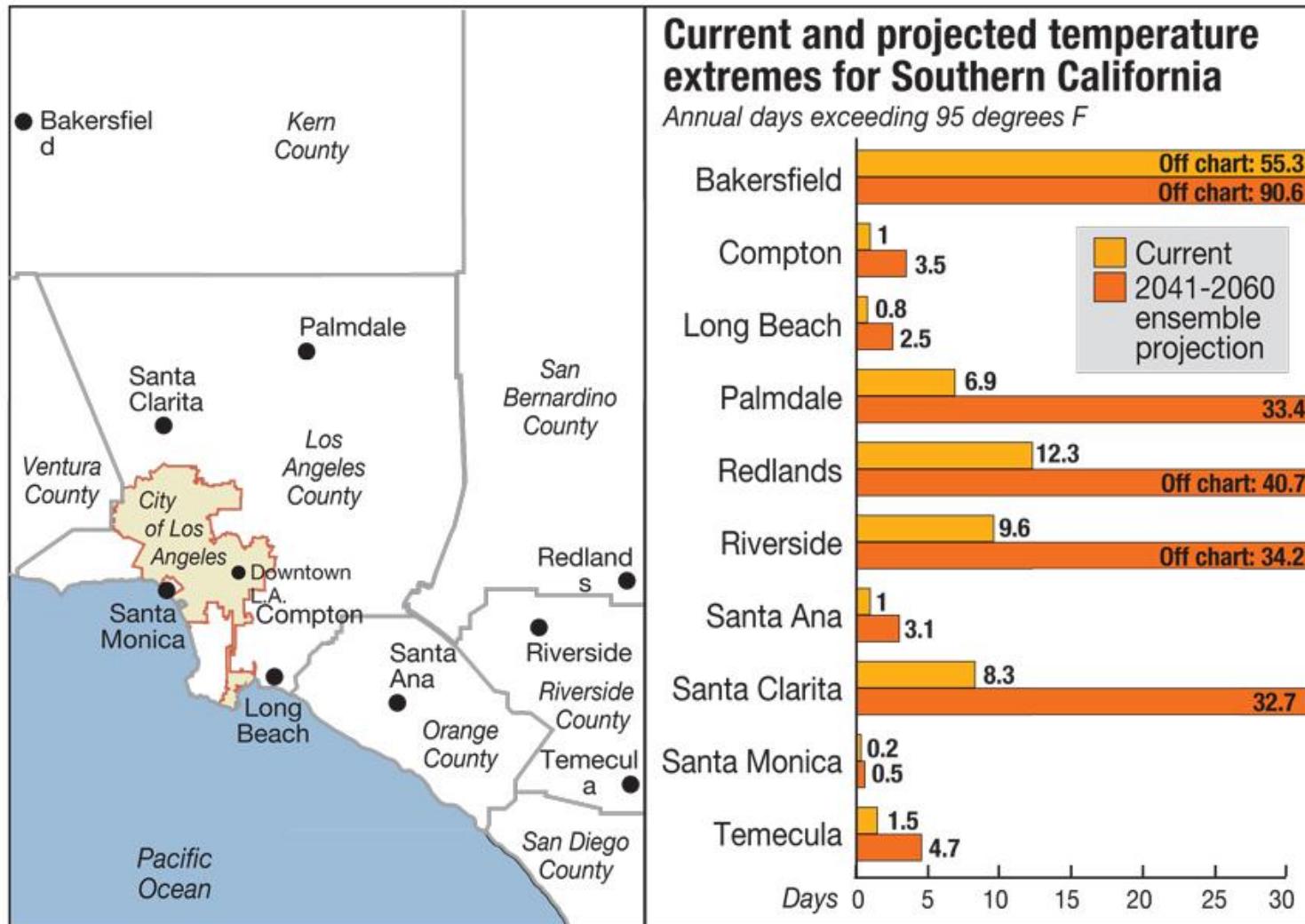
Known Unknowns!

- We know that different geographic areas will face different threats including;
- 1. temperature extremes
- 2. rainfall extremes
- 3. sea level rise
- 4. natural disaster frequency and severity

Climate Scientists as “Paul Revere”

- Our “nerds” step up and improve and refine their climate forecasts
- Climate science provides a refined “early warning” system pointing out new risks
- We trust the scientists objective science and update our risk assessments
- Will economic activity respond to the “new risk” maps?
- I say “yes!” many behavioral economists say “no!”

Alex Hall's work at UCLA



Source: UCLA LARC study, 2012; chart based on the mean/average projected by the 19 climate models

The San Diego Foundation's 2050 Study

“A Regional Wake Up Call”

- 4 degrees (F) hotter on average
- Sea level will be 12-18 inches higher.
- water demand up 37% while supply will down 20%
- Wildfires will be more frequent and intense.
- Public health will be at risk from heat and air pollution
- Peak electricity consumption up 70%

Microeconomics!

- For poor people, rich people, middle class people, For young people and for old people;
- How will their quality of life be impacted?
- No grand “macro” model of how the economy will be impacted!

Three Adaptation Pathways Provided by Free Markets

- Competition
- Innovation and experimentation
- Migration

How Will Households Respond to the “Wake Up Call”?

- Desire to live in the temperate coastal zone closer to the Ocean but not too close!
- Access to efficient air conditioning and other products that protect the public from climate risk
- Desire access to real time information about emerging risks --- heat waves, smog alerts (the Twitter Nation!)

How Will Firms Respond to Anticipated Climate Change ?

