Descriptive Statistics (3)

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Today’s Plan

• Descriptive stats 3
  • Pretty pictures day!
Housekeeping

• Your exams will come back at the end of class
  • Homework is due Monday
Back to Means, Medians and Modes

• Which is higher, the mean GPA at USC or the median GPA?
  A. Mean GPA
  B. Median GPA
Back to Means, Medians and Modes

- Mean life expectancy vs. median life expectancy (at the country level)
What is the difference between “real” wage growth and “nominal” wage growth?

- A. One only takes into account formal sector wages, the other includes informal sector
- B. One is income based, one is consumption based
- C. One is adjusted for inflation
Economics Note: Purchasing power parity

• What is the difference between GDP per capita in constant USD vs purchasing power parity?
  • A. PPP adjusts for differences in incomes across countries
  • B. PPP adjusts differences in prices across countries
  • C. PPP adjusts for differences in national endowments
Economics Note: Purchasing power parity

• What is a better measure of economic power (at the national level) – GDP or GDP per capita?
  • GDP
  • GDP per capita
Economics Note: Purchasing power parity

• What is a better measure of wealth (i.e. standard of living)?
  • GDP
  • GDP per capita
Graphic Design + Stats = Awesome

• A picture is (almost) always better than a table

• But the world is full of bad pictures

• There are many programs in the world, but I recommend R.
  • Its free
  • Its flexible
  • Its powerful
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Ease of comparison

- What is more common:
  - A. Dragons
  - B. Orcs

Pie chart showing:
- Trolls (-largest section)
- Elves (second-largest section)
- Gremlins
- Orcs
- Dragons
- Billygoats (smallest section)
Ease of comparison

• What is more common:
  • A. Dragons
  • B. Orcs
Ease of comparison
Why Pie Charts Are (Sometimes) Evil

• The point of a pie chart is to compare the sizes of the slices to one another and as a proportion of the whole
  • BUT, humans are better at comparing the height of bars

• But if you don’t have two categories similar in size, pie charts can be kind of pretty...
  • Never ever use a pie chart for anything except proportions that sum to 1.

• PS What did they lump into that “other” category anyway?
  • List the categories that make up “other” and tell me that none of those categories has a value greater than ____.
  • Large “other” categories are suspicious
2012 PRESIDENTIAL RUN
GOP CANDIDATES

70% BACK PALIN
63% BACK HUCKABEE
60% BACK ROMNEY

SOURCE: OPINIONS DYNAMIC

FOX 47°
Shading Fail: Number of Meetings per State

- Of these three, which state has the most meetings?
  - A. Idaho
  - B. California
  - C. Texas
Shading Fail: Number of Meetings per State
The Beauty of Heat Plots

Avg. listing price for US states
week ending Feb 17

HIGH
$449K and up
$401K to $449K
$353K to $401K
$289K to $353K
$240K to $289K
$192K to $240K
$192K and below

trulia
real estate search
Scale: What’s wrong with this graphic?

Why Does a Salad Cost More Than a Big Mac?

Federal Subsidies for Food Production, 1995-2005

Vegetables, Fruits: 0.37%
Nuts and Legumes: 1.91%
Grains: 13.23%
Sugar, Oil, Starch, Alcohol: 10.69%
Meat, Dairy: 73.80%

Federal Nutrition Recommendations

Sugar, Oil, Salt (use sparingly)
Protein: includes meat, dairy, nuts, and legumes (6 servings)
Vegetables, Fruits (9 servings)
Grains (11 servings)
Manipulating the Scale

Federal Spending as a Share of the Economy

- Average During the Clinton Presidency
- Average During the Bush Presidency
- Average Under the Democrat Budget Blueprint 2009-2020
Not Necessarily More Honest
Getting Better...

![Bar Chart: Government size as percentage of economy](chart.png)

- Average under Clinton
- Average under Bush
- Average under Obama blueprint
Other Terrible Things

UNEMPLOYMENT RATE
UNDER PRESIDENT OBAMA

8% 8.5% 9% 9.5% 10%

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV

2011
SOURCE: BUREAU OF LABOR STATISTICS
Other Terrible Things
Other Terrible Things

![Job Loss by Quarter Graph]

- December '07: 7 million
- September '08: 9 million
- March '09: 13.5 million
- June '10: 15 million

Source: BLS
Other Terrible Things

DOW SINCE ELECTION DAY

N  6500
D  7000
J  7500
F  8000
M  8500
M  9000
J  9500
D  10000
2008 2009
Other Terrible Things
Some Cool Things

Should federal gov't spend more money on health care for the uninsured (2004 survey)?

- Income under $20,000
- $20-40,000
- $40-75,000
- $75-150,000
- Over $150,000

- Age
  - 18-29
  - 30-44
  - 45-64
  - 65+

U.S. avg. - 25%
U.S. avg.
U.S. avg. + 25%
Some Cool Things

30/30/40 Nation

Obama
Romney
Other candidates
Did not vote
Some Cool Things

1.) **Wi-Fi trumps all.**

Whether staying for business or leisure, travelers listed free Wi-Fi as their number one factor when choosing a hotel. Just **11%** of global travelers said they would be willing to pay for Wi-Fi when staying in a hotel.

*Which amenity is a must when choosing hotel accommodations?*

**FOR LEISURE**

- FREE WI-FI: 34%
- FREE BREAKFAST: 25%
- SWIMMING POOL: 10%
- FREE PARKING: 9%
- OTHER: 22%

**FOR BUSINESS**

- FREE WI-FI: 56%
- PROXIMITY TO TRANSIT AND DINING: 15%
- FREE BREAKFAST: 11%
- COMFORTABLE CHAIR: 6%
- OTHER: 12%
Some Cool Things

Birth and death rate per 1,000 people. Max Roser, Our World in Data
### Some Cool Things

#### Sequester Cuts Are Unbalanced

**Percentage of FY 2013 Budget Authority**

<table>
<thead>
<tr>
<th></th>
<th>Defense Discretionary</th>
<th>Non-Defense Discretionary</th>
<th>Mandatory Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Share of Total Spending</strong></td>
<td>16.8%</td>
<td>13.4%</td>
<td>63.8%</td>
</tr>
<tr>
<td><strong>Share of Total Sequestration Cuts</strong></td>
<td>49.5%</td>
<td>35.1%</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

Some Cool Things

SEQUESTER DELAYS NATIONAL DEBT REACHING 100% OF GDP BY ONLY 2 YEARS

Note: The Bipartisan Policy Center's (BPC) January 2012 Plausible Baseline assumes that the 2001, 2003, and 2010 tax cuts are extended permanently, Medicare physician payments are frozen (the "doc fix"), the AMT is indexed to inflation, and overseas combat operations wind down.

Sources: Congressional Budget Office; Bipartisan Policy Center projections

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