

GUIDELINES ON THE USE OF THEMATIC MAPS



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MAPS

- Maps can be subdivided into two broad categories:
 - ♦ general: designed for general use, contain multiple features
 - ♦ thematic: designed for a specific audience, present a specific set of data values
- Different thematic maps are designed for different types of data and analysis tasks
 - ♦ choropleth, display data values aggregated over regions
 - ♦ isarithmic, display contour lines of equal value
 - ♦ proportional symbol, display symbols sized to represent data values at geographic locations
 - ♦ dot, display presence of an event at a geographic location
 - ♦ dasymetric, warp a map so area represents a data value

THEMATIC MAPS

- Traditional method for presenting geographic and geospatial data
 - ♦ E.g., topographic, planimetric, base
- Different maps are used for different tasks:
 - ♦ choropleth (charting value distributed by region)
 - ♦ isarithmic (contour lines)
 - ♦ proportional symbol (point location data)
 - ♦ dot (presence or absence of a feature)
 - ♦ dasymetric (regions warped to match data values)
- Maps can be extended to visualize multidimensional data



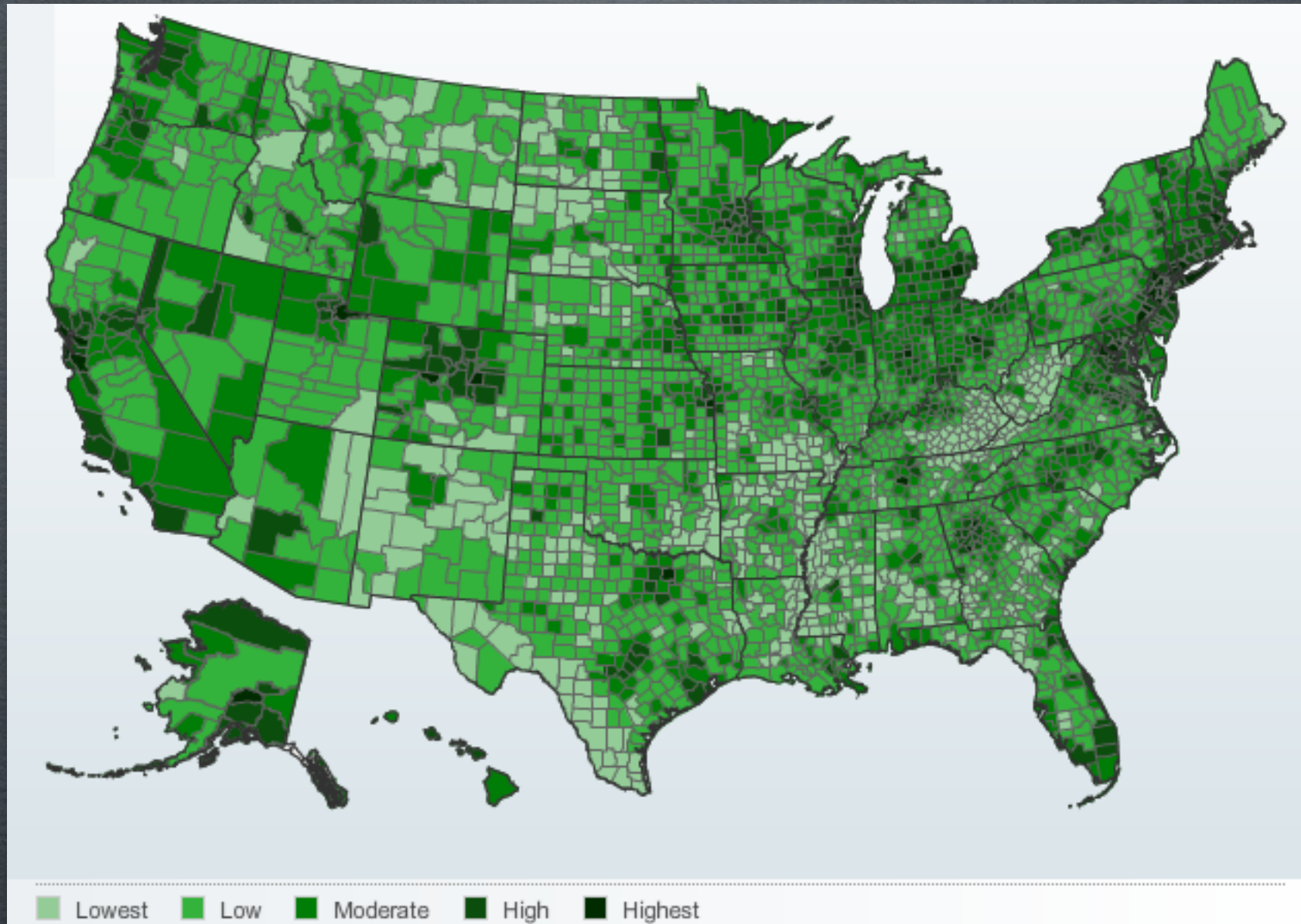
Topographic map from Indiana Jones and the Last Crusade

TOPOGRAPHICAL MAP



CHOROPLETH MAPS

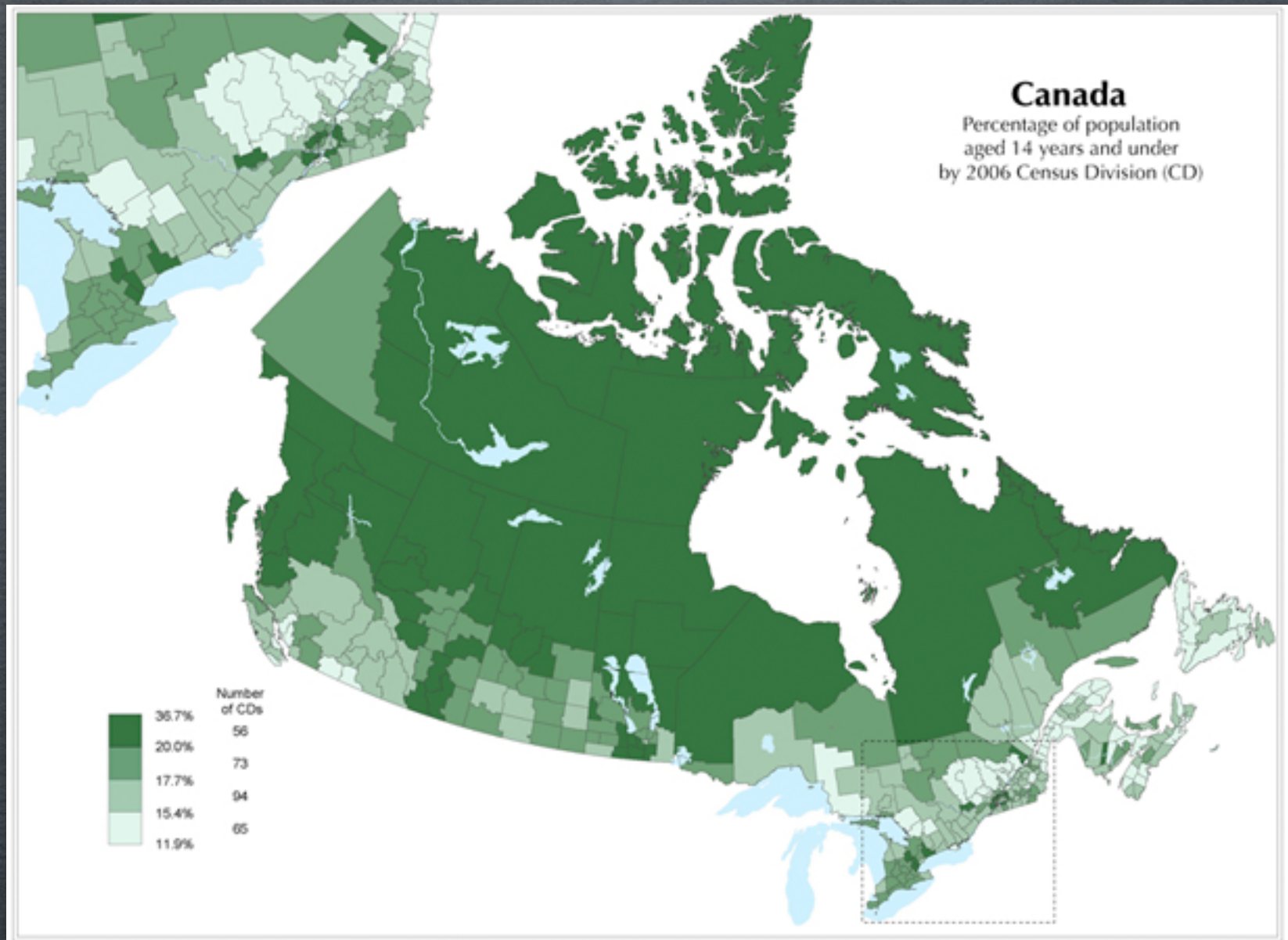
2010 MEDIAN HOUSEHOLD INCOME BY US COUNTY



DATA COURTESY [HTTP://REALNUMERACY.WORDPRESS.COM/TAG/DEMOGRAPHICS/](http://realnumeracy.wordpress.com/tag/demographics/)