- One person's misery is a firm's opportunity
- From supply and demand, likely to be higher water prices and electricity prices
- Such price increases will induce innovation
- Wildfire and other disaster risk → insurance contracts to encourage precautions

Thom Mayne and Brad Pitt's Floatable Homes)



The Competition to be the “Green Zuckerberg” and UCLA’s IOE Students



Free Trade is a “Friend” of Climate Adaptation

- Ideas are public goods; the diffusion of new products such air conditioning, electric vehicles, renewable power will help LDCs to adapt
- India and China as exporters of “green tech” lowers world price of quality adjusted wind turbines and solar panels

Who Are We?

Spock or Homer Simpson



Three Cases

- Behavioral Economics (UC Berkeley) vs. neo-classical economics (University of Chicago)
- Spock: New News arrives → he reacts =→ exposure to new risks declines
- Homer Simpson: New News arrives → he ignores it and like the Titanic he hits the iceberg

Winners and Losers

- This is the age of the 1%
- How do we protect the poor? (zoning, information, economic growth)
- Those who own land in geographic areas that suffer greatly will suffer an asset loss
- Can government play “too much defense”?
- The case of Hurricane Sandy and New York City and FEMA
- Moral Hazard and “tough love”

Escape from San Diego?

- What if none of my predictions play out?
- If a city such as San Diego’s quality of life suffers due to climate change, home owners there suffer an asset loss
- Households there can migrate to a Detroit or another city whose quality of life is relatively better
- Migration acts as an implicit insurance policy
- Internet and “twitter world” keeps us fully informed about evolving threats

Moving to Higher Ground

- Both within and across cities
- Encouraging economic activity to move there

Las Vegas Metro Area	
Historical populations	
Census	Pop.
<u>1960</u>	127,016
<u>1970</u>	273,288
<u>1980</u>	528,000
<u>1990</u>	852,737
<u>2000</u>	1,375,765
<u>2010</u>	1,951,269

Moscow in the Summer of 2010

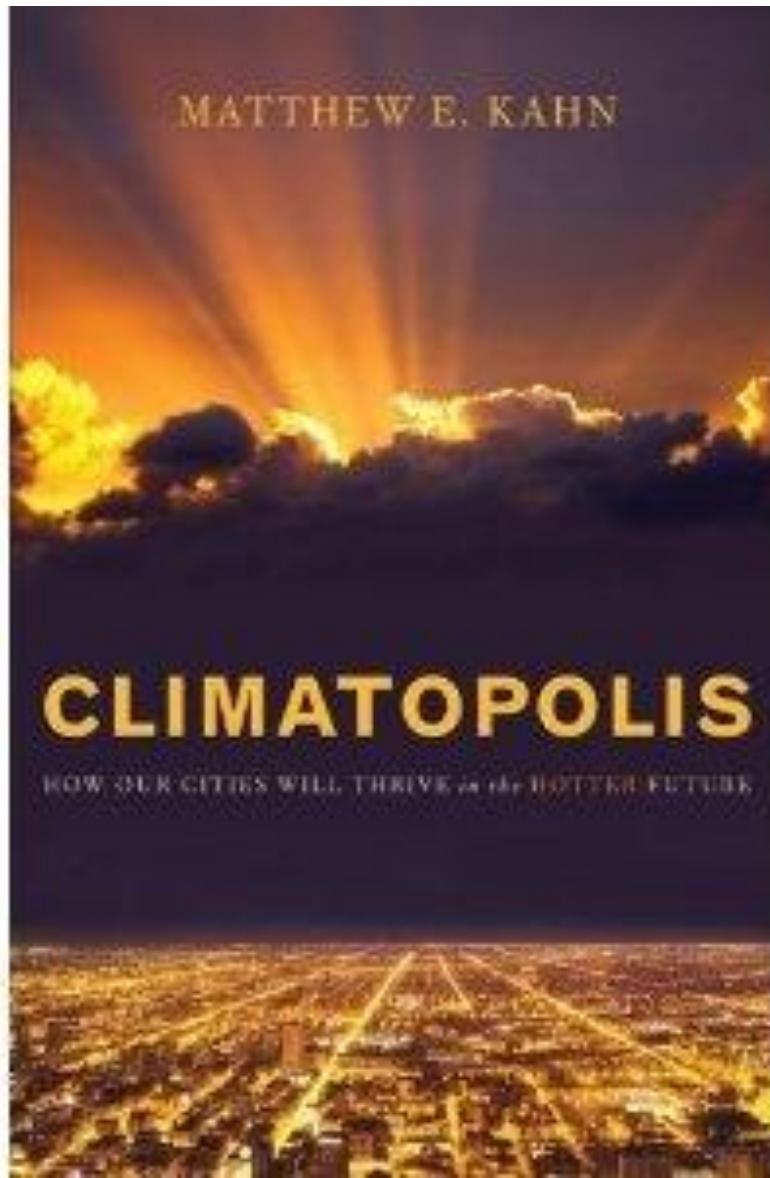
- The Economist's Review of my book
- “Books about how people can and will adapt to climate change need not be Panglossian—as these two show”



The Moscow Time Line

- Matt finishes writing *Climatopolis* in April 2010
- Publisher asks him to “name names”
- Moscow Heat Wave of Summer 2010
- *Climatopolis* published in Fall 2010!
- Fool me once, shame on you
- Fool me twice, shame on me!
- What will happen to Moscow in the next heat wave?

Basic Books September 2010



My Vision of Los Angeles in 2050

- Density near the cool coast
- Smart phones providing real time information
- Resources to protect the poor
- Choice and menu and diversity
- An infrastructure that can “take a punch”
- We know that we don’t know what climate change will pose
- AB32 reduces the climate risk and thus ensures that our state will continue to thrive

My New Work on Quality of Life in China

- Blue Skies in China? To be published in 2014 by the University of Chicago Press
- As China urbanizes, and grows more educated – a desire to be more like California!
- Demand for quality of life nudges the Central Government to deliver!
- The legitimacy hypothesis