Economics 103 – Statistics for Economists

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Bonus Lecture: Statistical Graphics

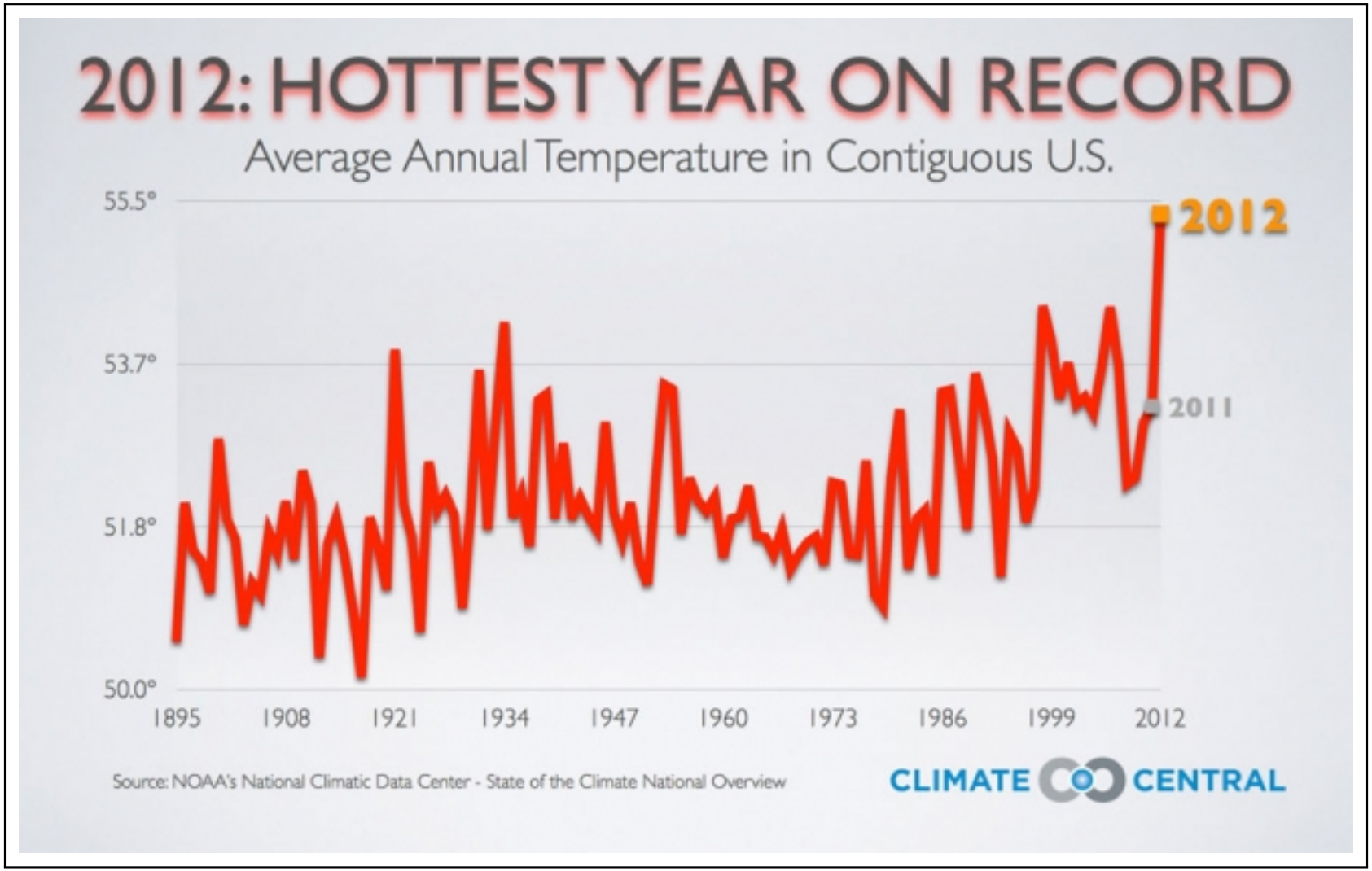
Some Thoughts on Statistical Graphics

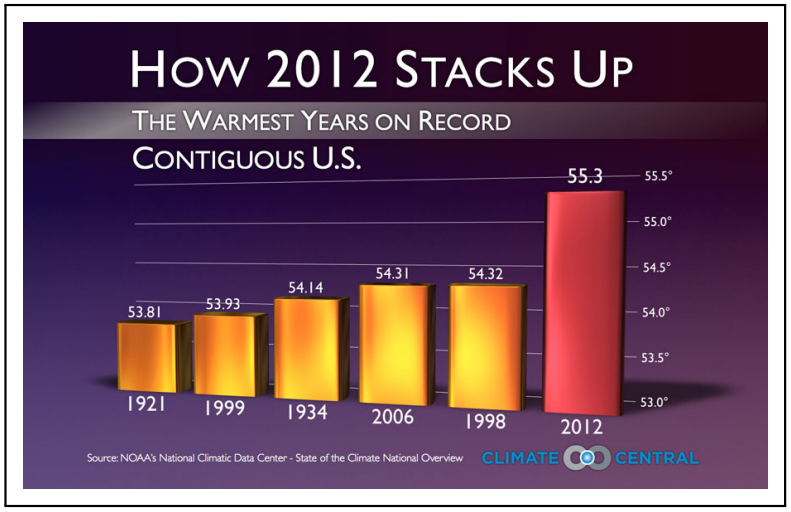
What's Wrong with This Graph?

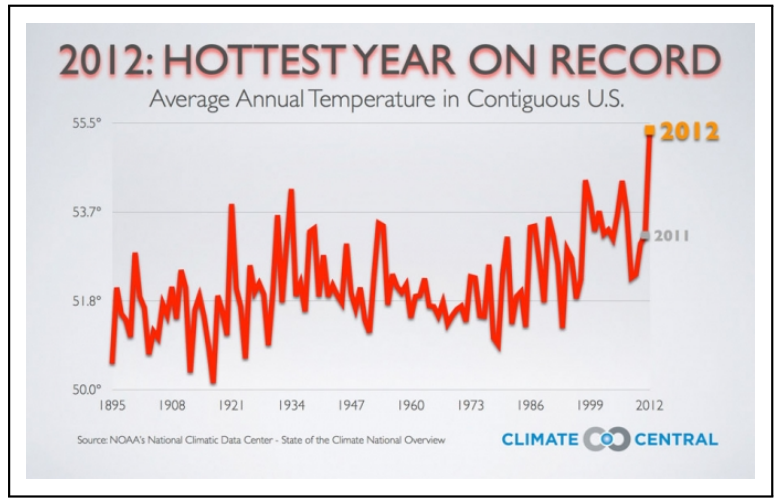
Source: Climate Central

Why is this one better?

