

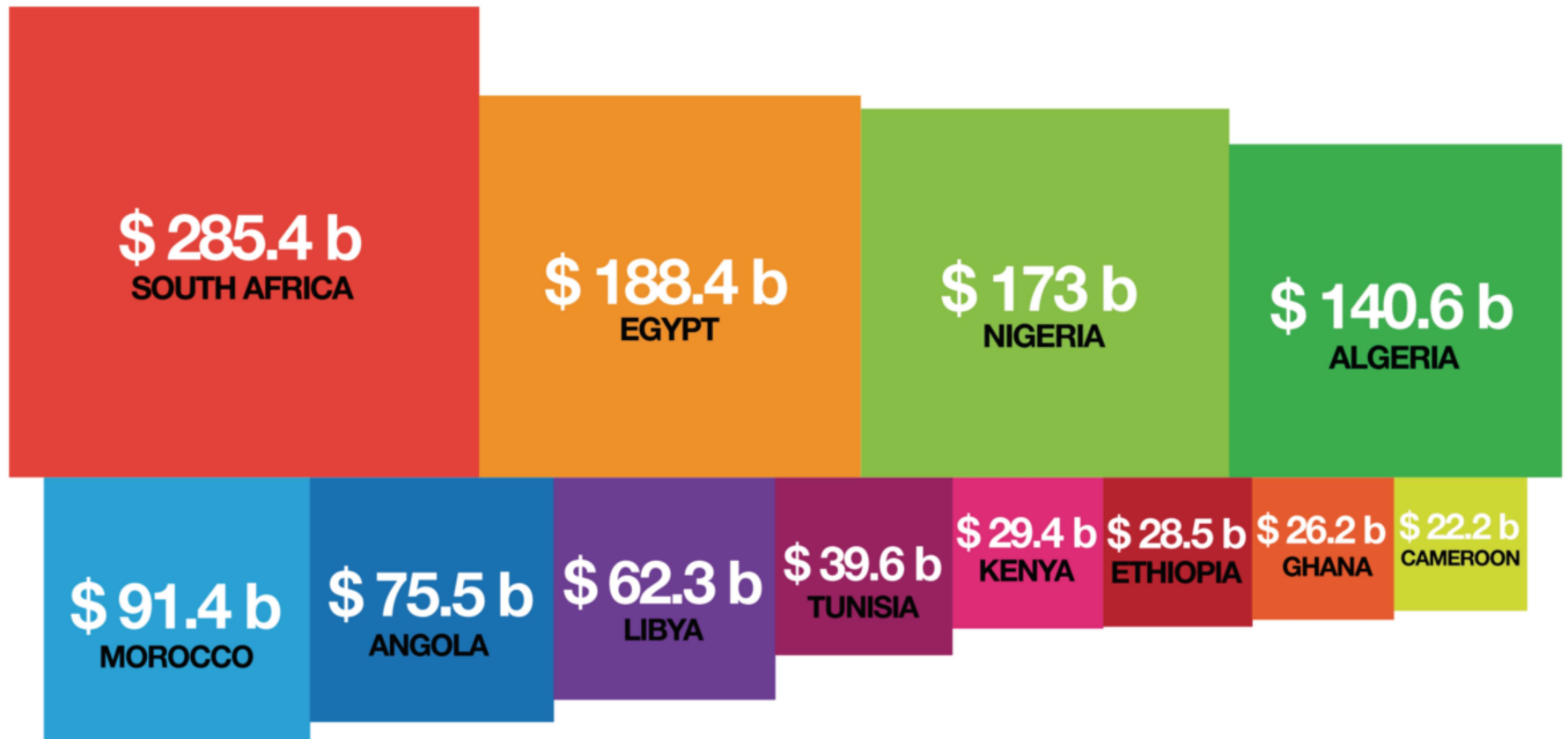
African Countries by GDP

TOP COUNTRIES BY GDP IN U.S. \$ BILLIONS

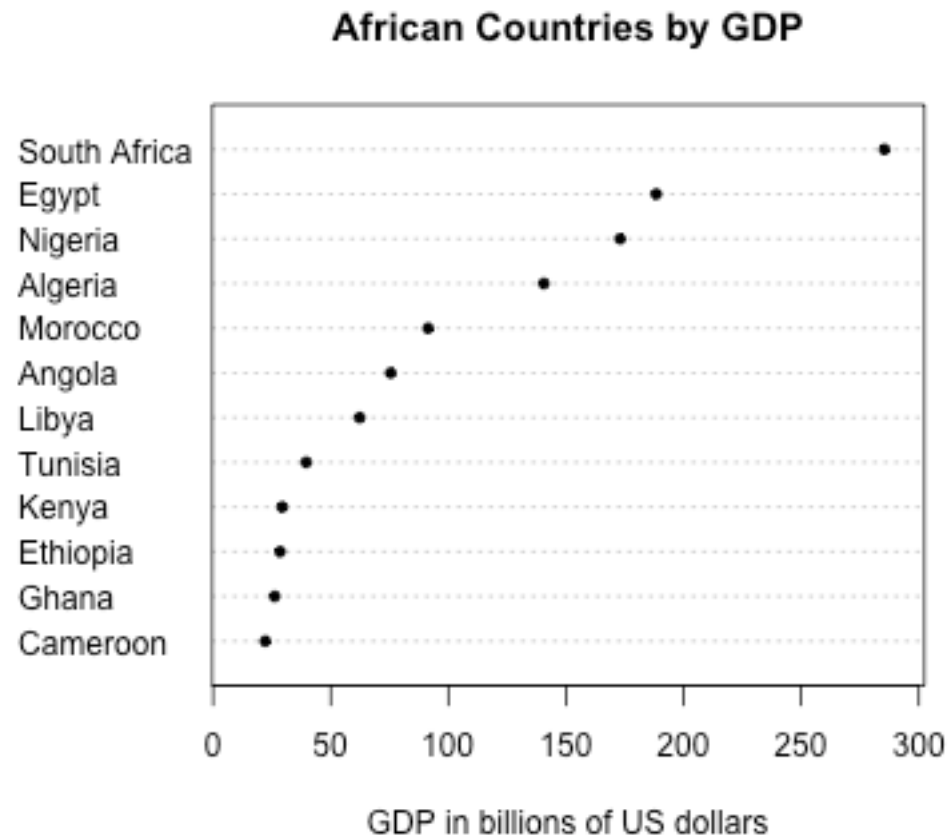
Gross domestic product (GDP) refers to the market value of all final goods and services produced within a country in a given period (2005 - 2009).

GDP CALCULATION

private consumption + gross investment + government spending + (exports - imports)



The informative (but boring) stat graphic



Different tools, different goals

Can we uncover the differences between the values and priorities of infovis and statistical graphics?

5 Best Data Visualization Projects of the Year

December 19, 2008 to Featured, Visualization | [Post on Twitter](#)



