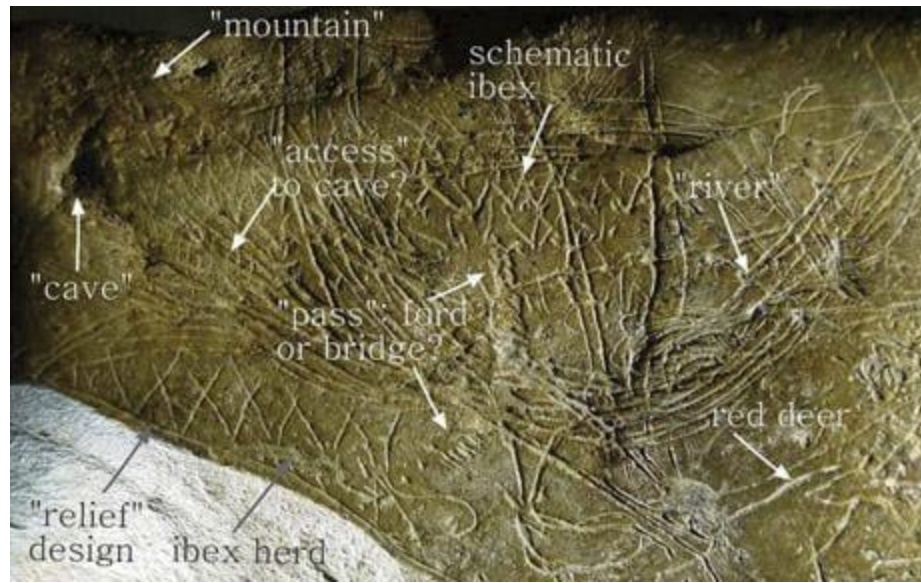
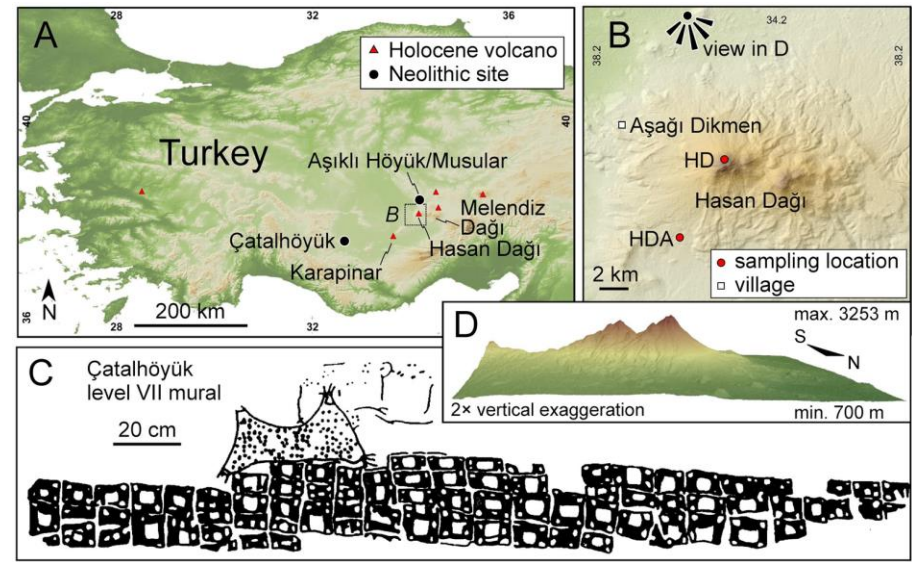


Geospatial Analysis for Policy: A Comparative Framework

Sergio Rey
Center for Geospatial Sciences &
School of Public Policy
University of California Riverside