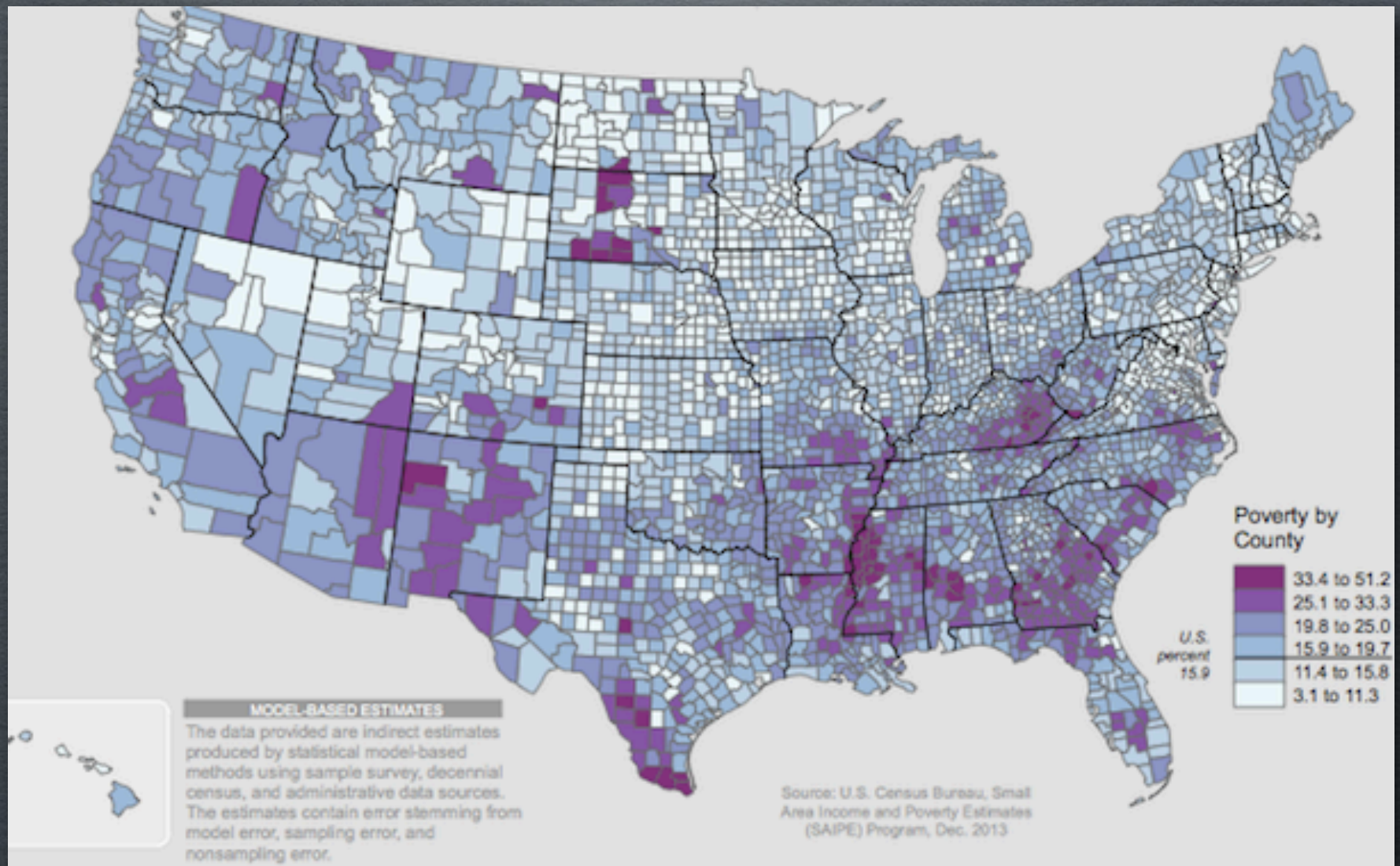
CHOROPLETH MAPS

PERCENTAGE OF INDIVIDUALS UNDER THE AGE OF 14 BY CENSUS DIVISIONS



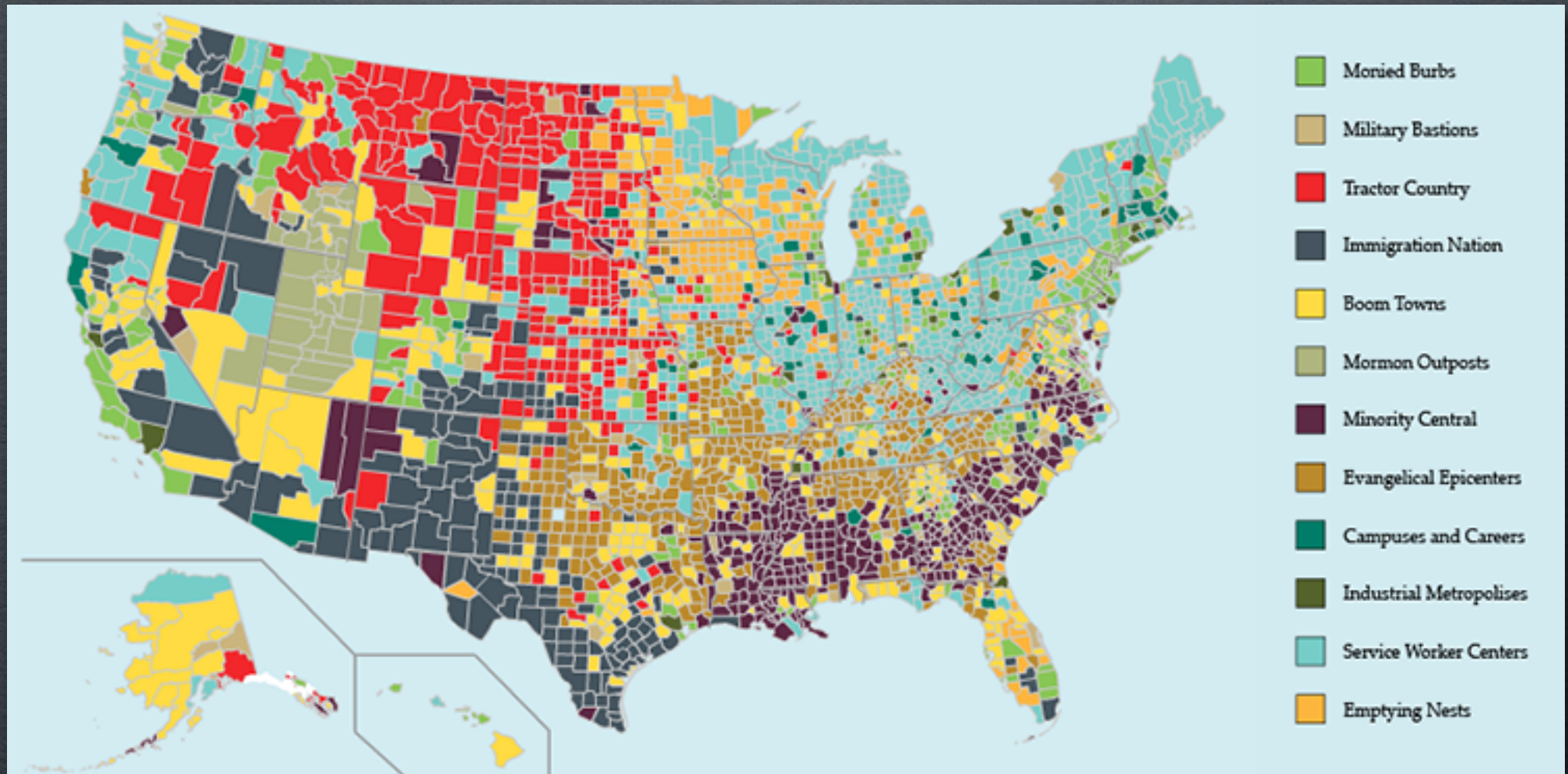
CHOROPLETH MAPS

PERCENTAGE OF INDIVIDUAL IN POVERTY BY US COUNTY



CHOROPLETH MAPS

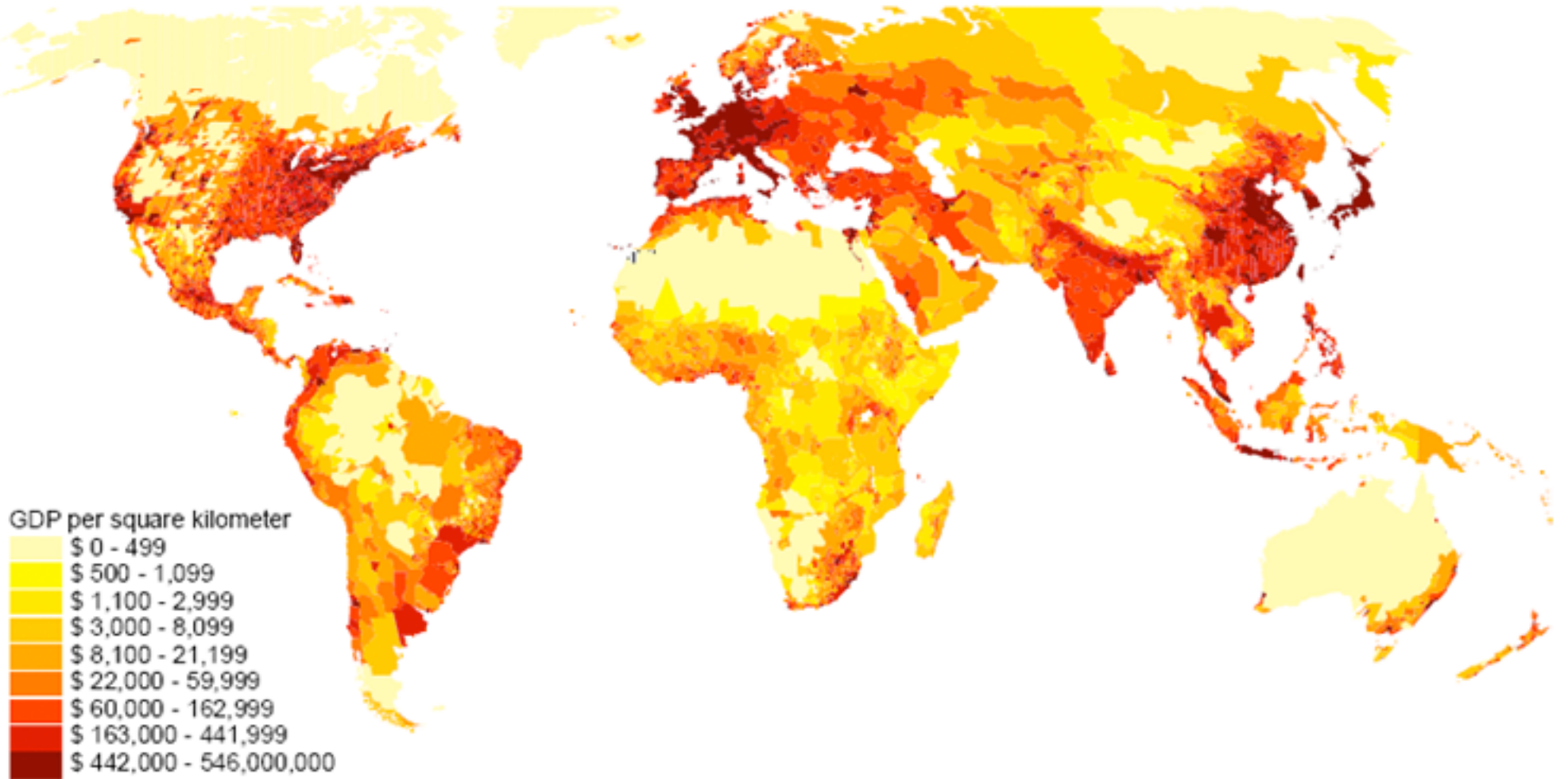
CLASSIFICATION OF COUNTIES INTO 12 "GROUPS"



