

# Geographic Data Science

Spatial Autocorrelation

Dani Arribas-Bel

# Spatial Autocorrelation

*Everything is related to everything else, but near things are  
more related than distant things*

Waldo Tobler (1970)

# Spatial Autocorrelation

- Statistical representation of Tobler's law
- Spatial counterpart of traditional correlation

*Degree to which similar values are located in similar locations*

Two flavors:

- **Positive:** similar values → similar location (*closeby*)
- **Negative:** similar values → dissimilar location (*further apart*)

# Examples

**Positive SA:** income, poverty, vegetation, temperature...

**Negative SA:** supermarkets, police stations, fire stations, hospitals...

# Scales

## [Global]

*Clustering*: do values tend to be close to other (dis)similar values?

## [Local]

*Clusters*: are there any specific parts of a map with an extraordinary concentration of (dis)similar values?



A course on Geographic Data Science by Dani Arribas-Bel is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.