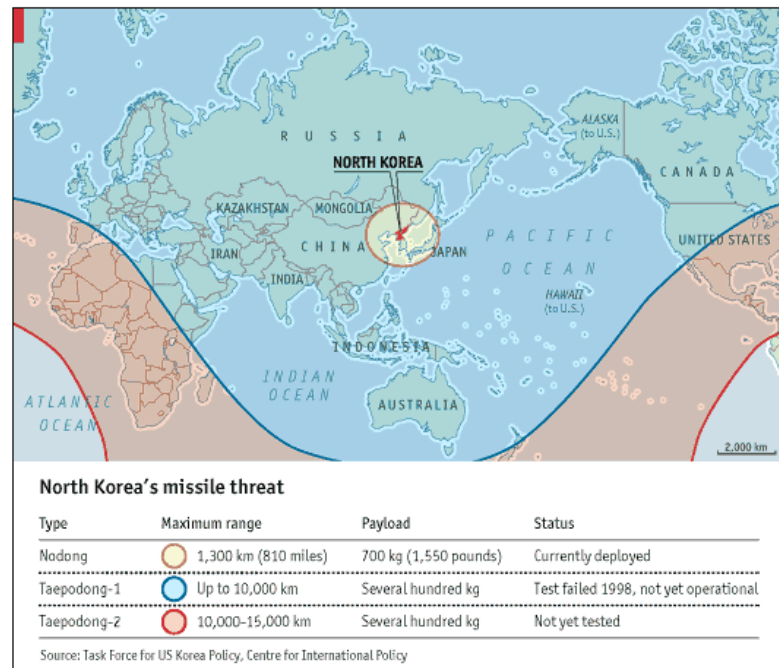
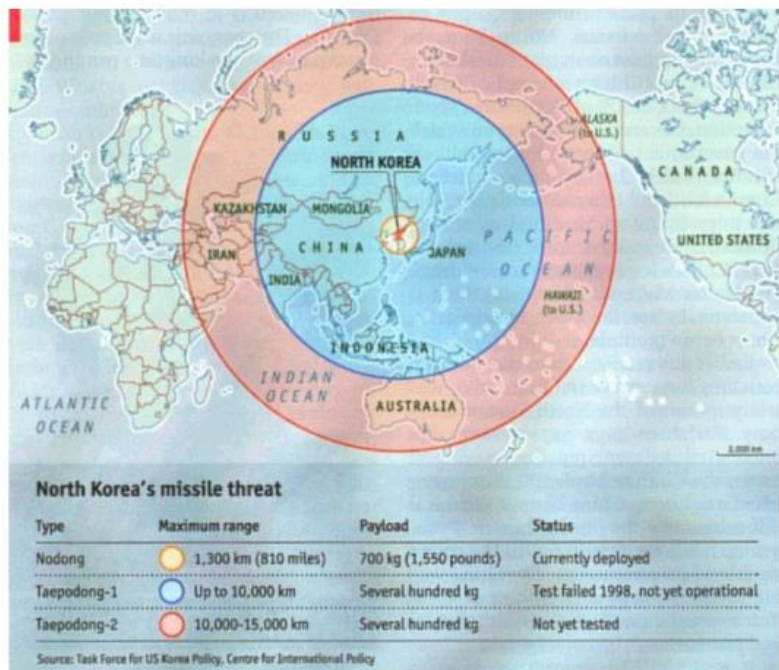
Spanish Cave ~14,000 BP



Çatalhöyük Mural ~ 9,000 BP

Earliest human writing ~5100 BP

Geographical ignorance is not bliss

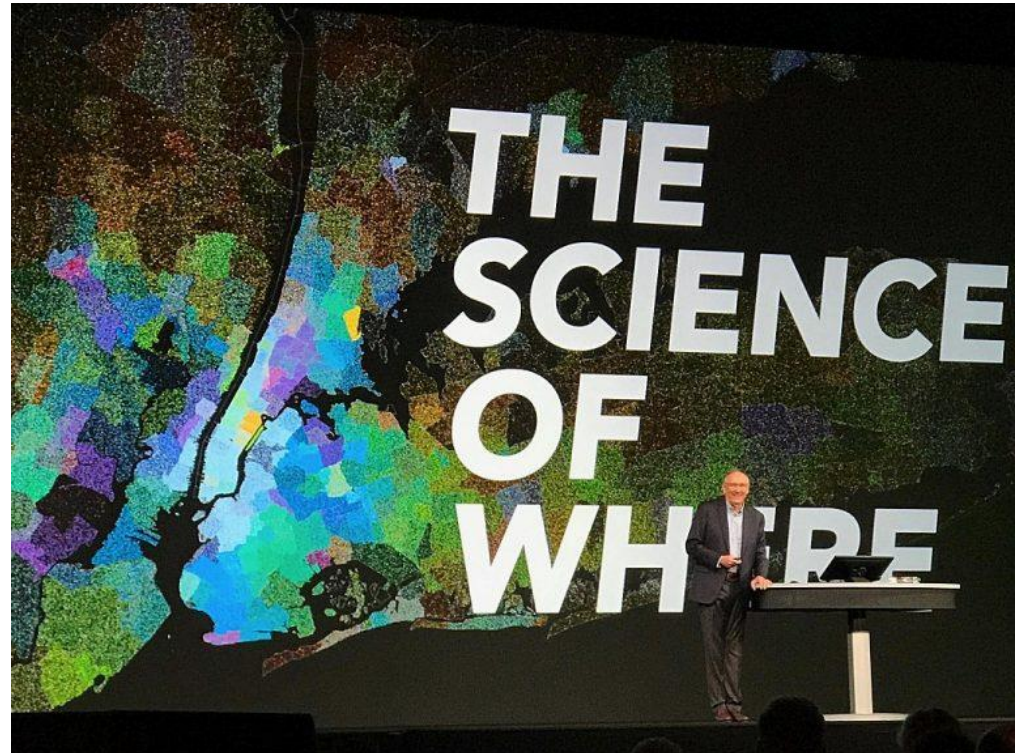
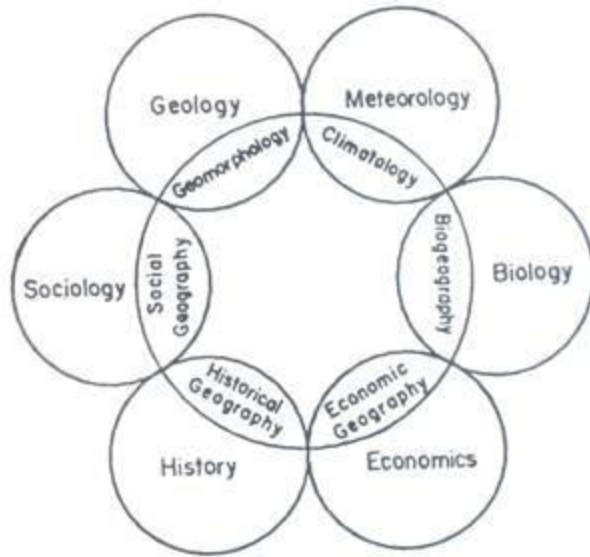