CHOROPLETH MAPS

GROSS DOMESTIC PRODUCT DENSITY PER SQUARE KILOMETRE

GDP Density

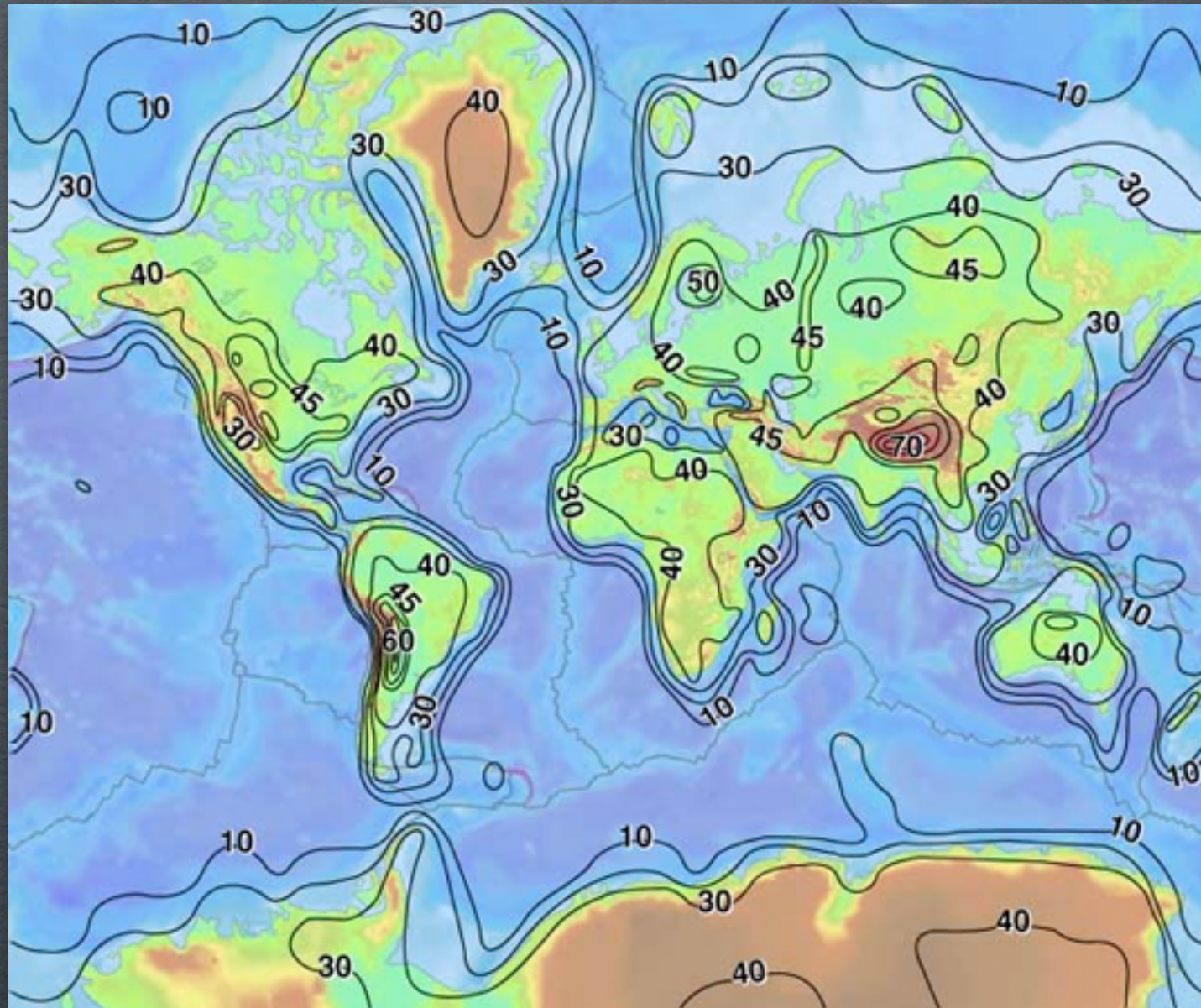


Bar graph of ice, steel, and snow in
Knoxville, categorized by month

DATA COURTESY [HTTP://WWW.VISUALIZINGECONOMICS.COM/2008/01/05/WORLD-GDP-DENSITY-MAP/](http://www.visualizingeconomics.com/2008/01/05/world-gdp-density-map/)

ISARITHMIC CONTOUR MAPS

THICKNESS OF THE EARTH'S CRUST, 10KM CONTOUR INTERVALS



DATA COURTESY [HTTP://EARTHQUAKE.USGS.GOV/RESEARCH/STRUCTURE/CRUST/INDEX.PHP](http://earthquake.usgs.gov/research/structure/crust/index.php)

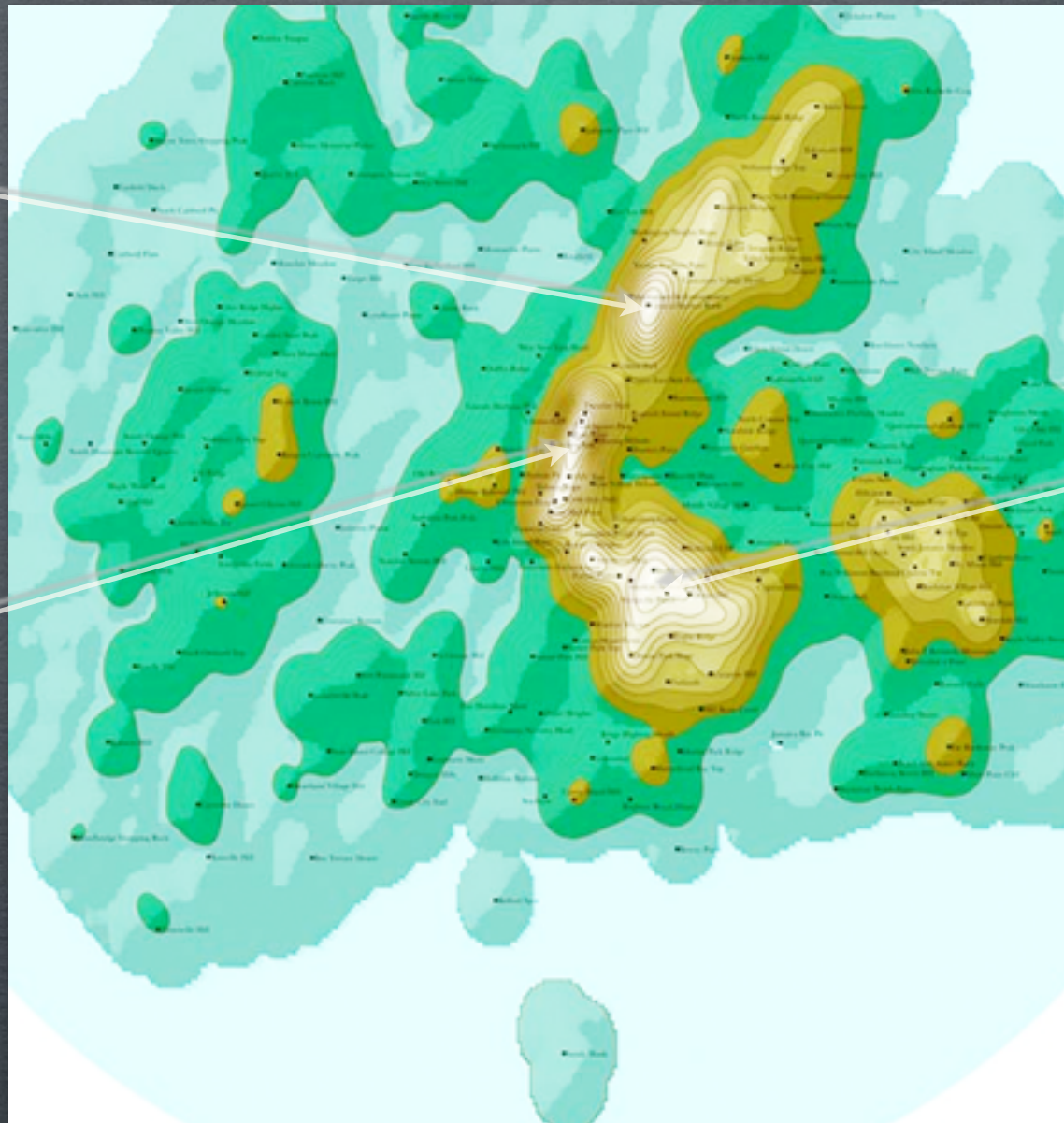
ISARITHMIC CONTOUR MAPS

VOLUME OF TWEETS FOR A 30KM AREA AROUND NEW YORK CITY

CENTRAL HARLEM

FRANKLIN AVE

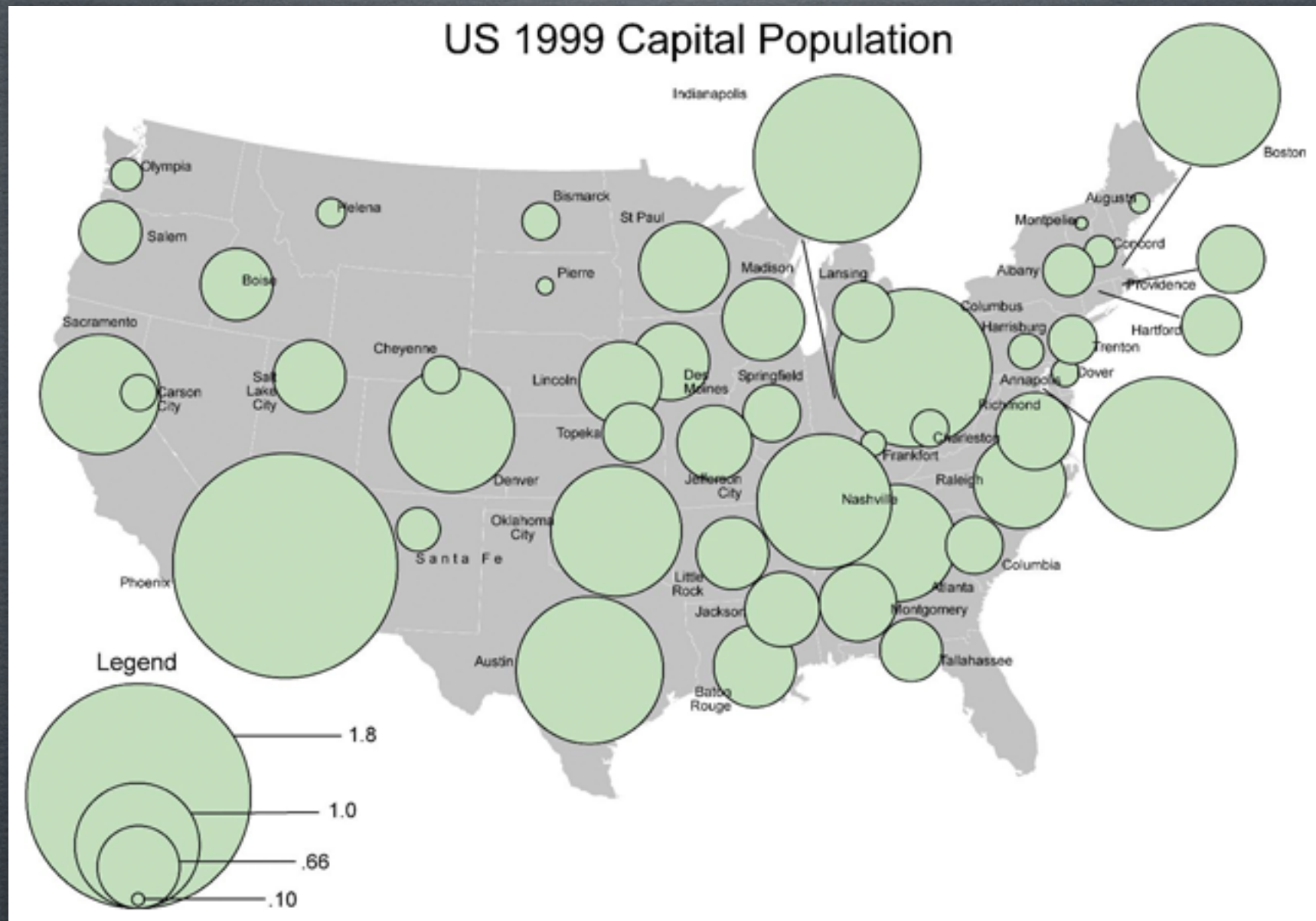
TIMES SQUARE



DATA COURTESY [HTTP://URBANTICK.BLOGSPOT.COM/2010/01/NEW-CITY-LANDSCAPES-INTERACTIVE.HTML](http://urbantick.blogspot.com/2010/01/new-city-landscapes-interactive.html)