Source: Climate Central







Bad Graph:

- Unnatural ordering of years
- 3-D effect (perspective) and y-axis exaggerate 2012
- Why *six* warmest years?
- Lack of context: what about other 111 years?
- Gives no information on overall climate variability

Good Graph:

- Shows all years in order (context)
- Shows variability and trend
- y-axis chosen to comfortably fit all observations
- 2-D rather than 3-D

Why Graphics?

Humans naturally skilled at interpreting spatial information

Some Guidelines

- Use distance rather than area or perspective
- Avoid clutter (chartjunk)
- Use meaningful order where possible
- Make a visual argument, not a work of art

Best Statistical Graphic *Ever*

Charles Joseph Minard, 1861

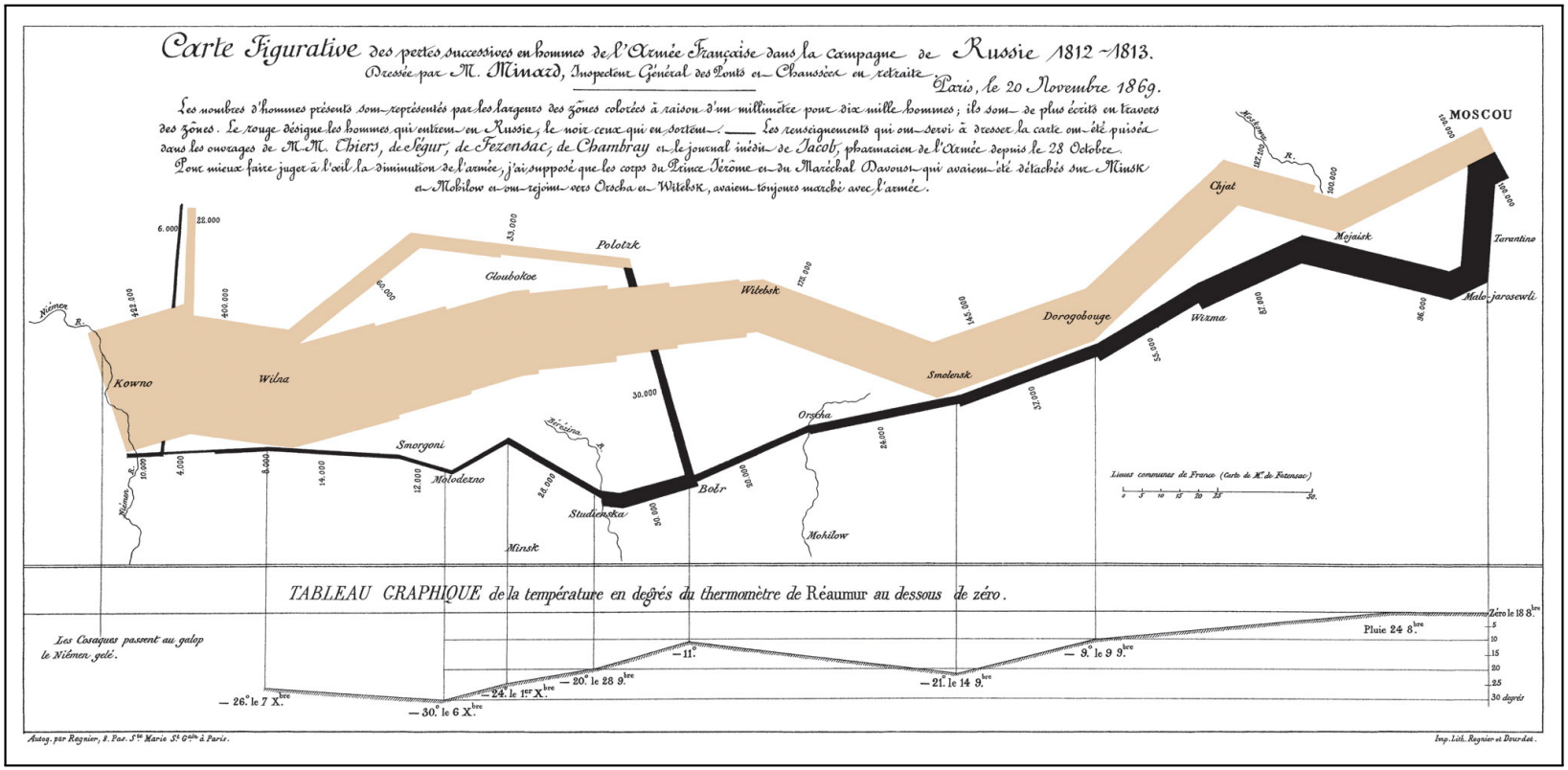
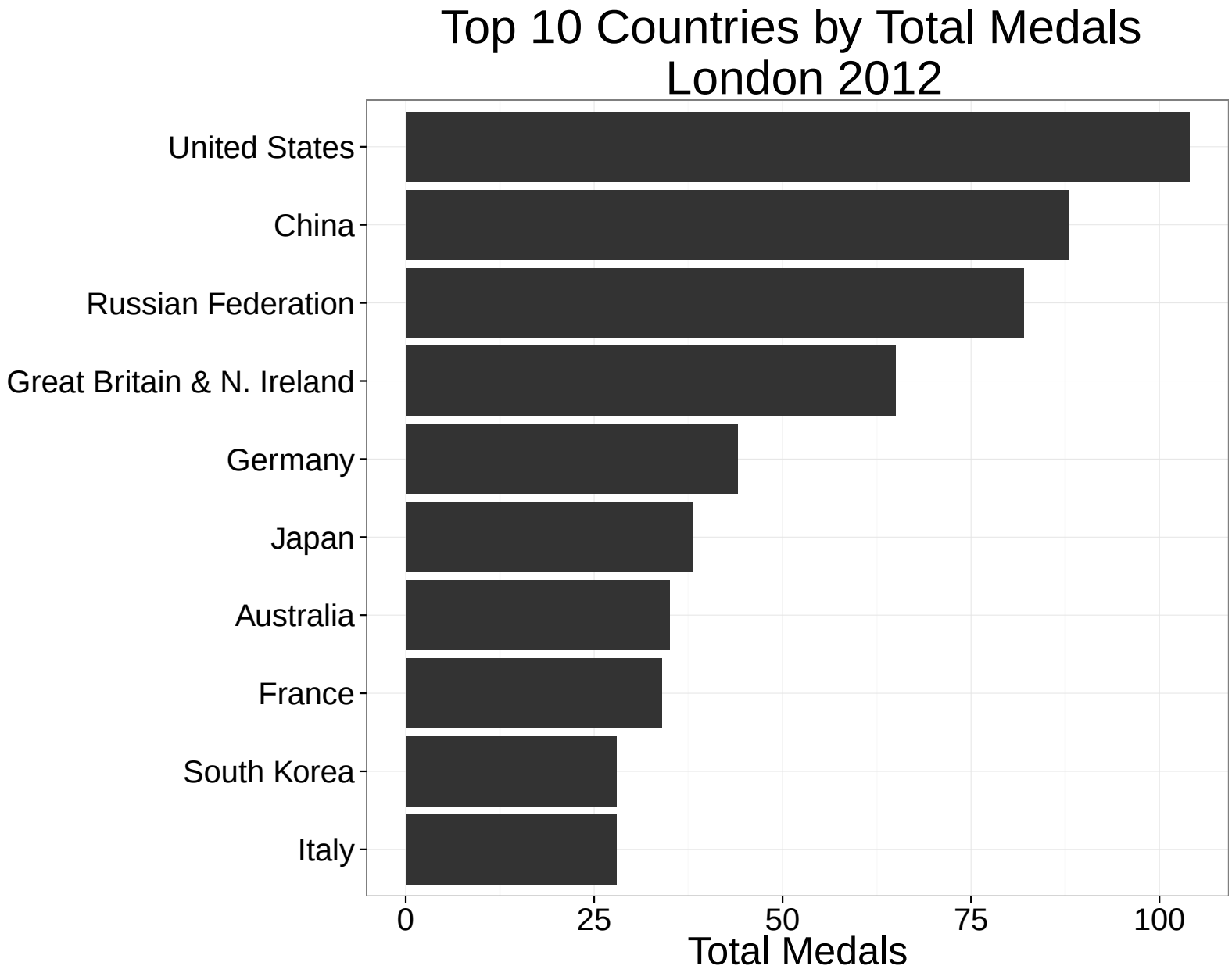
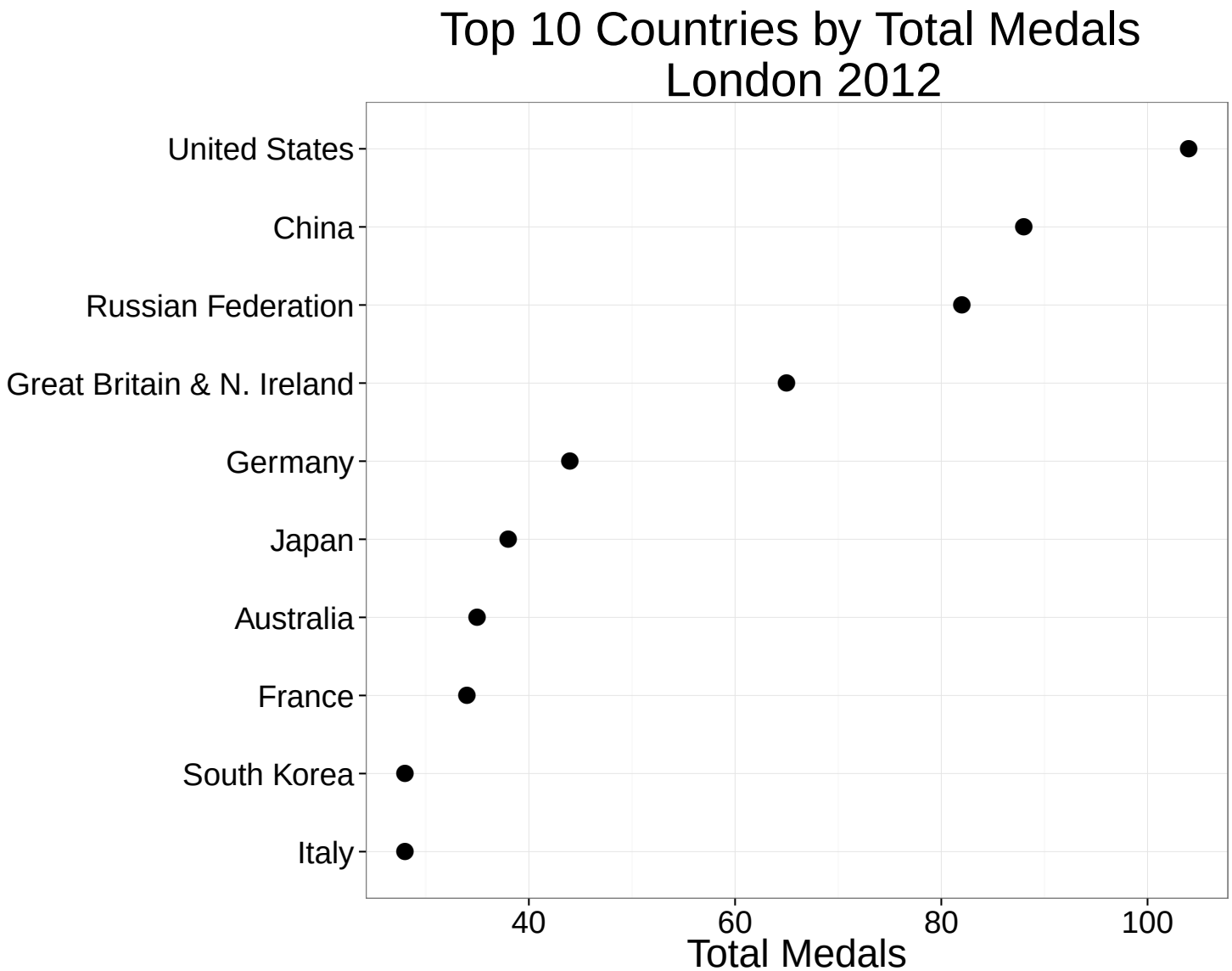


Figure: Napoleon's disasterous Russian Campaign of 1812. Depicts six variables: temperature, location (two dimensions), direction, number of troops, and date.