Early Spatial Analysis



Geography as Synthesis

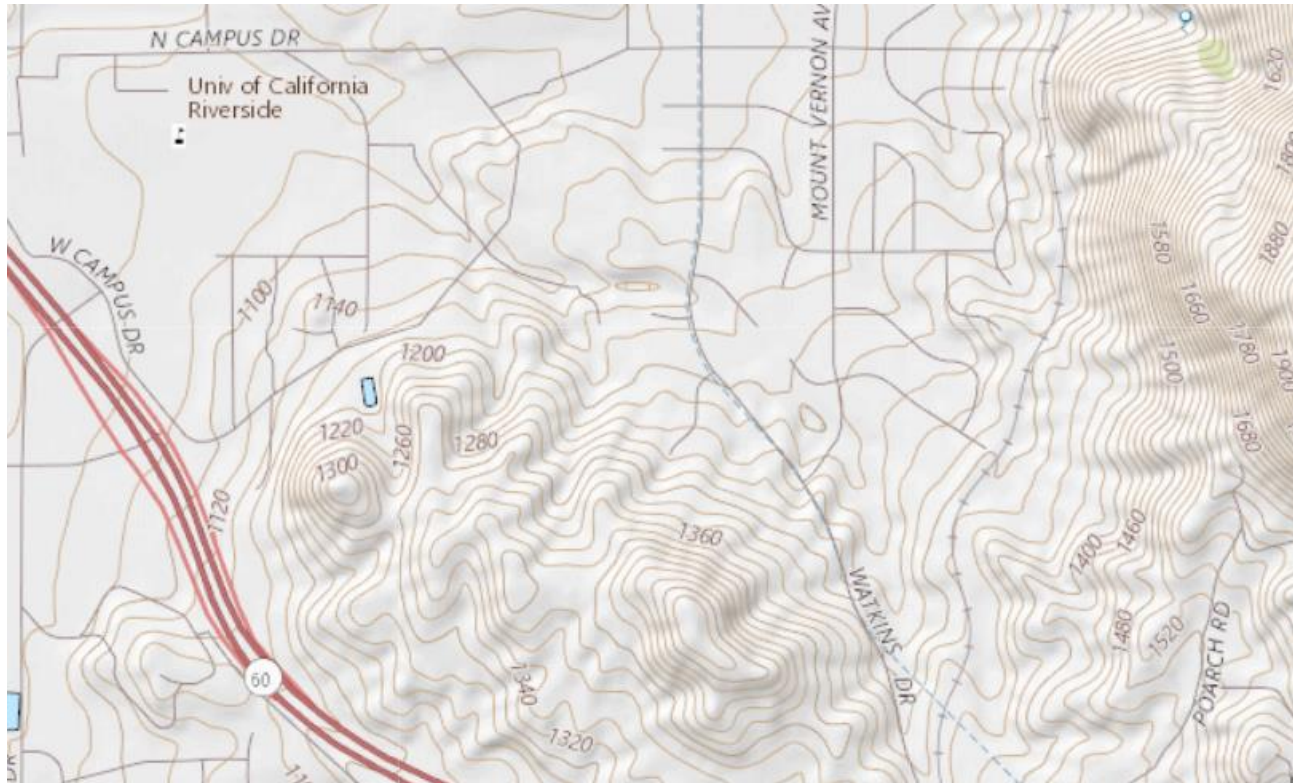
Figure 10.2 The Circumference of Geography (Adopted from Fenneman)



Tobler's First Law of Geography

“Everything is related to everything else, but near things are more related than distant things.”