PROPORTIONAL SYMBOL MAPS

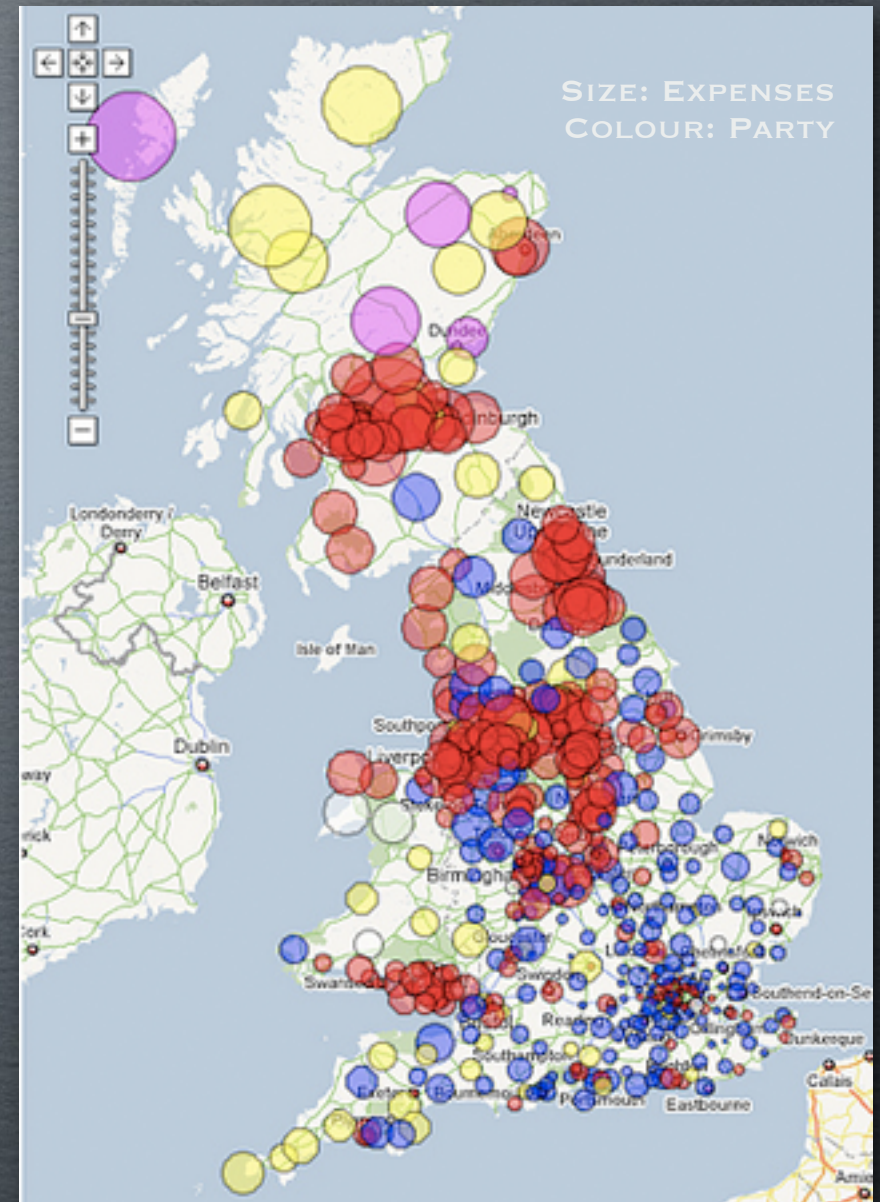
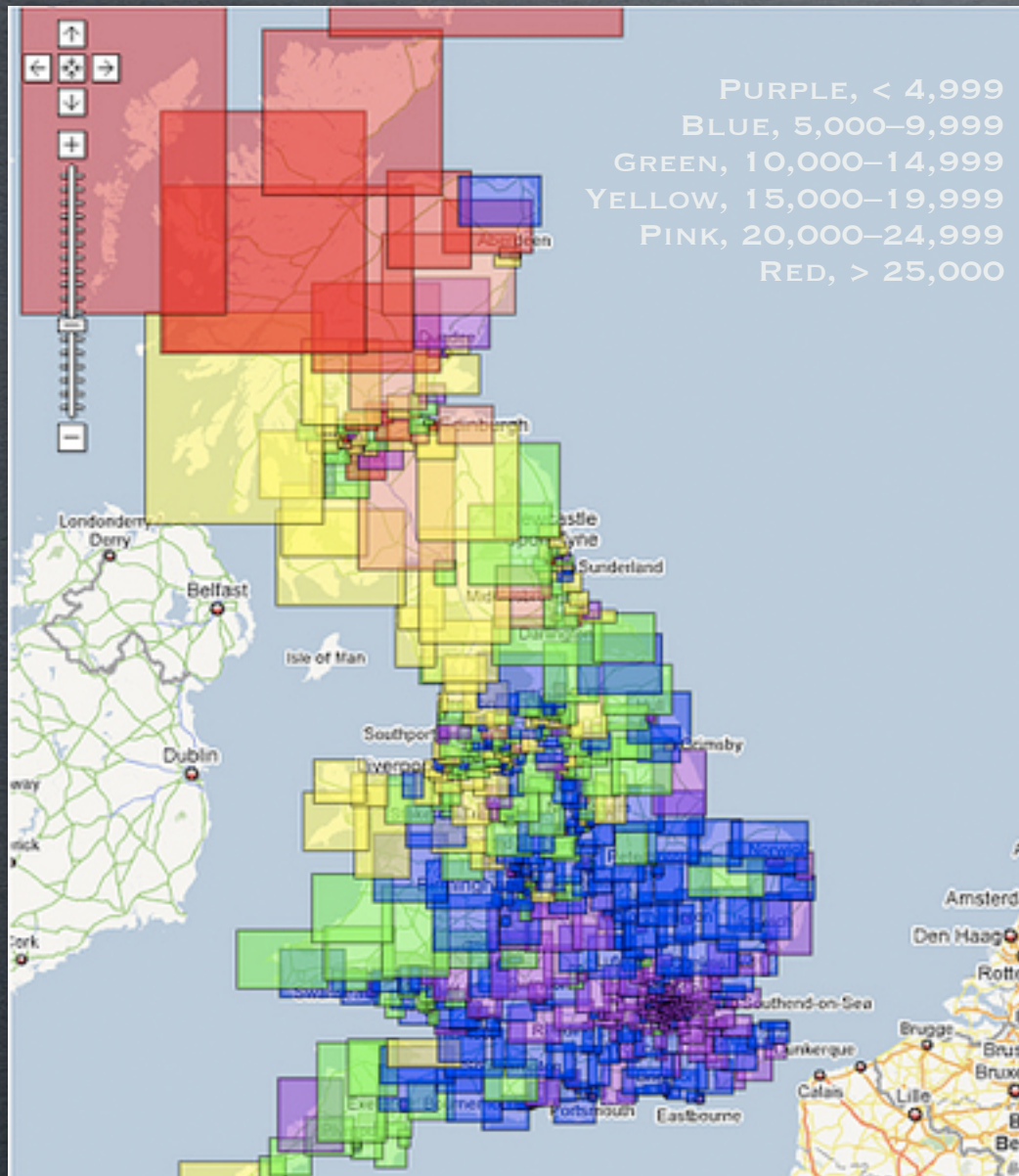
US STATE CAPITOL POPULATIONS



DATA COURTESY [HTTP://EARTHQUAKE.USGS.GOV/RESEARCH/STRUCTURE/CRUST/INDEX.PHP](http://earthquake.usgs.gov/research/structure/crust/index.php)

PROPORTIONAL SYMBOL MAPS

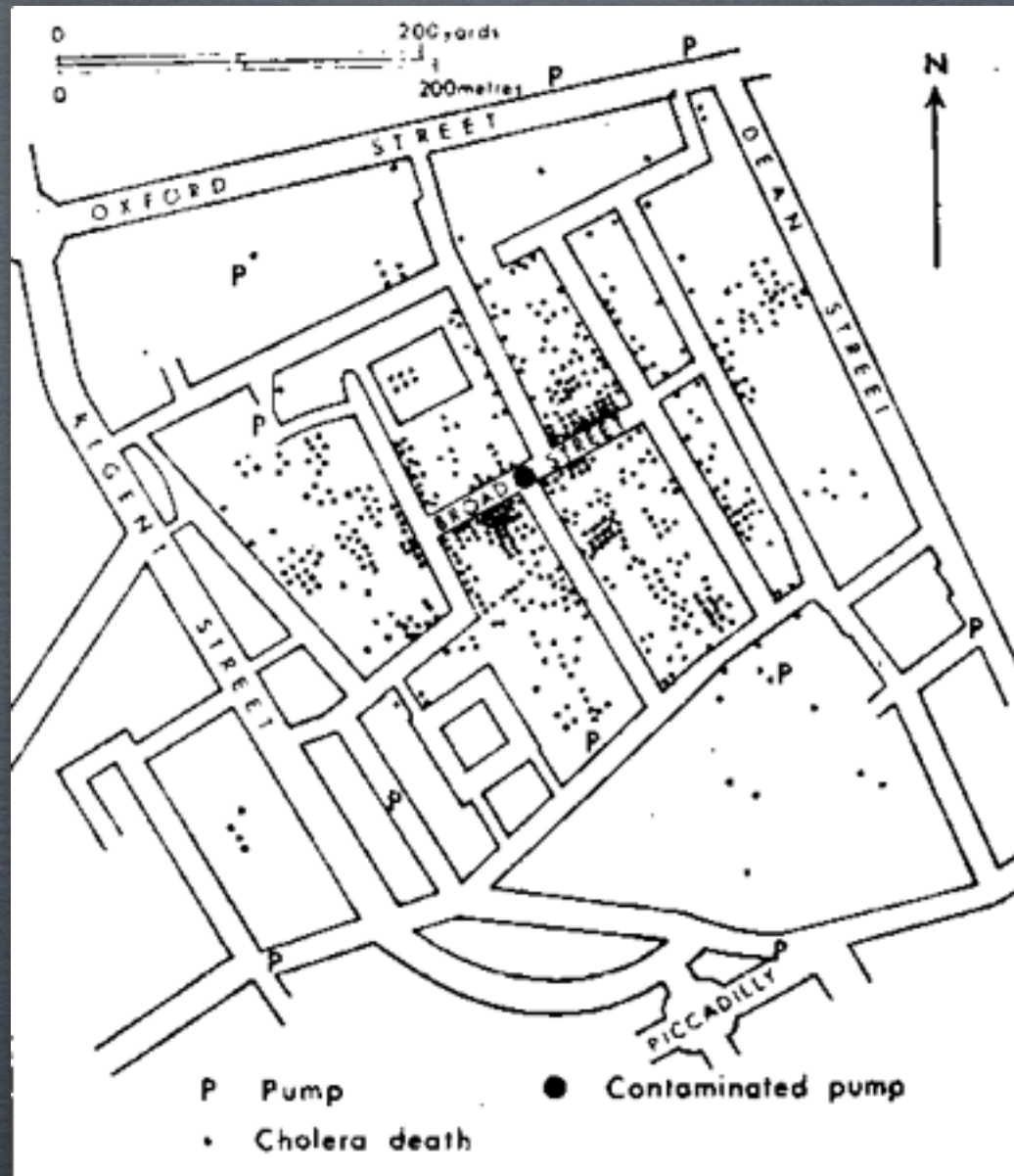
UNITED KINGDOM MEMBER OF PARLIAMENT EXPENSES



DATA COURTESY [HTTP://BLOG.OUSEFUL.INFO/2009/05/03/MPS-EXPENSES-BY-CONSTITUENCY-SORT-OF/](http://blog.ouseful.info/2009/05/03/mps-expenses-by-constituency-sort-of/)