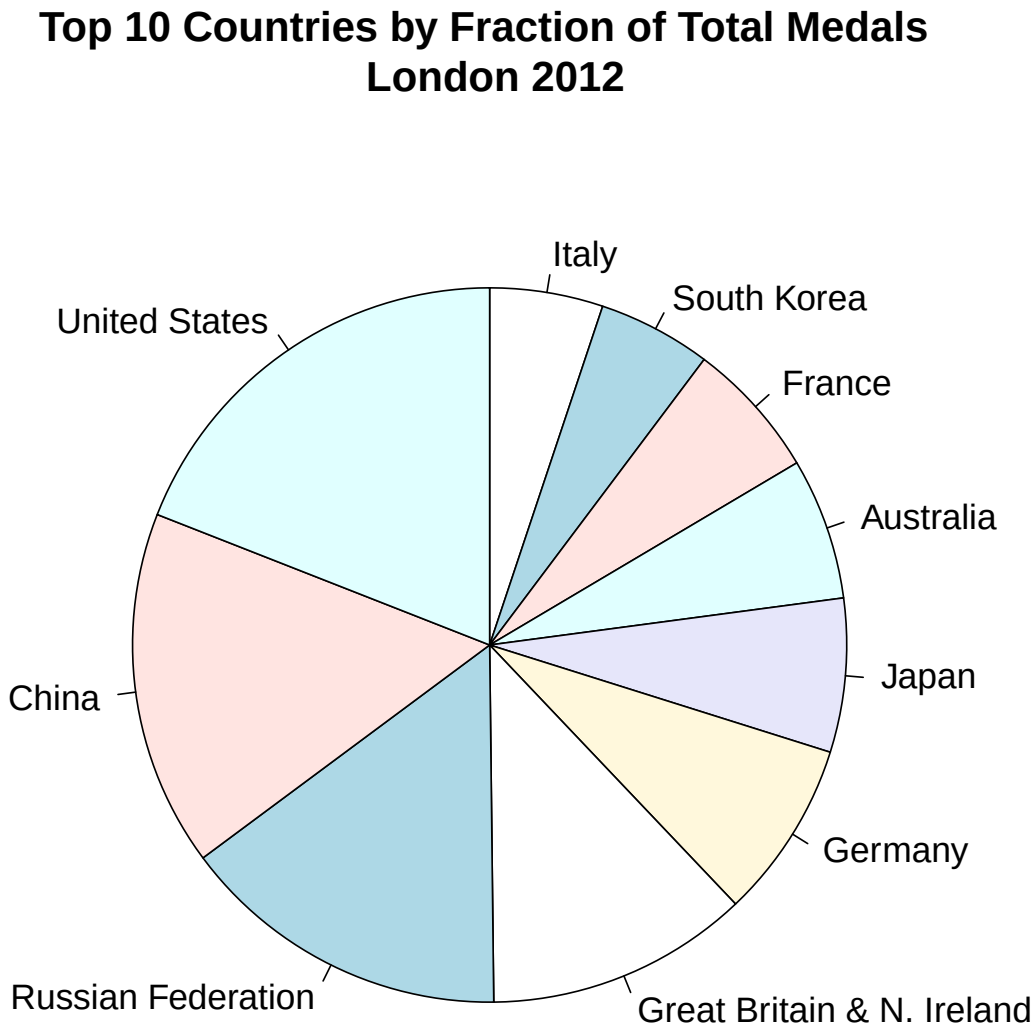
Sideways is Often Better



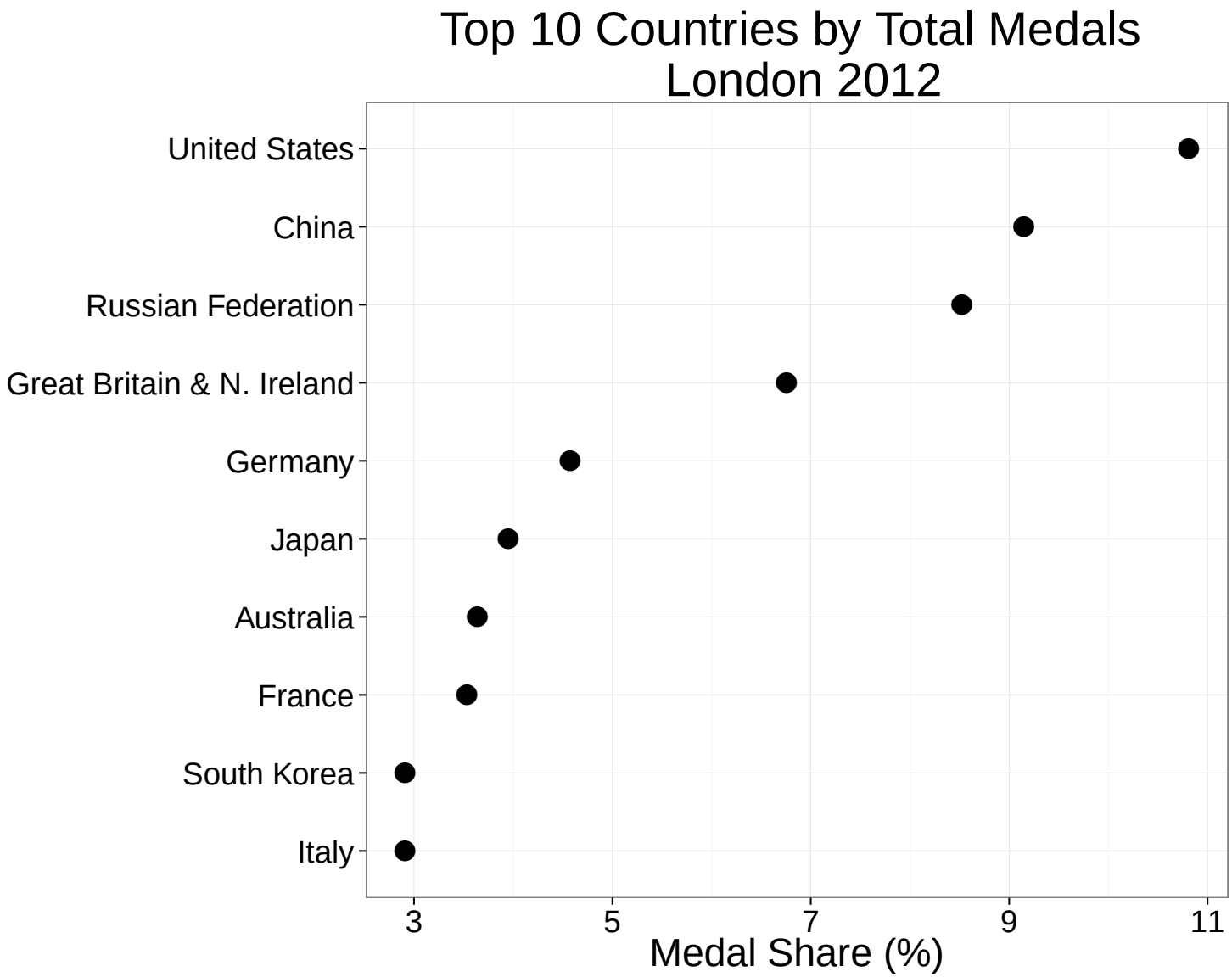