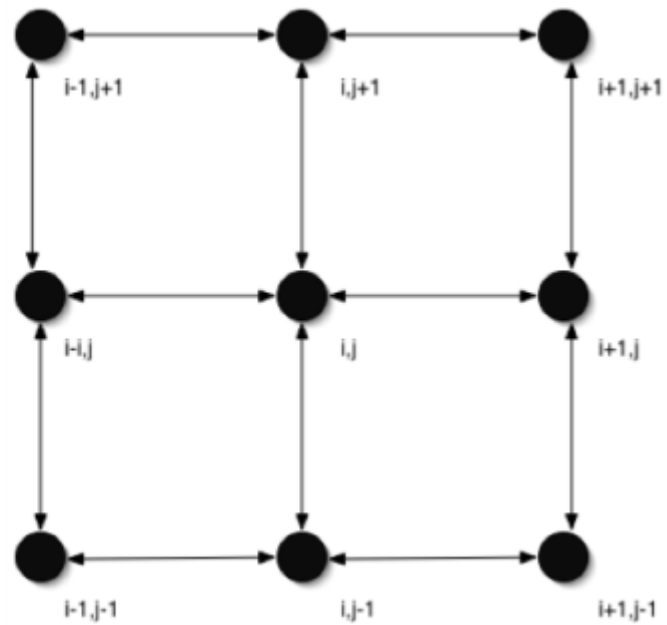
Spatial dependence = structure



Spatial dependence = structure

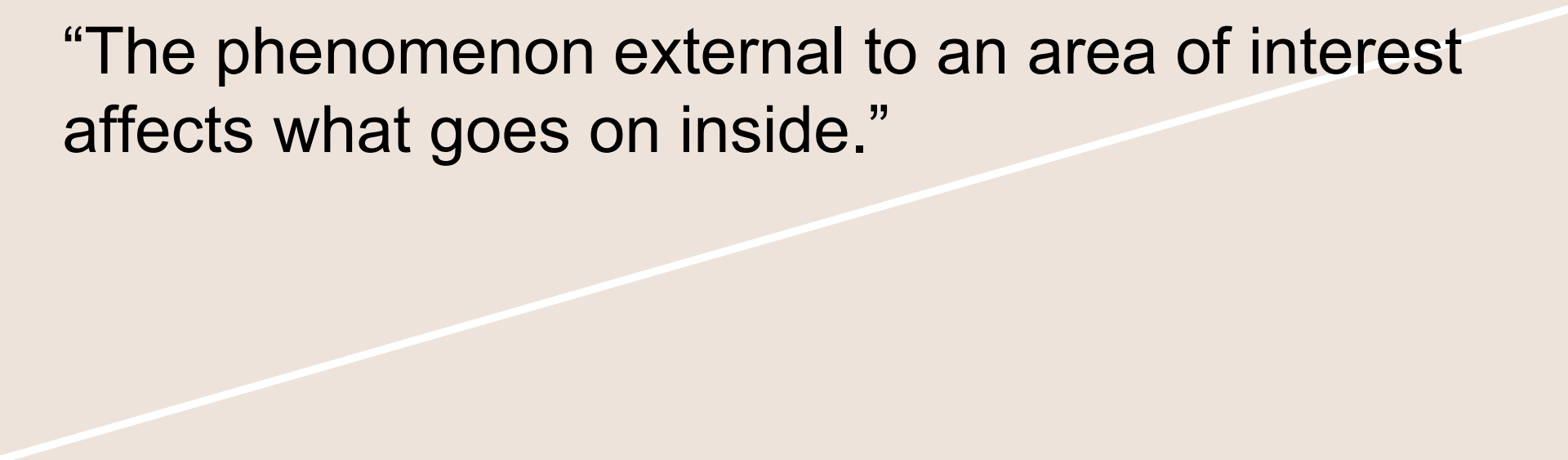
“Hell is a place with no spatial dependence.”