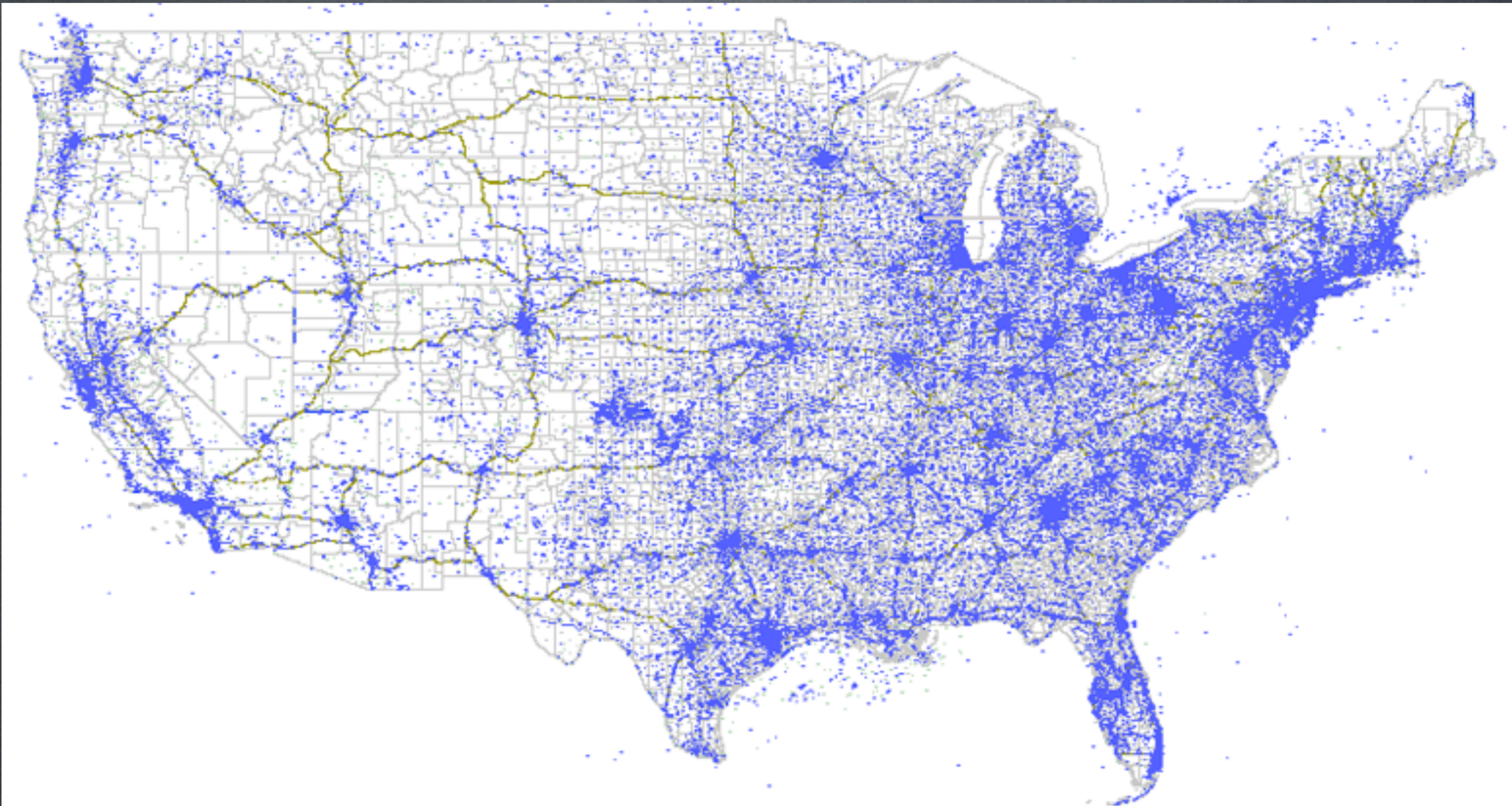
DOT MAPS

JOHN SNOW'S CHOLERA MAP



DOT MAPS

LOCATIONS OF CELL TOWERS IN THE CONTINENTAL UNITED STATES



DATA COURTESY [HTTP://WWW.ENGR.WISC.EDU/CSLS/MTG5.HTML](http://www.engr.wisc.edu/CSLS/MTG5.HTML)