Less Can be More – The Dotchart



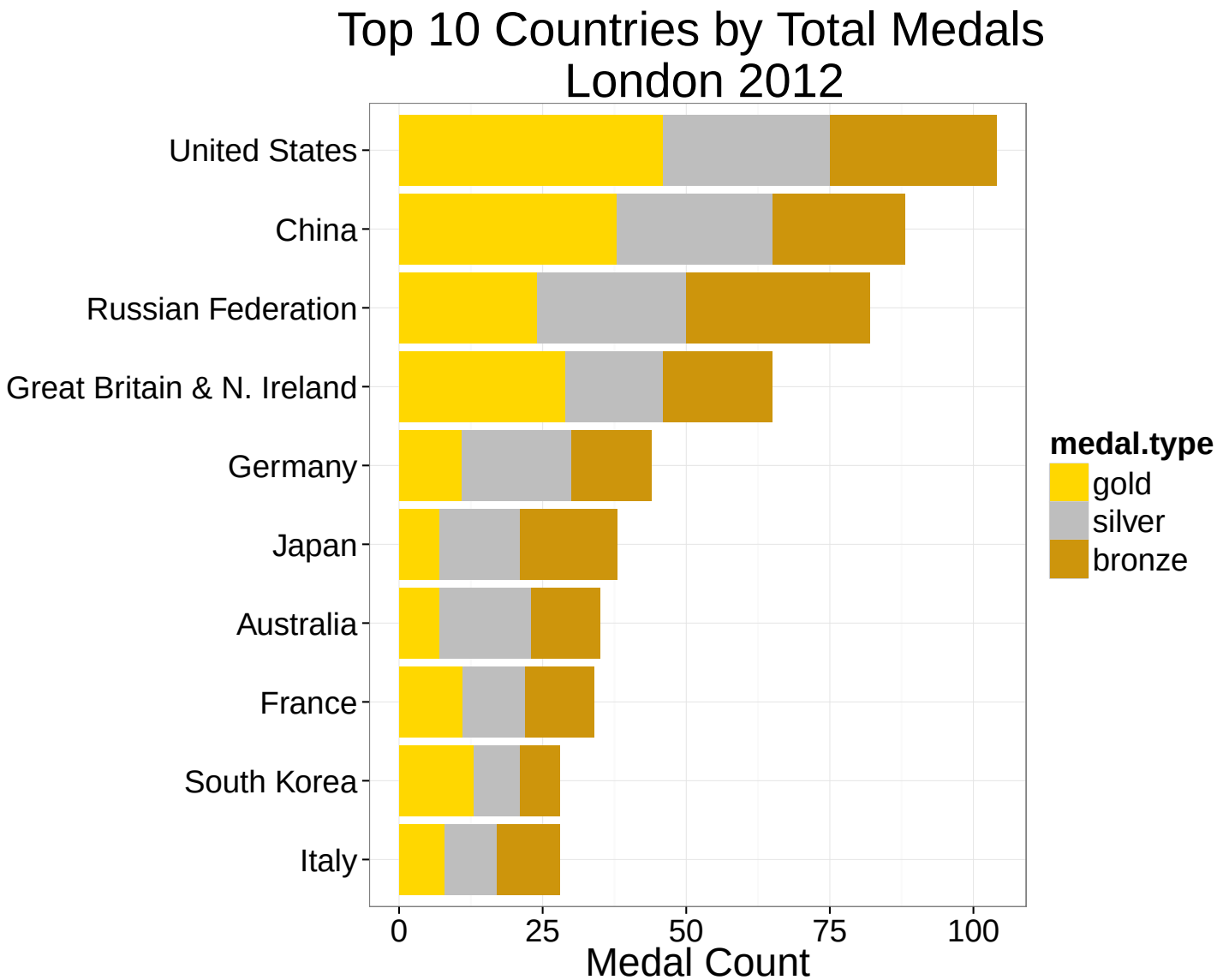
Friends Don't Let Friends Make Pie Charts