Michael Goodchild (2002)

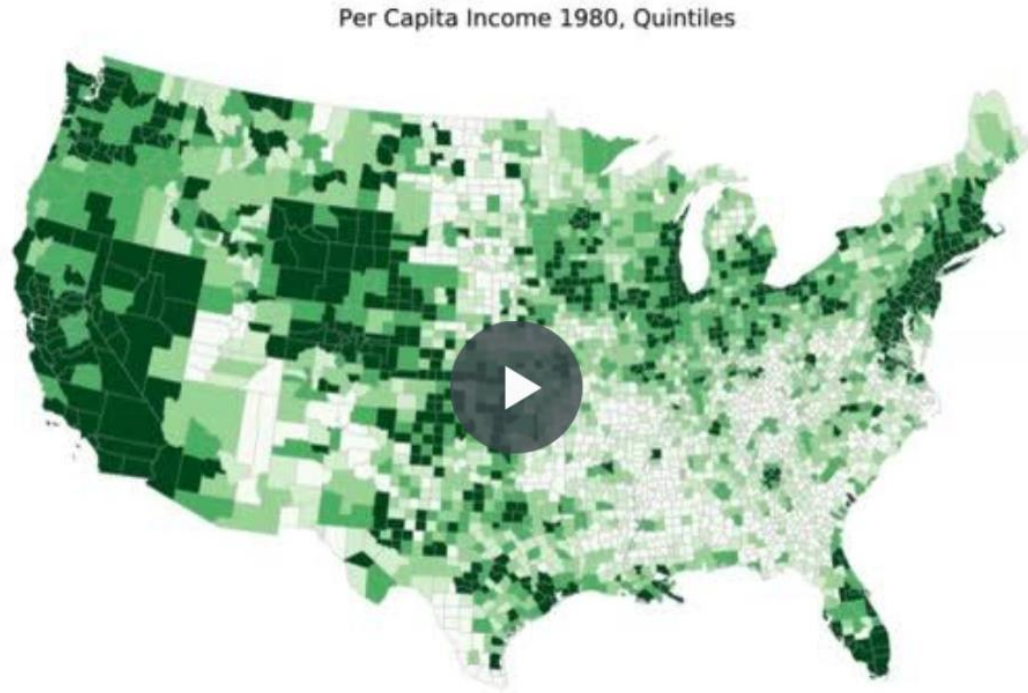


Tobler's Second Law of Geography

“The phenomenon external to an area of interest affects what goes on inside.”



Spatial dependence: pattern vs. process



Ord's Second Law of Geography

“All maps are wrong, some are useful.”



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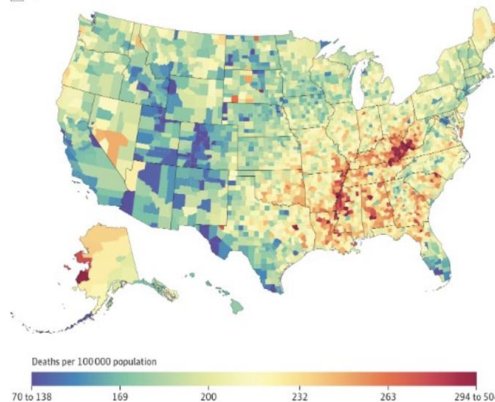
Cancer down nationwide, but 'hot spots' persist

By Michael Nedelman, CNN

Updated 1:09 PM ET, Tue January 24, 2017



A Age-standardized mortality rate from neoplasms, both sexes, 2014



More from CNN



Can anyone stop Trump from ordering a nuclear strike?



Jordin Sparks is married and pregnant

Photos: Do you live near a cancer cluster?

Patternicity



Center for Geospatial Sciences

Mission

1. Establish a core of excellence at UCR that becomes an internationally renowned source of innovation in geographical information science.
2. Enable interdisciplinary research at UCR, and beyond, where spatial methods are central to the research questions.

Center for Geospatial Sciences

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1. Basic research in geographical information science
2. Open source tools development and open science innovations
3. Applications of tools and methods across the social, life, and natural sciences in collaboration with domain scientists
4. Dissemination and training through UCR courses, national and international short courses, and production of educational materials

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Research Areas



Spatial Statistics

To understand and predict spatial phenomena using statistical approaches.

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Spatial Optimization

To prescribe the best spatial arrangement or to evaluate a spatial arrangement.

[View Projects](#)

Big Spatial Data

To study geographical phenomena with big data like geo-tagged tweets.

[View Projects](#)

Spatial Uncertainty

To address uncertainty of spatial data regarding spatial location and spatial representation.

[View Projects](#)

Open Source & Science

To make state-of-the-science analytical approaches free and accessible to everyone.

[View Projects](#)

Comparative Regional Inequality Dynamics: Multiscalar and Multinational Perspectives



PI: [Sergio Rey](#) & Co-PI: [Yehua Wei](#)

May 1, 2018 - Apr 30, 2021

Research Questions

1. What is the role of space in the internal income dynamics of different continental, national, and regional systems?
2. What is the relationship between convergence, inequality and spatial autocorrelation?
3. Do spatial spillovers fuel economic growth, convergent growth or divergent growth?