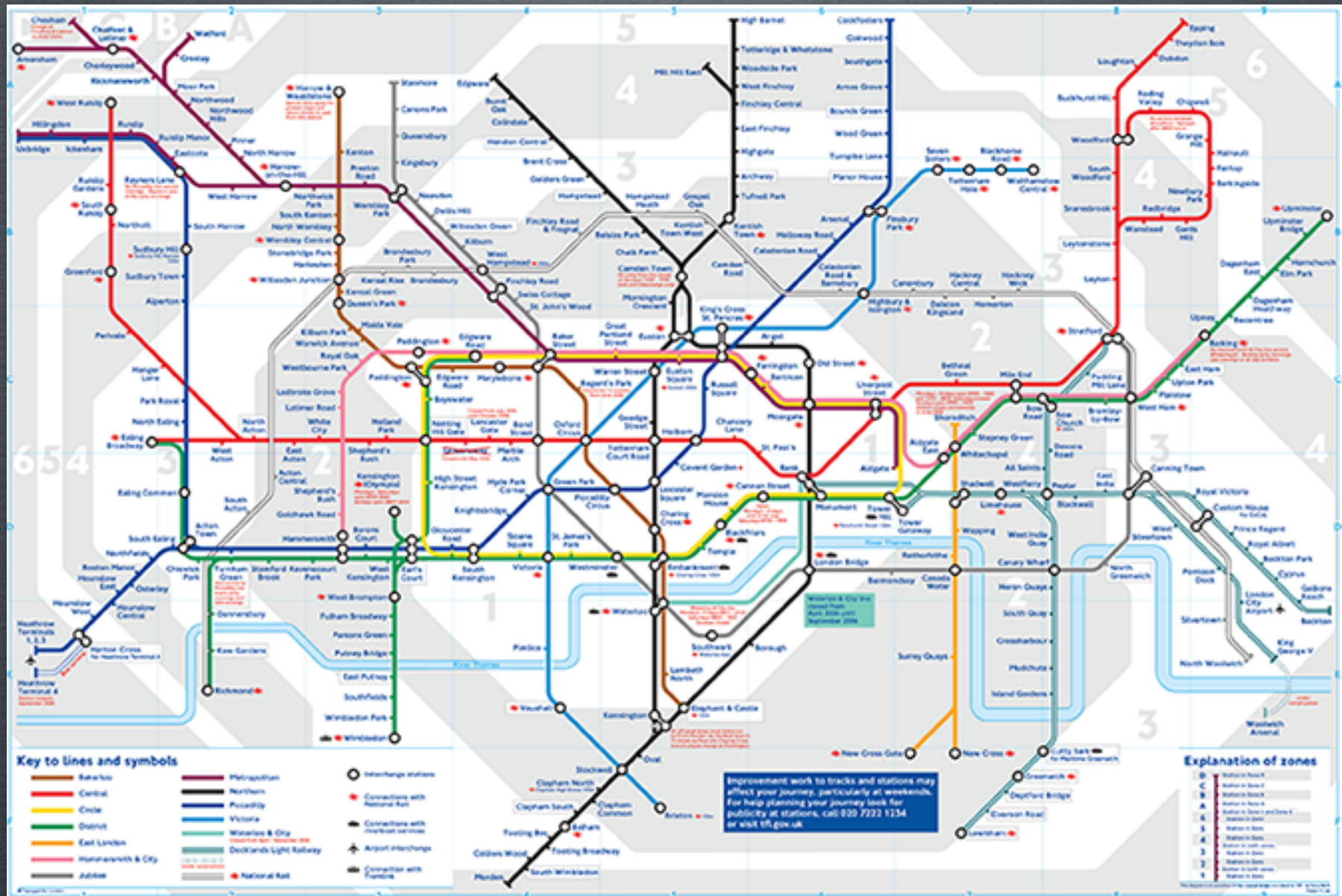
ROUTE MAPS

HENRY BECK'S LONDON UNDERGROUND MAP CIRCA 1933



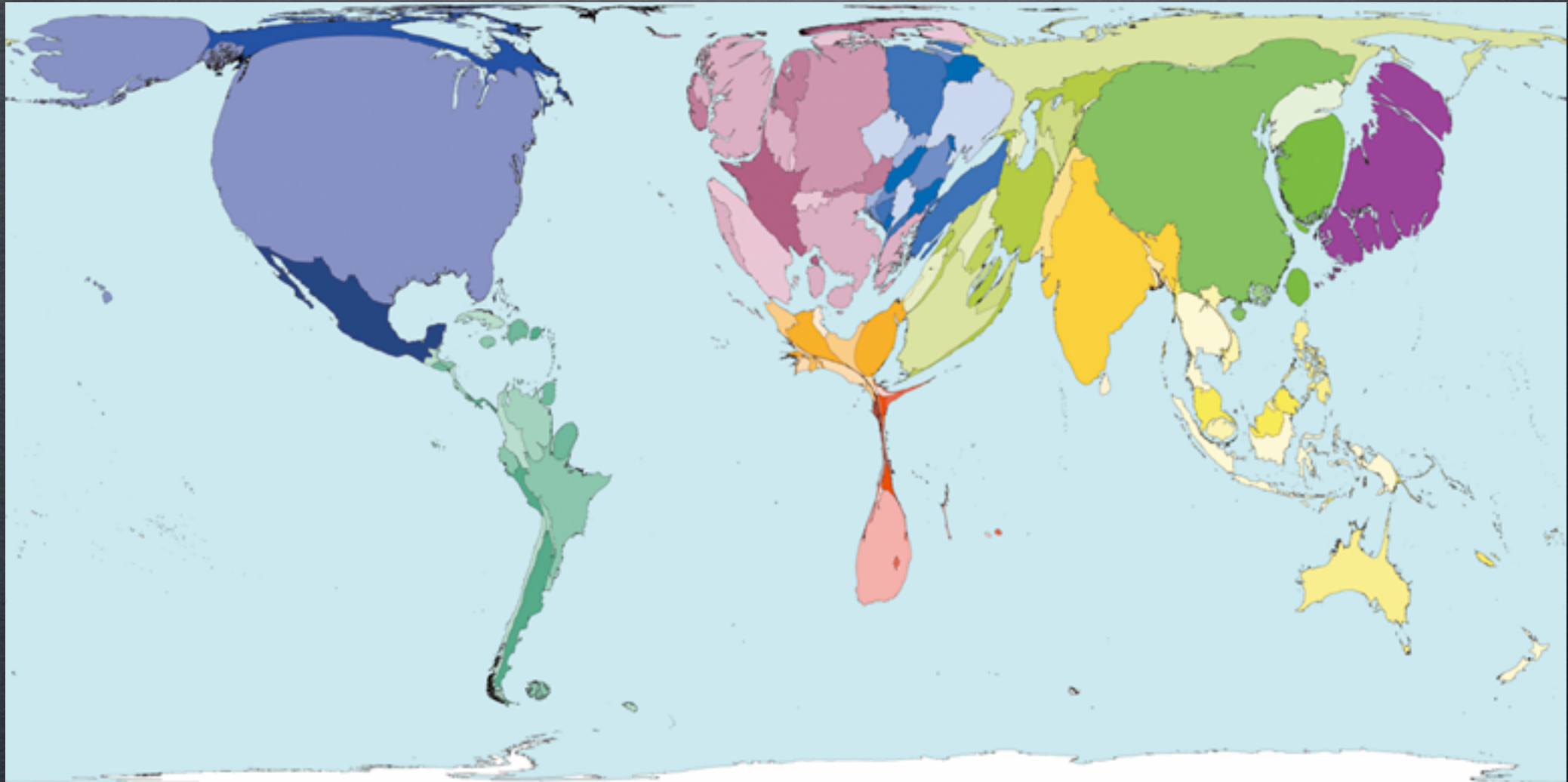
ROUTE MAPS

LONDON UNDERGROUND MAP CIRCA 2012



DASYMETRIC MAPS

AREA CARTOGRAM OF 2000 CARBON EMISSIONS BY COUNTRY



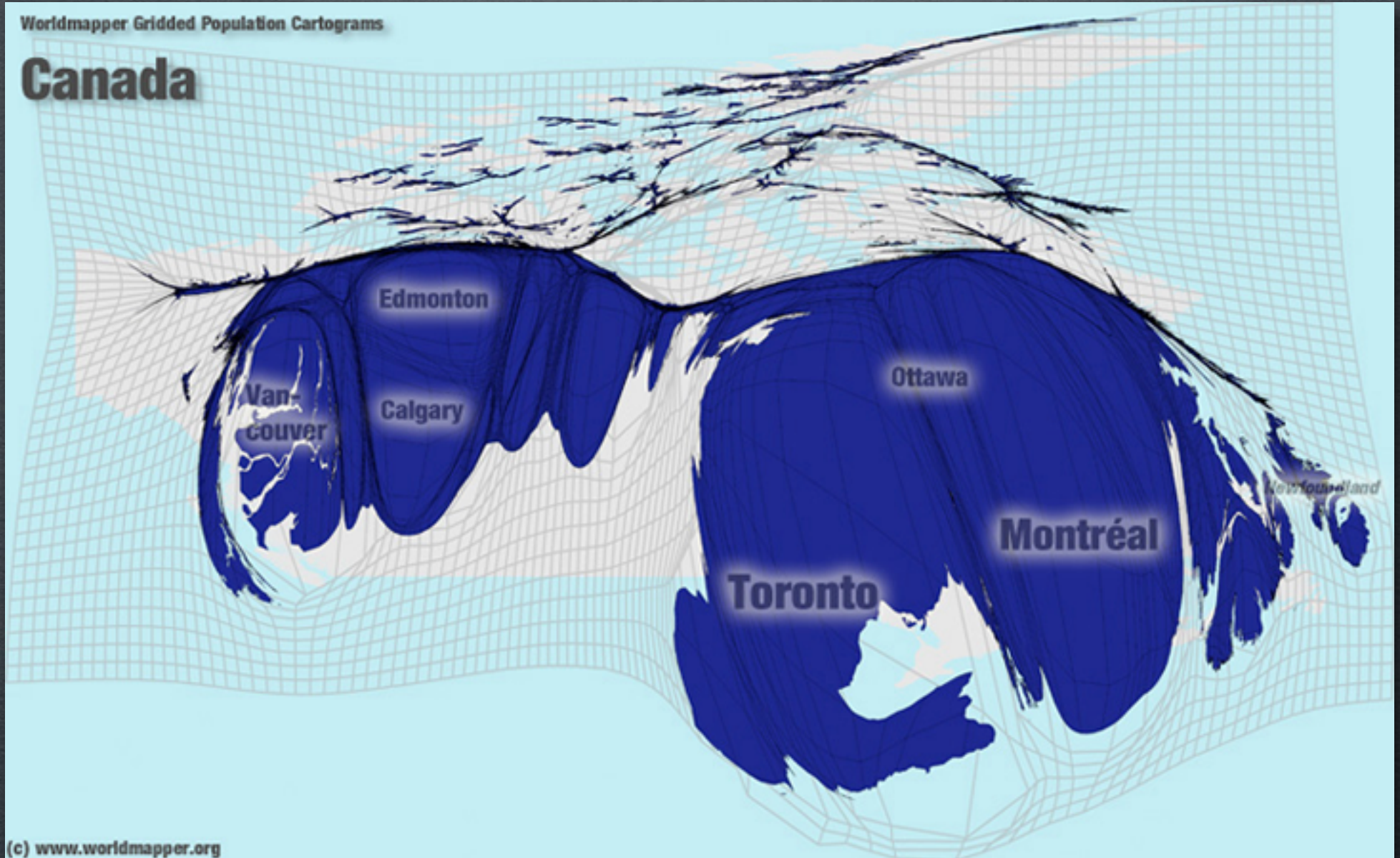
DATA COURTESY [HTTP://WWW.WORLDMAPPER.ORG](http://www.worldmapper.org)

DASYMETRIC MAPS

AREA CARTOGRAM OF CANADA WARPED BY POPULATION

Worldmapper Gridded Population Cartograms

Canada

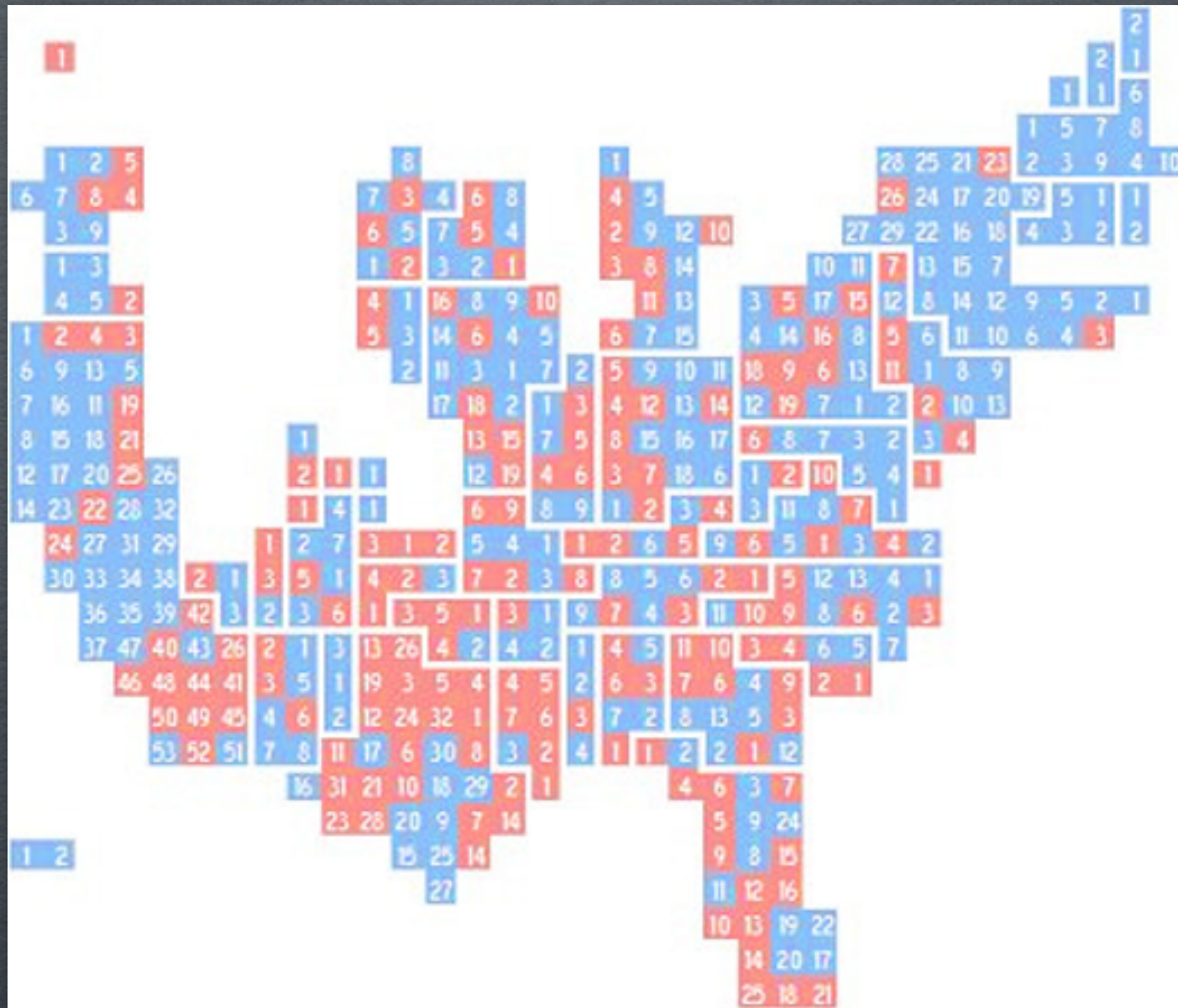


(c) www.worldmapper.org

DATA COURTESY [HTTP://WWW.WORLDMAPPER.ORG](http://www.worldmapper.org)