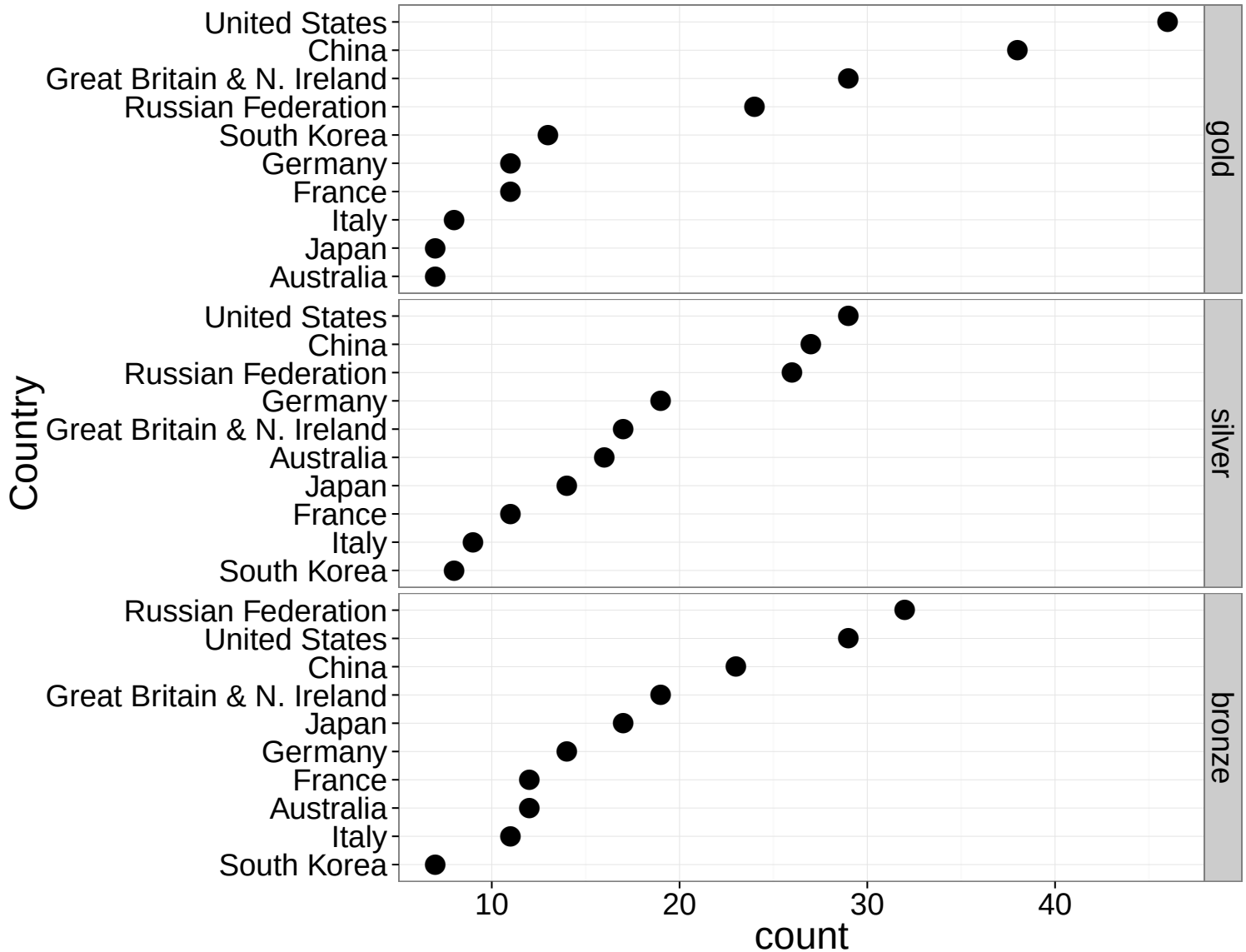
Dotcharts (or Barcharts) Are Just Fine for Proportions!



Stacked Barchart



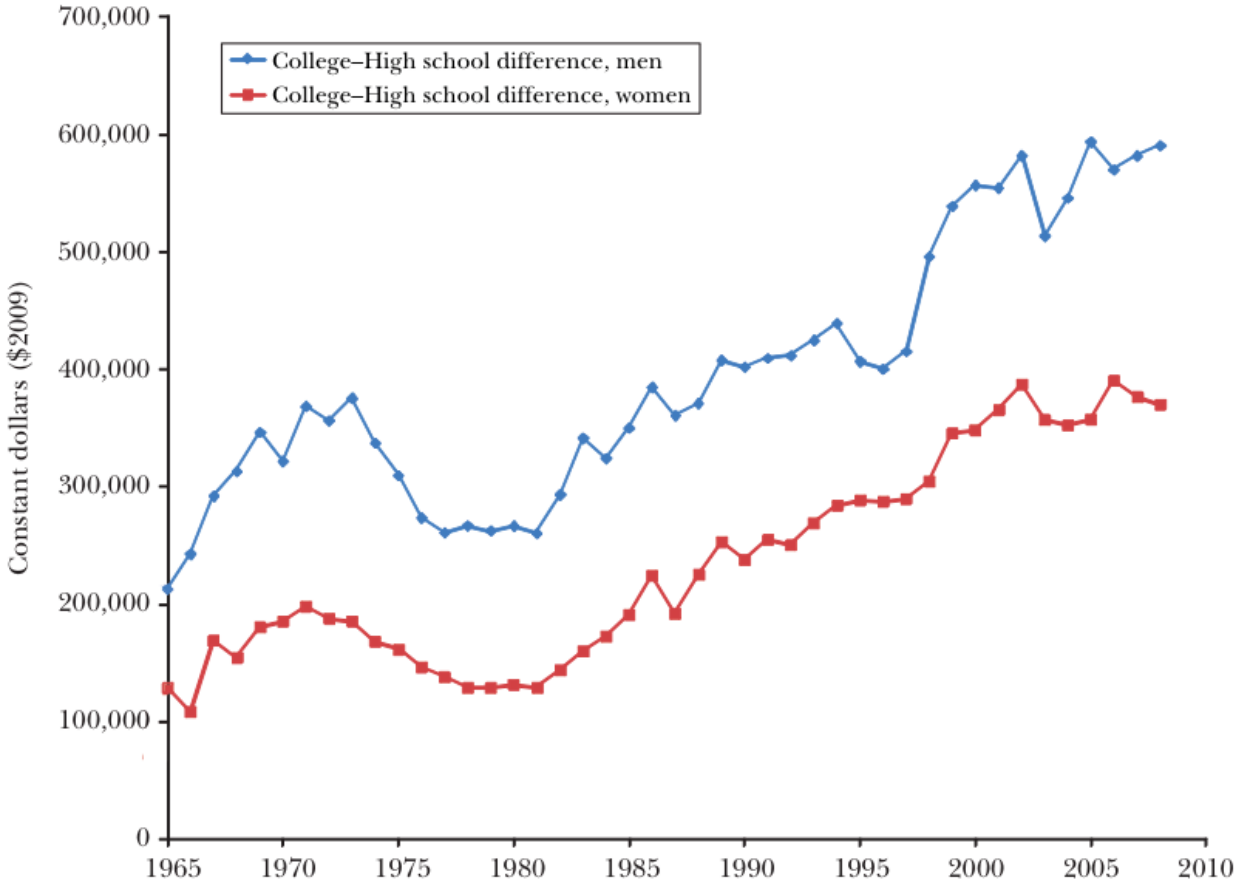
Multiple Dotcharts



Source: Avery & Turner (2012)