Framework: Integrative and Comparative

1. Interregional inequality decomposition
2. Interregional mobility
3. Spatial distribution dynamics
4. Comparative dynamics of interregional inequality

Interregional
Inequality



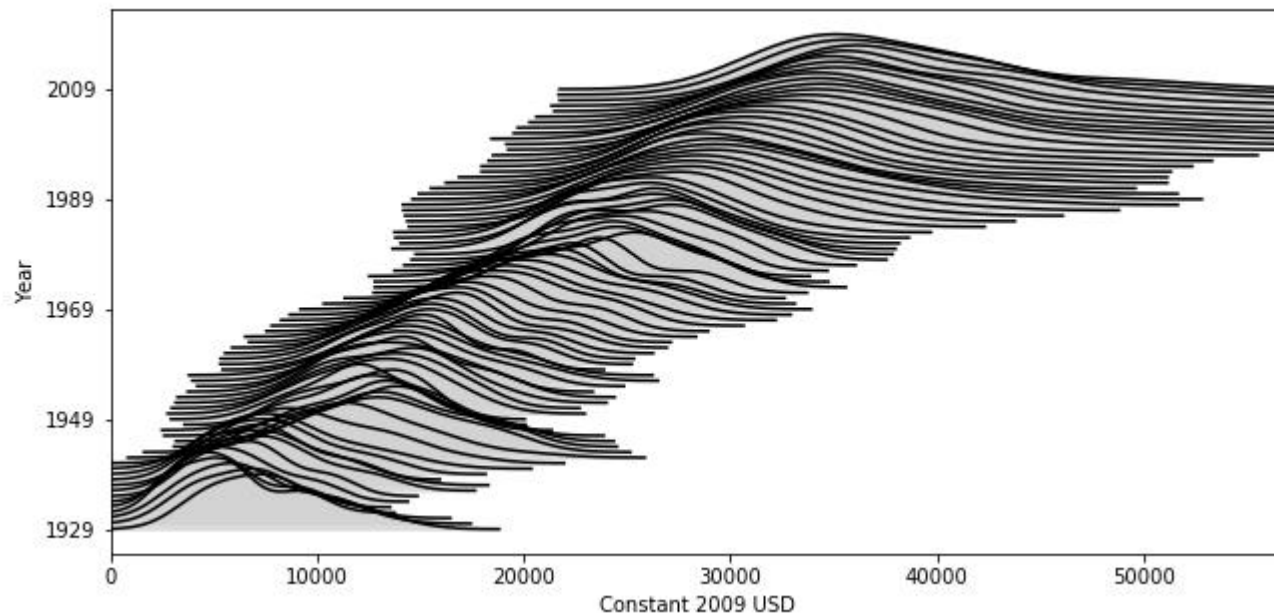
Interregional
Equality



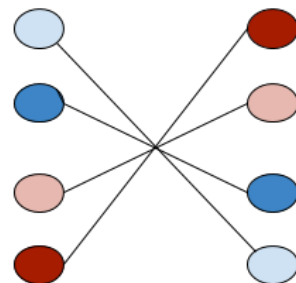
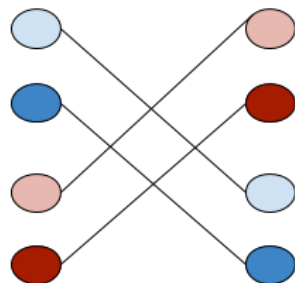
Intraregional
Inequality

Intraregional
Equality

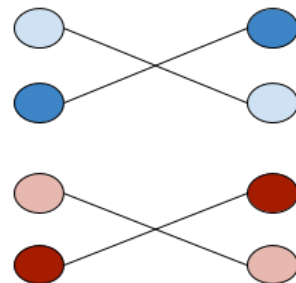
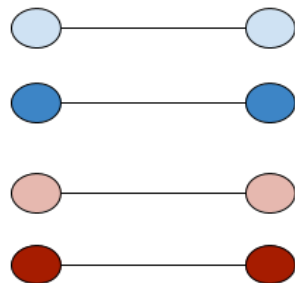
US State Per Capita Income Distributions 1929-2015