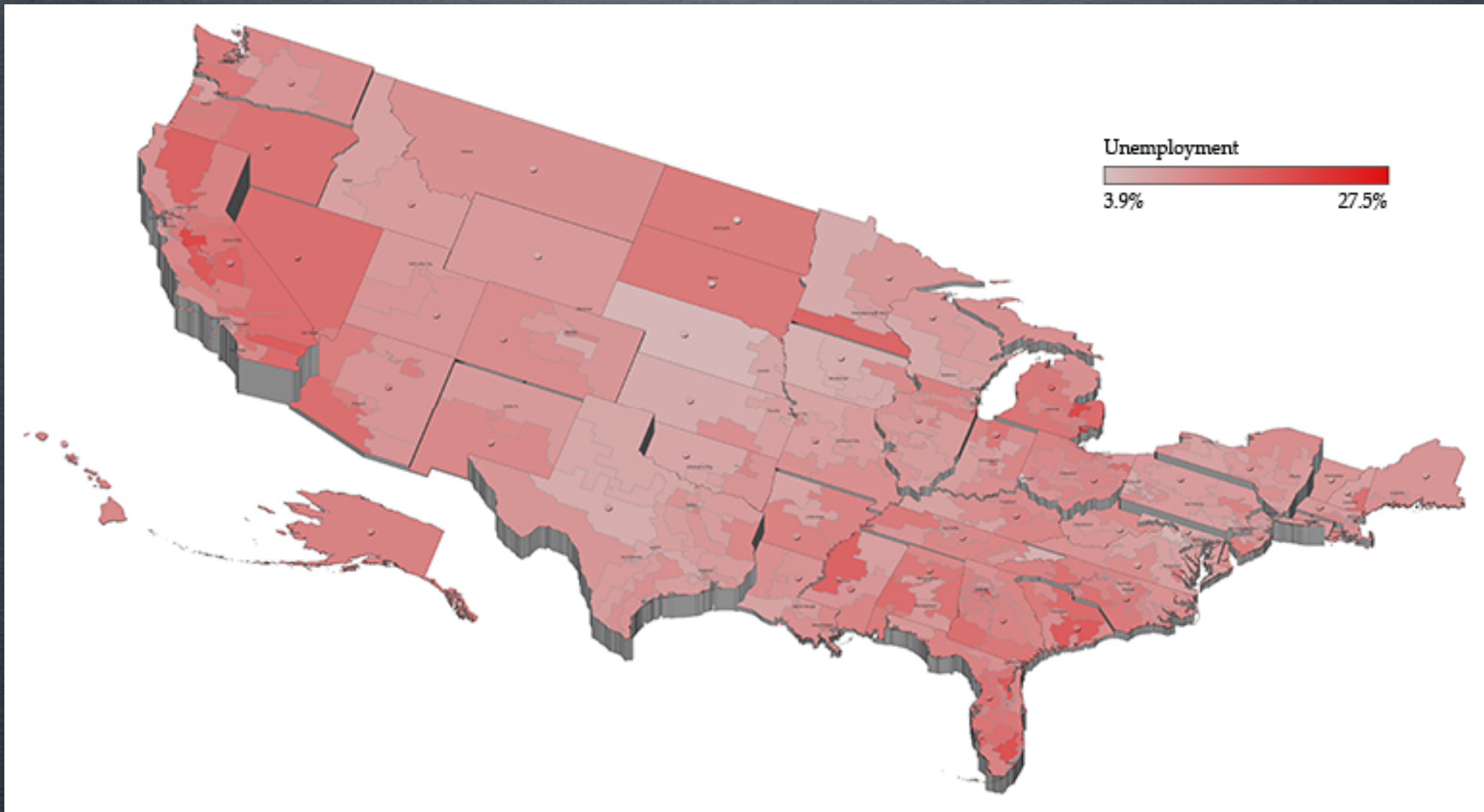
DASYMETRIC MAPS

CONGRESSIONAL DISTRICT CARTOGRAM OF US ELECTION RESULTS



CHOROPLETH MAPS

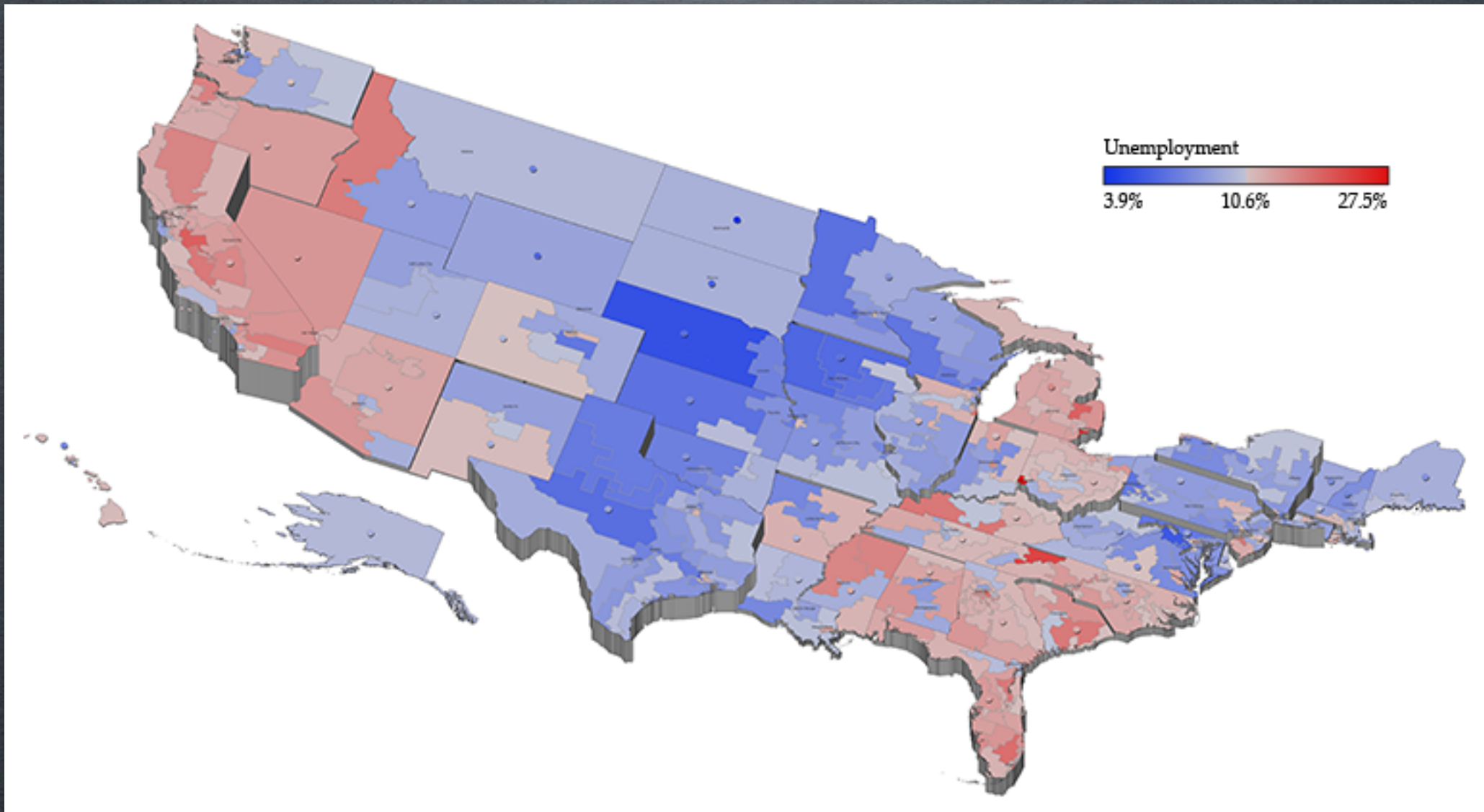
UNEMPLOYMENT BY CONGRESSIONAL DISTRICT



DATA COURTESY [HTTP://FACTFINDER2.CENSUS.GOV](http://factfinder2.census.gov)

CHOROPLETH MAPS

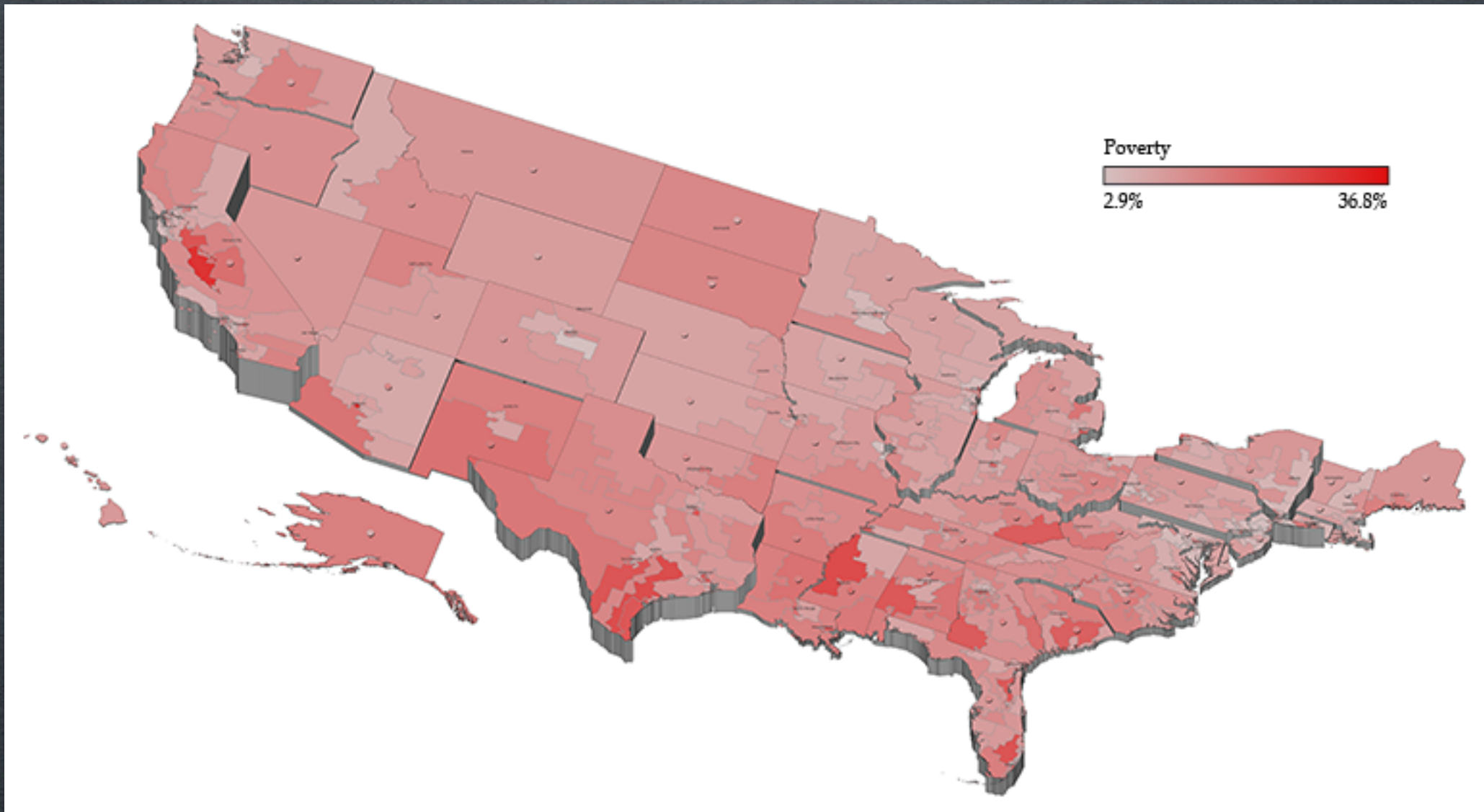
UNEMPLOYMENT BY CONGRESSIONAL DISTRICT



DATA COURTESY [HTTP://FACTFINDER2.CENSUS.GOV](http://factfinder2.census.gov)