Figure 3

Present Discounted Value of College Degree Net of Tuition, 1965–2010

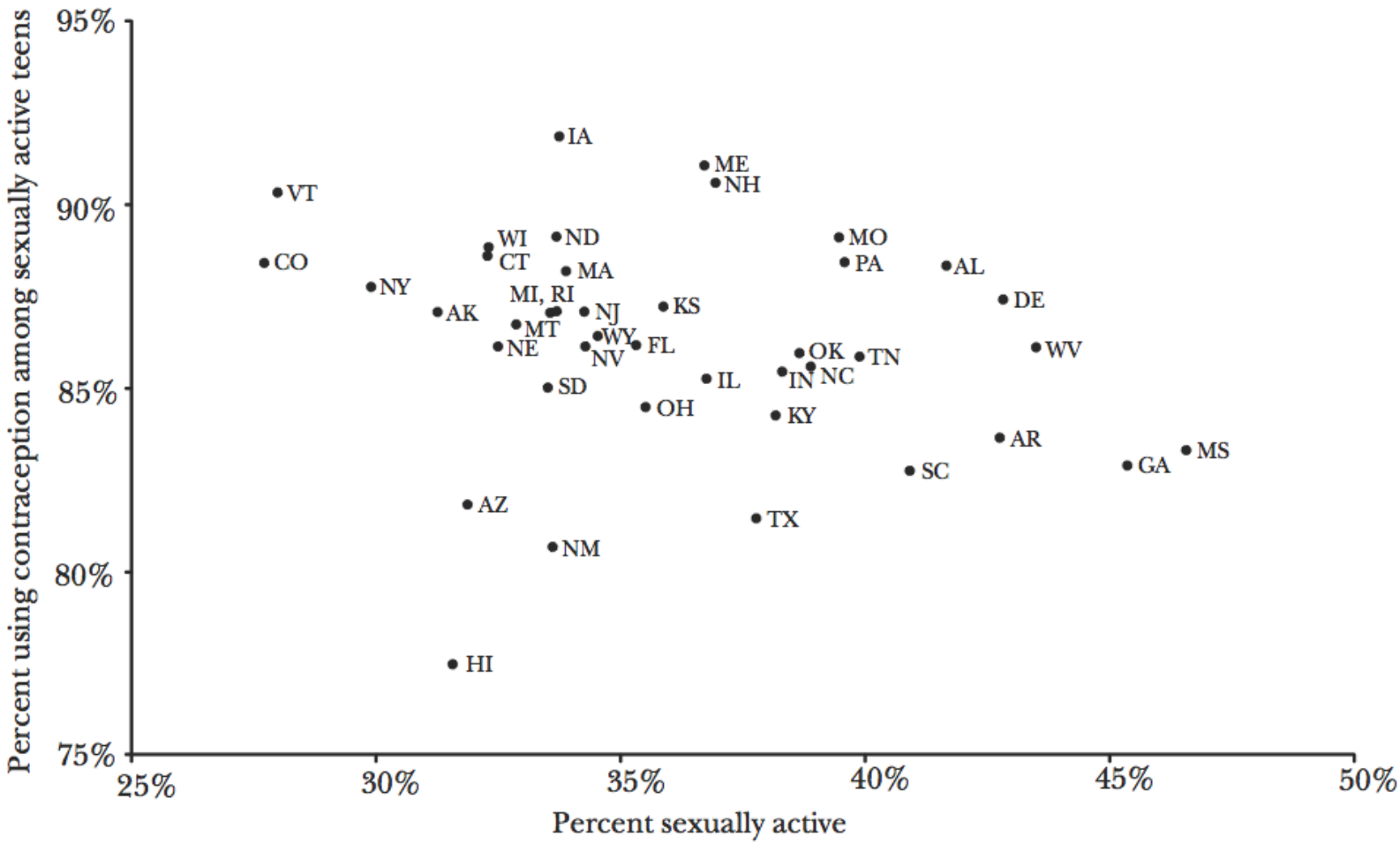


Source: These calculations are based on data from the March Current Population Survey files for full-time, full-year workers using sample weights.

Notes: College–High school difference represents the difference between the present discounted value of the average expected earnings of a college graduate (assuming that earnings begin four years after college entrance and the student pays tuition for four years) and the stream of earnings for a high school graduate. See Figure 2 for earnings calculations.