Interregional
Mobility



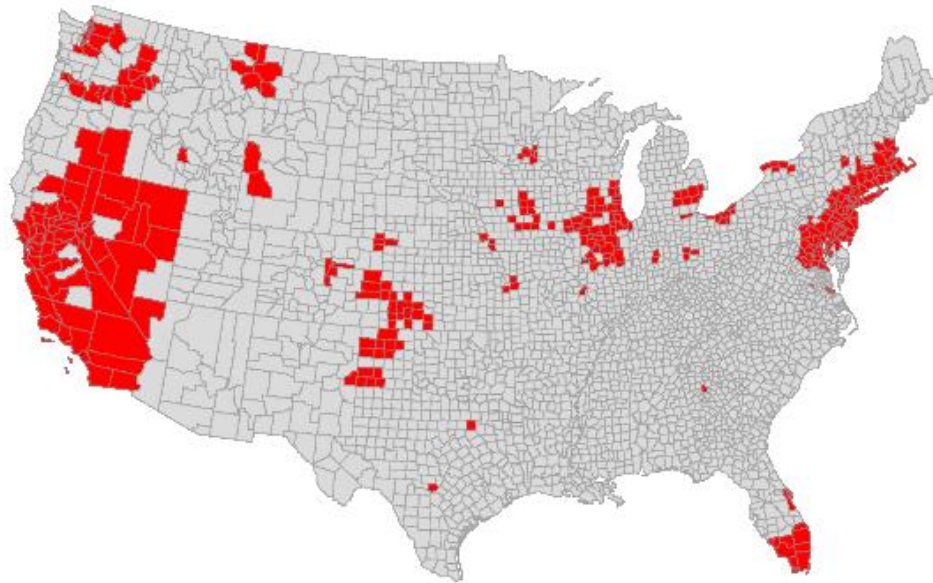
Interregional
Stability



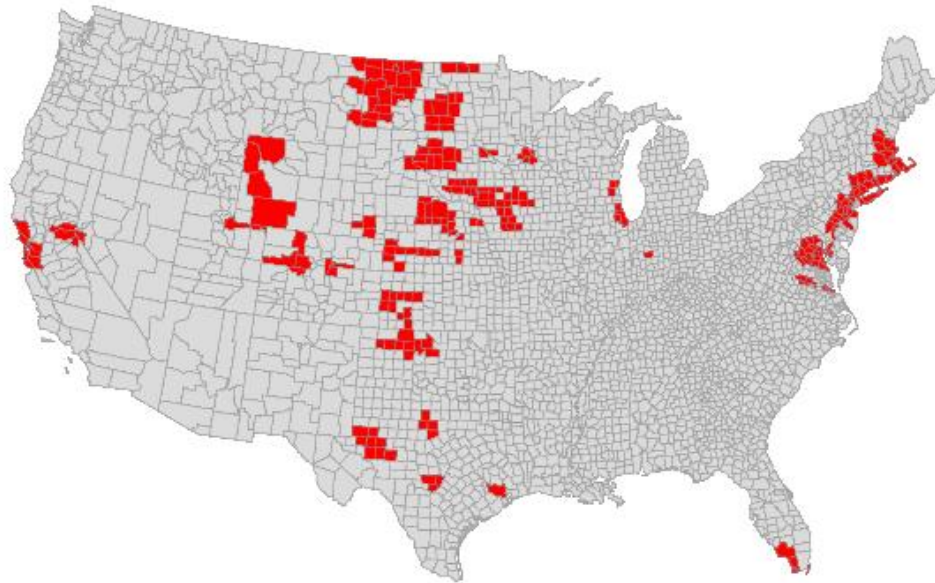
Intraregional
Stability

Intraregional
Mobility

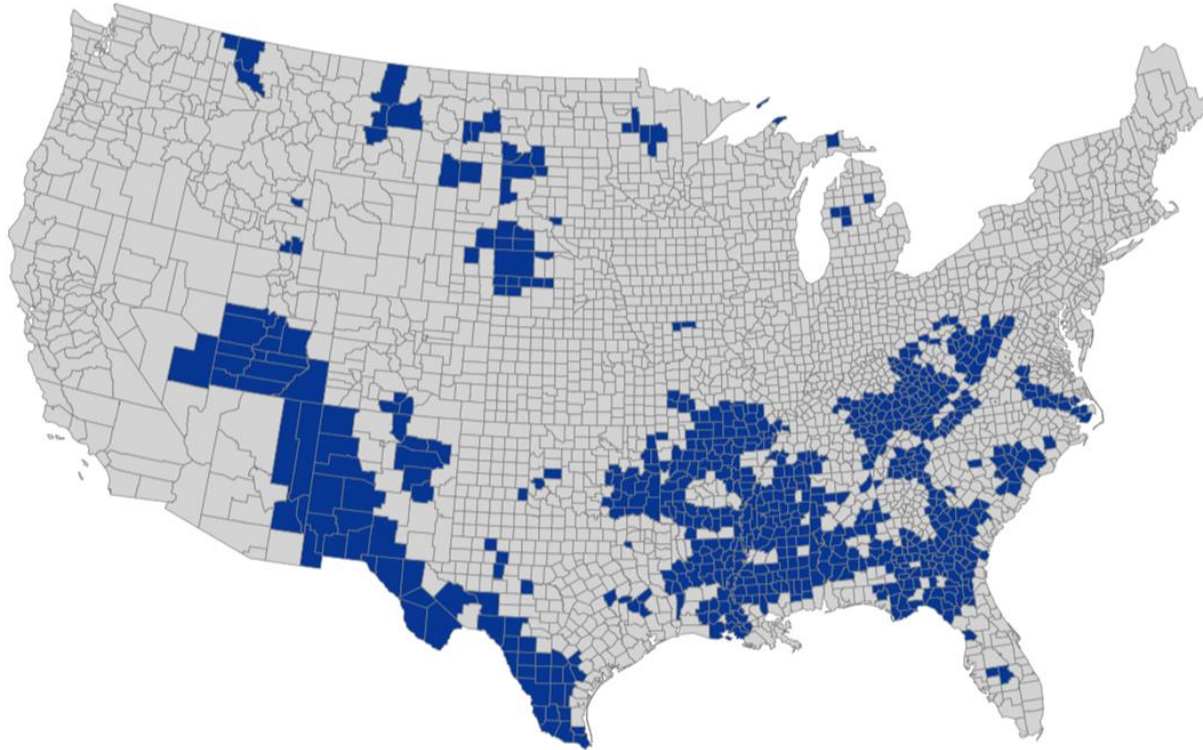
Per Capita Income LISA Markov HH-HH 1969-70