CHOROPLETH MAPS

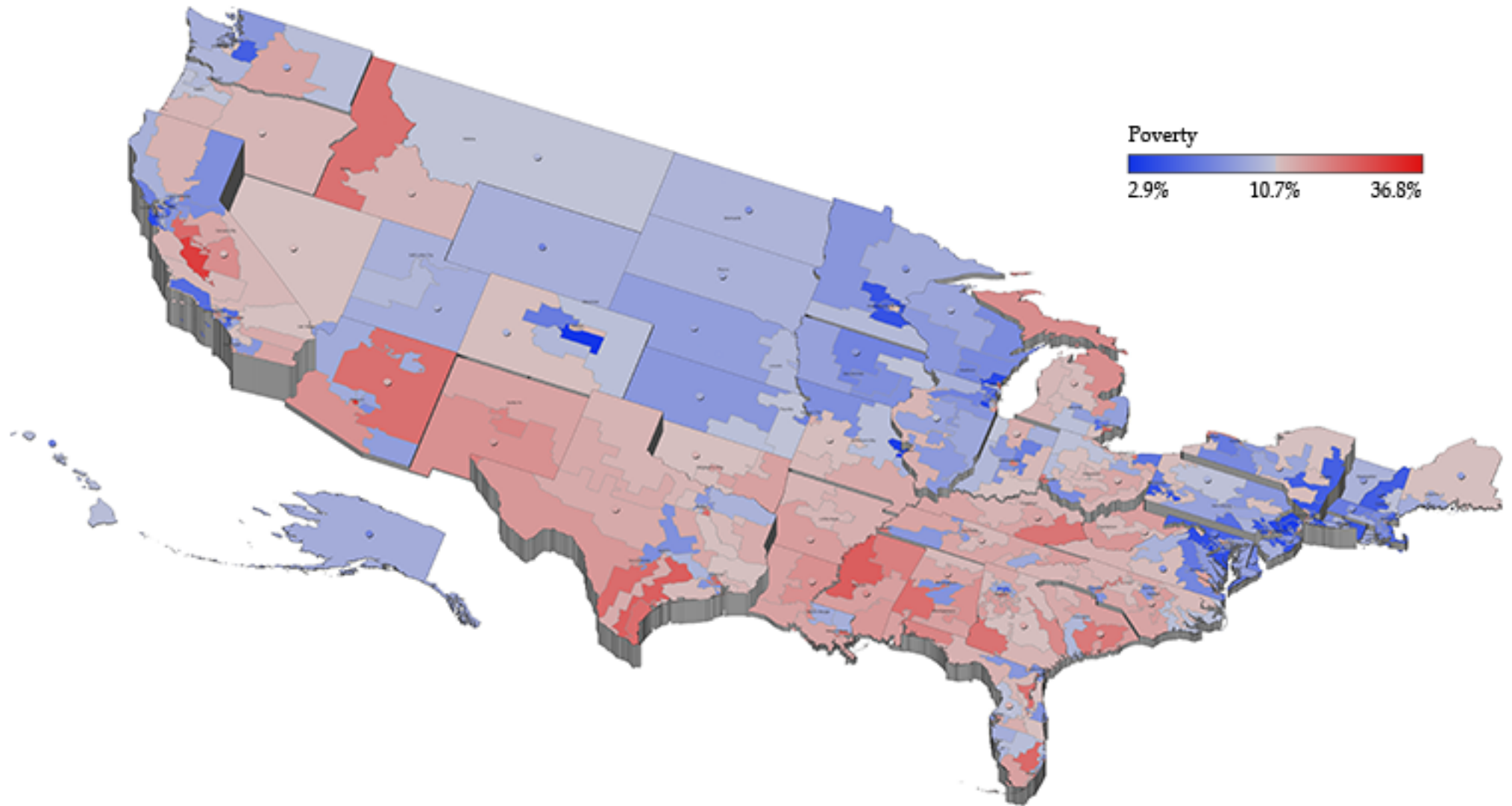
POVERTY BY CONGRESSIONAL DISTRICT



DATA COURTESY [HTTP://FACTFINDER2.CENSUS.GOV](http://factfinder2.census.gov)

CHOROPLETH MAPS

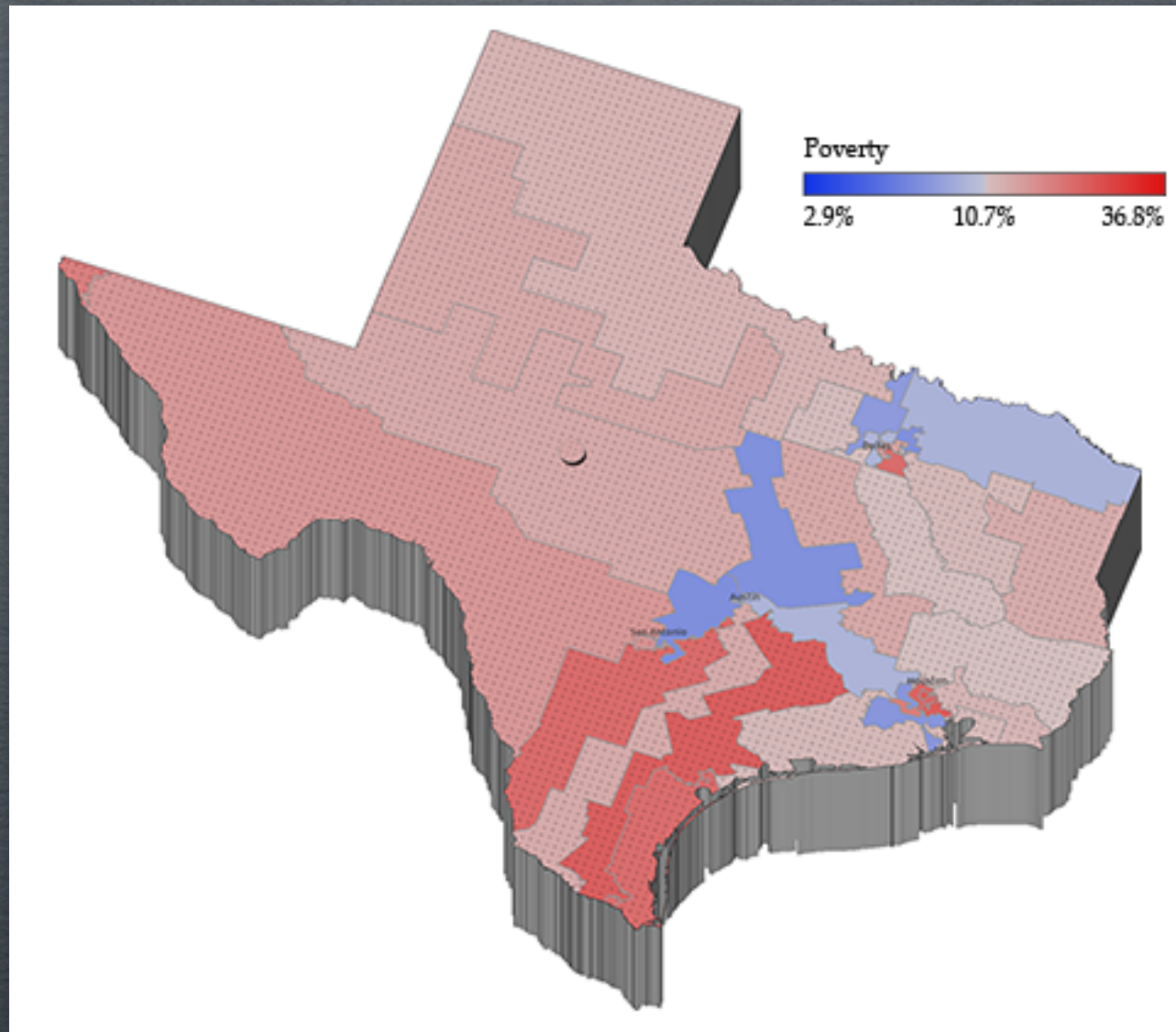
POVERTY BY CONGRESSIONAL DISTRICT



DATA COURTESY [HTTP://FACTFINDER2.CENSUS.GOV](http://factfinder2.census.gov)

CHOROPLETH MAPS

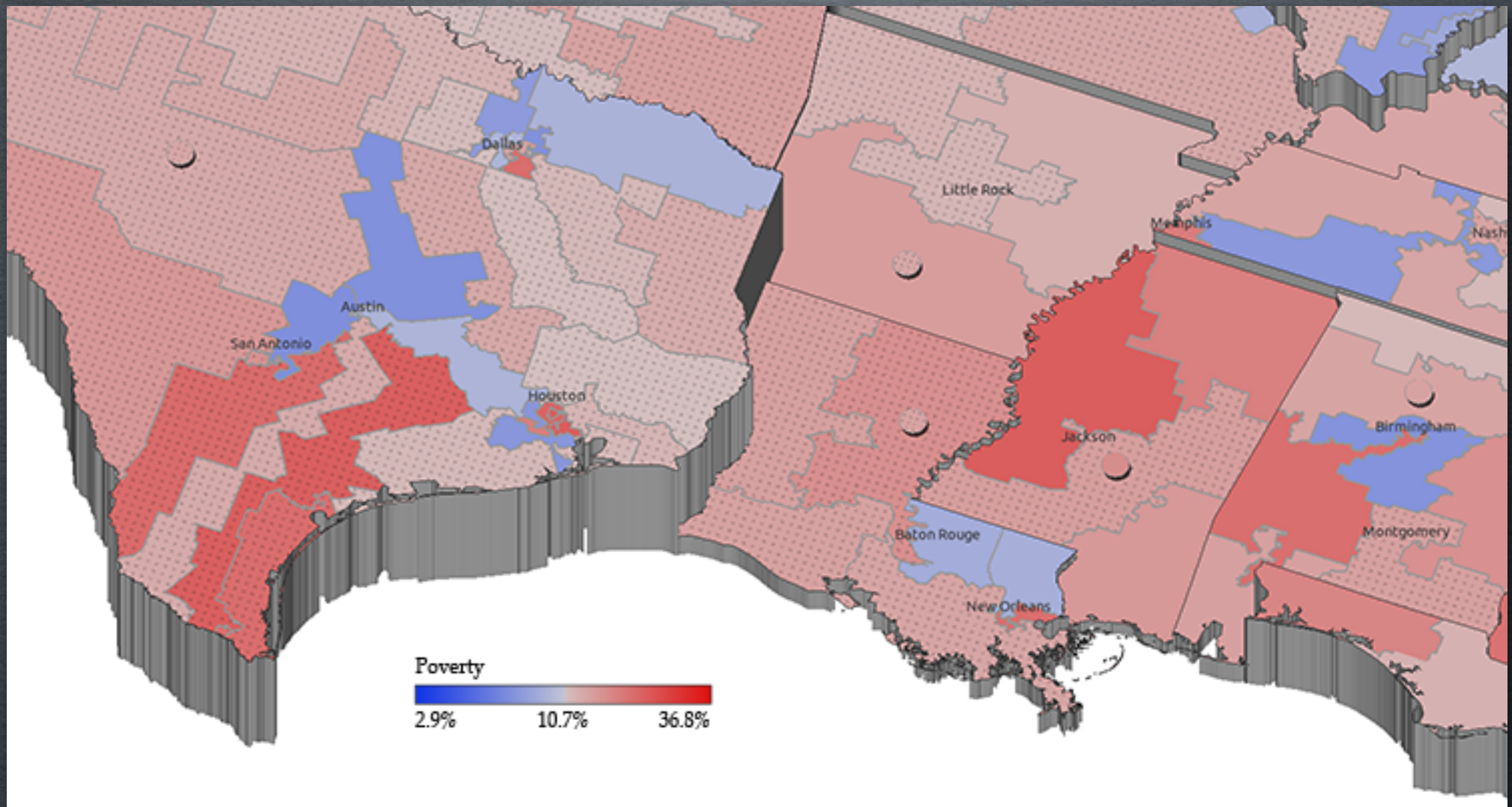
POVERTY BY CONGRESSIONAL DISTRICT WITH UNEMPLOYMENT MISMATCHES HIGHLIGHTED



DATA COURTESY [HTTP://FACTFINDER2.CENSUS.GOV](http://factfinder2.census.gov)

CHOROPLETH MAPS

POVERTY BY CONGRESSIONAL DISTRICT WITH UNEMPLOYMENT MISMATCHES HIGHLIGHTED



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