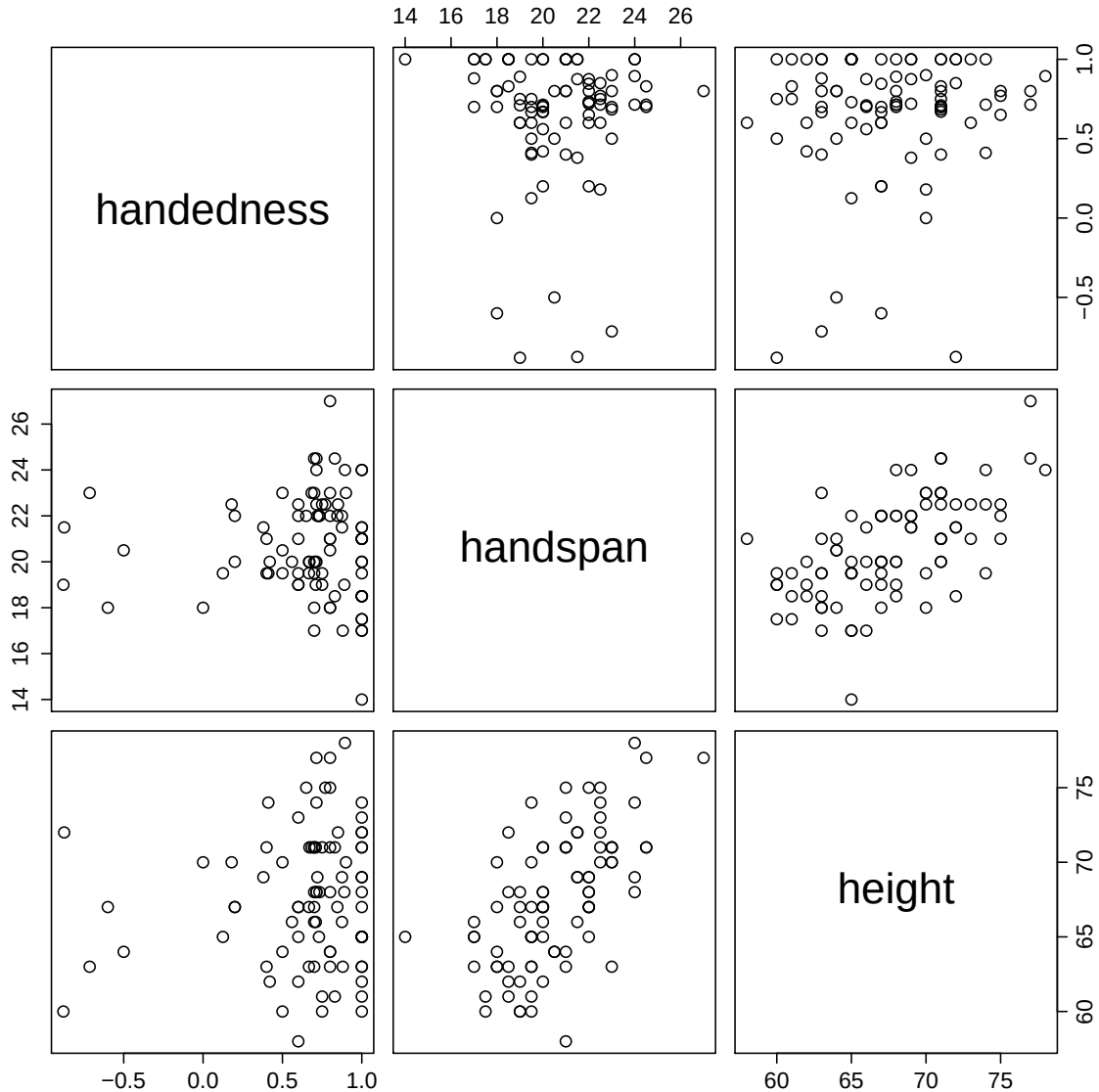
Figure 4

Rates of Sexual Activity and Contraceptive Use among School-Aged (14–18) Girls



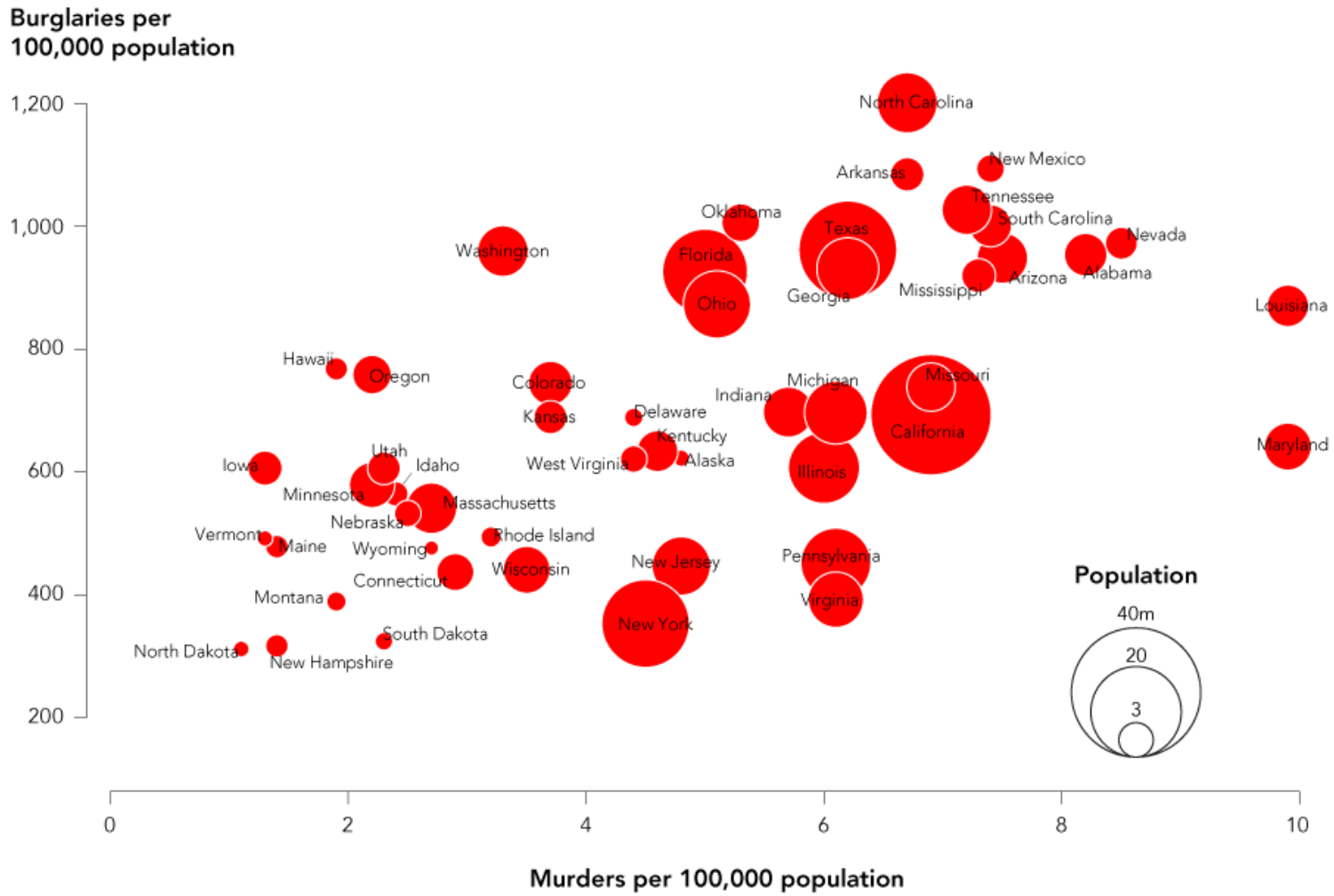
Source: Authors calculations from the 2007 and 2009 Youth Risky Behavior Surveillance survey state microdata.

Pairs Plot – Handedness, Handspan and Height



Bubblechart – 2005 Crime Rates by State

Source: Flowing Data



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