

Module 1b – Variable types and picturing distributions

Where data come from...

- **Individuals (unit of analysis):** People, animals, or things.
 - Examples: U.S. residents; Colleges/Universities; Automobiles
- **Variable**
 - A description or measurement of an individual (that *varies* across individuals)
 - Also a ***set of possible attributes/characteristics***
 - *Example: Racial identity; Geographic Location (state); Top speed*

Variable Types

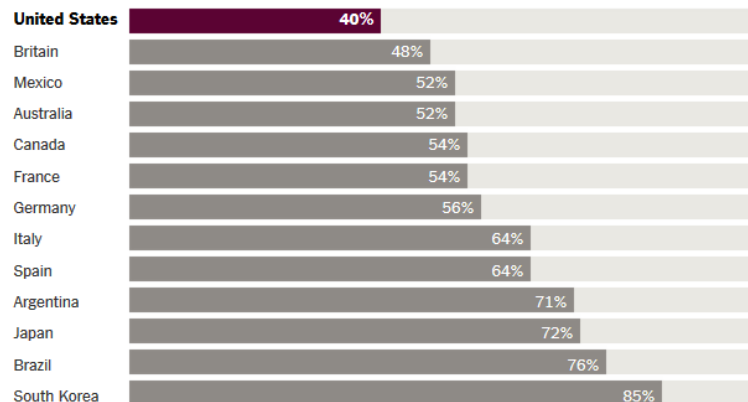
- Categorical Variables
 - Nominal (categories with no hierarchy – e.g. “Major”)
 - Ordinal (categories with a hierarchy – e.g. “Class Year”)
- Quantitative Variables
 - Continuous/Interval (numerical value with “unit of measurement” – e.g. “Vehicle top speed in mph”)

Picturing variables with graphs

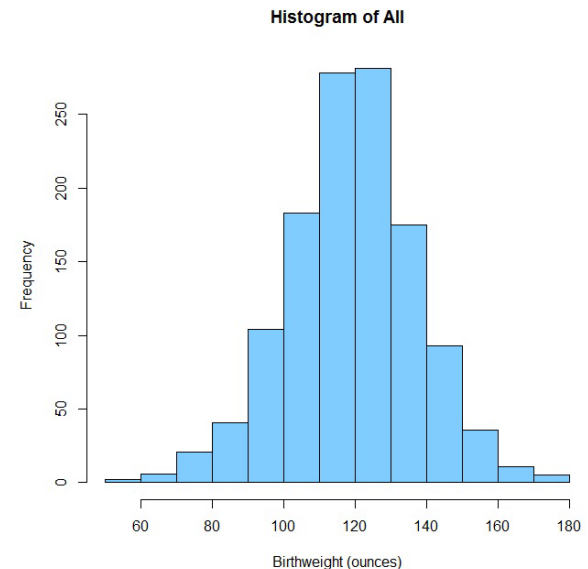
- **Categorical Variables**
 - Bar graphs and Pie charts
- **Quantitative/Continuous Variables**
 - Histograms/Stemplots (looking ahead – Box plots)

How the World Sees Climate Change

Percentage of residents of each country who say "global climate change is a major threat" to their country



Source: Pew Research Center, June 2013



Describing the distribution

- *For Quant/Continuous variables only*
- **Shape, Center, Spread/Variability**
 - ***Shape:*** Symmetric/Skewed Left/Skewed Right
 - ***Center:*** Unimodal, Bimodal, Multimodal
 - ***Spread/Variability:*** Spread out or clustered together
 - Are there *outliers*?