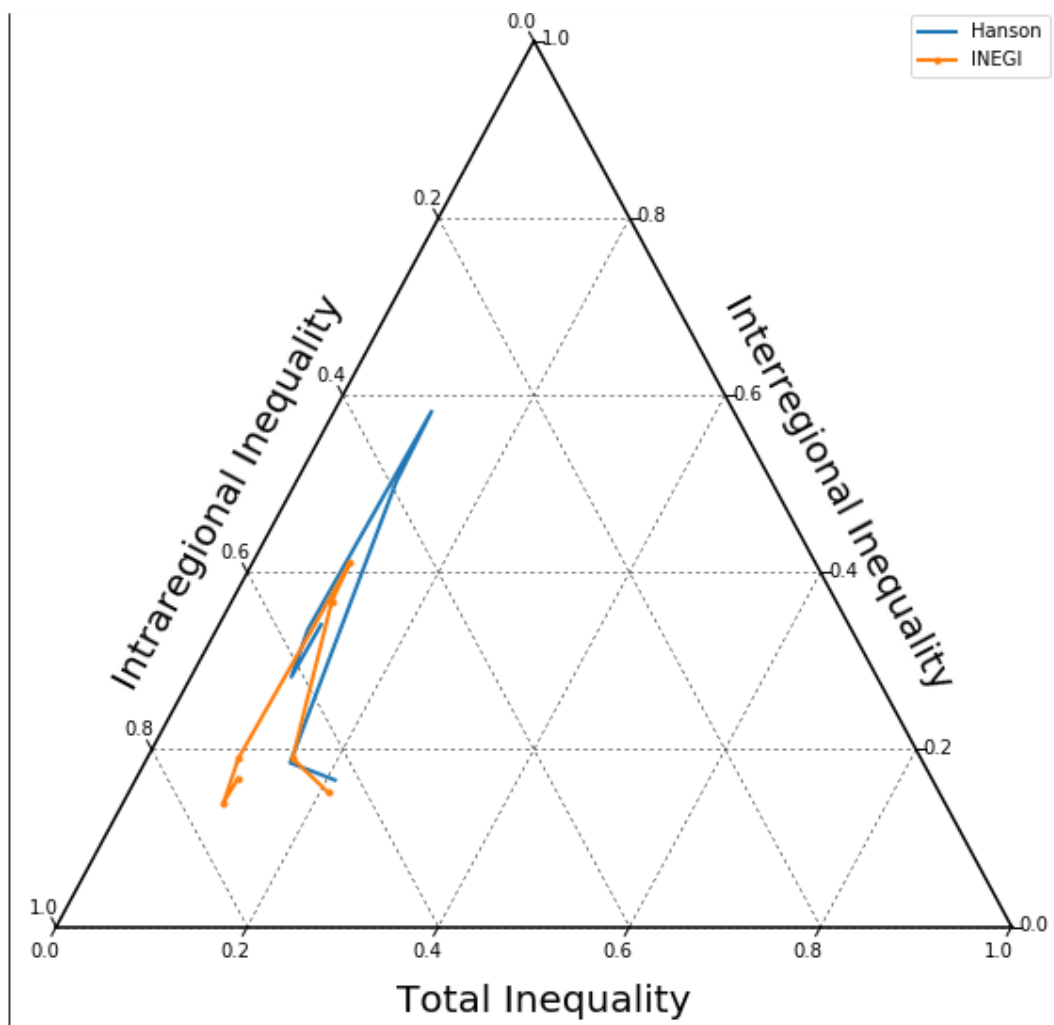


Per Capita Income LISA Markov HH-HH 2013-14



Per Capita Income LISA Markov Stable Coldspots (Any Period)





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