5 Best Data Visualization Projects of the Year

Honorable mention: Wordle

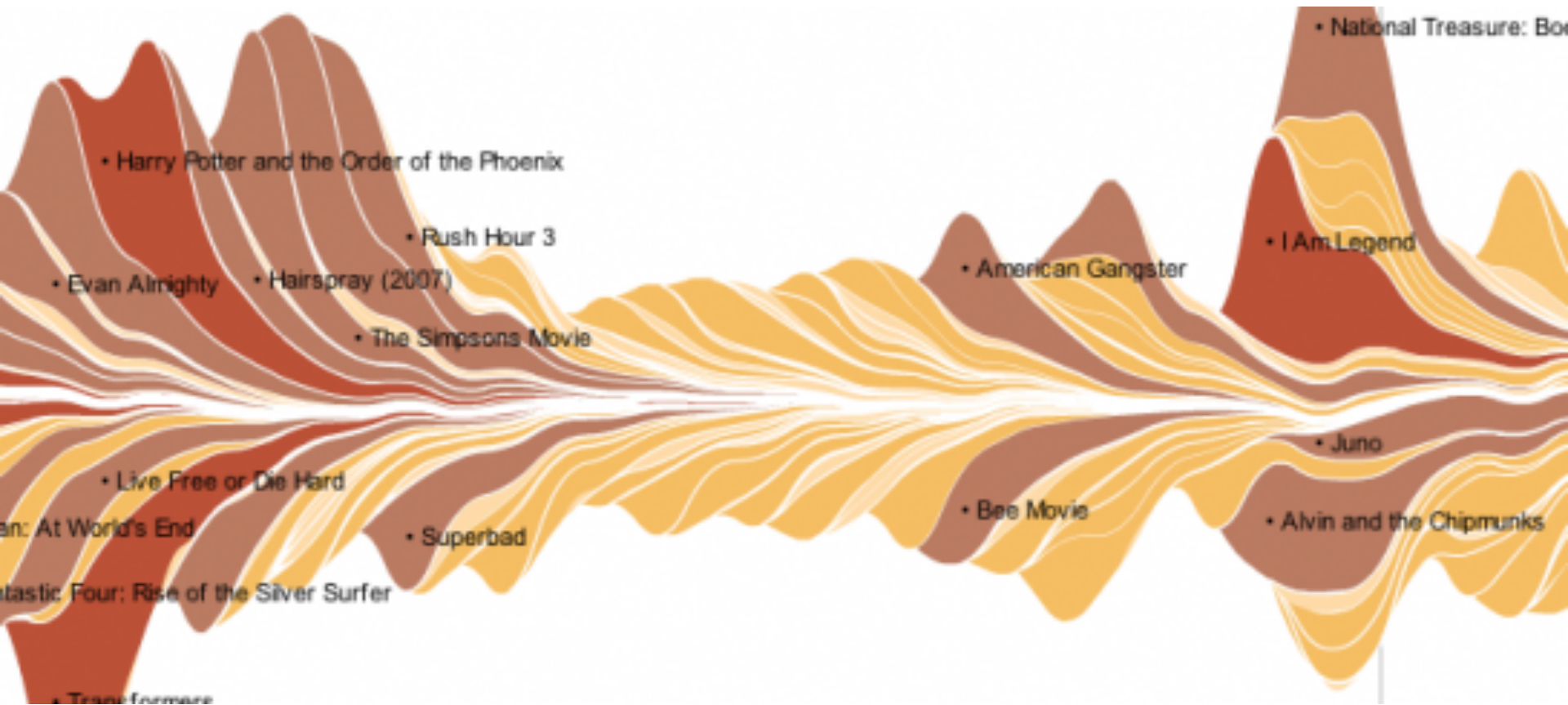


Jonathan Feinberg, wordle.com

- **Our view:** Visualization as a fun puzzle



#3. Box office streamgraphs



Lee Byron

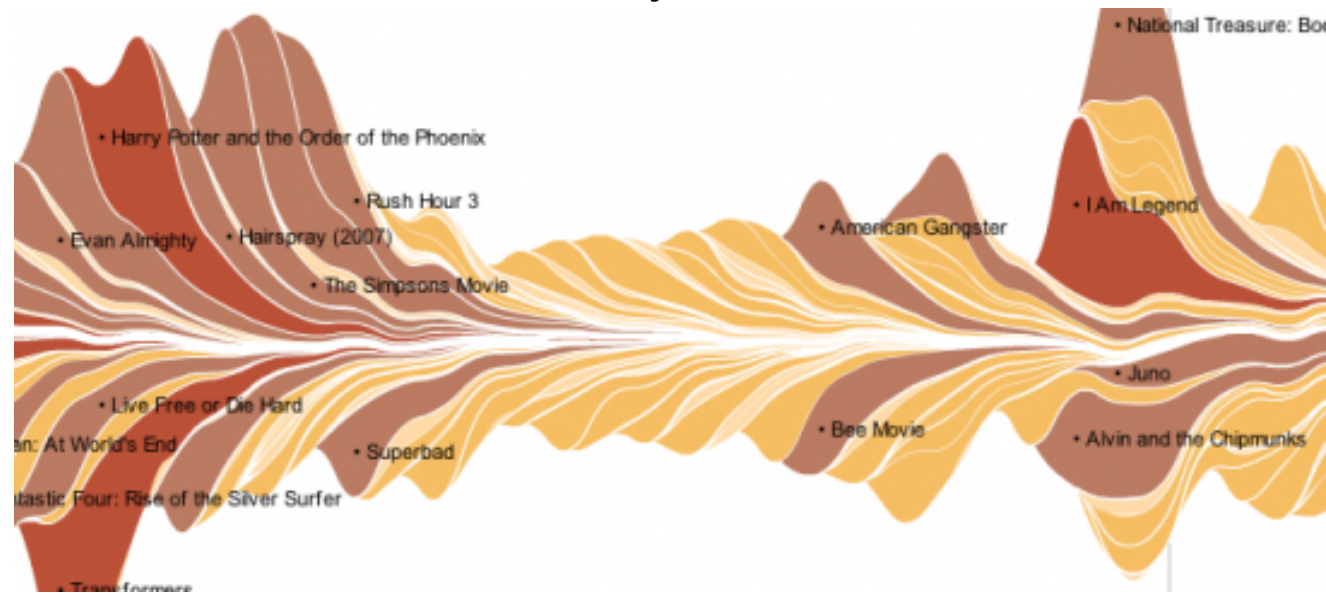
- Yau: “You can see Oscar contenders attract a smaller audience than the holiday and summer blockbusters and kind of slowly build an audience.”

- **Our view:**

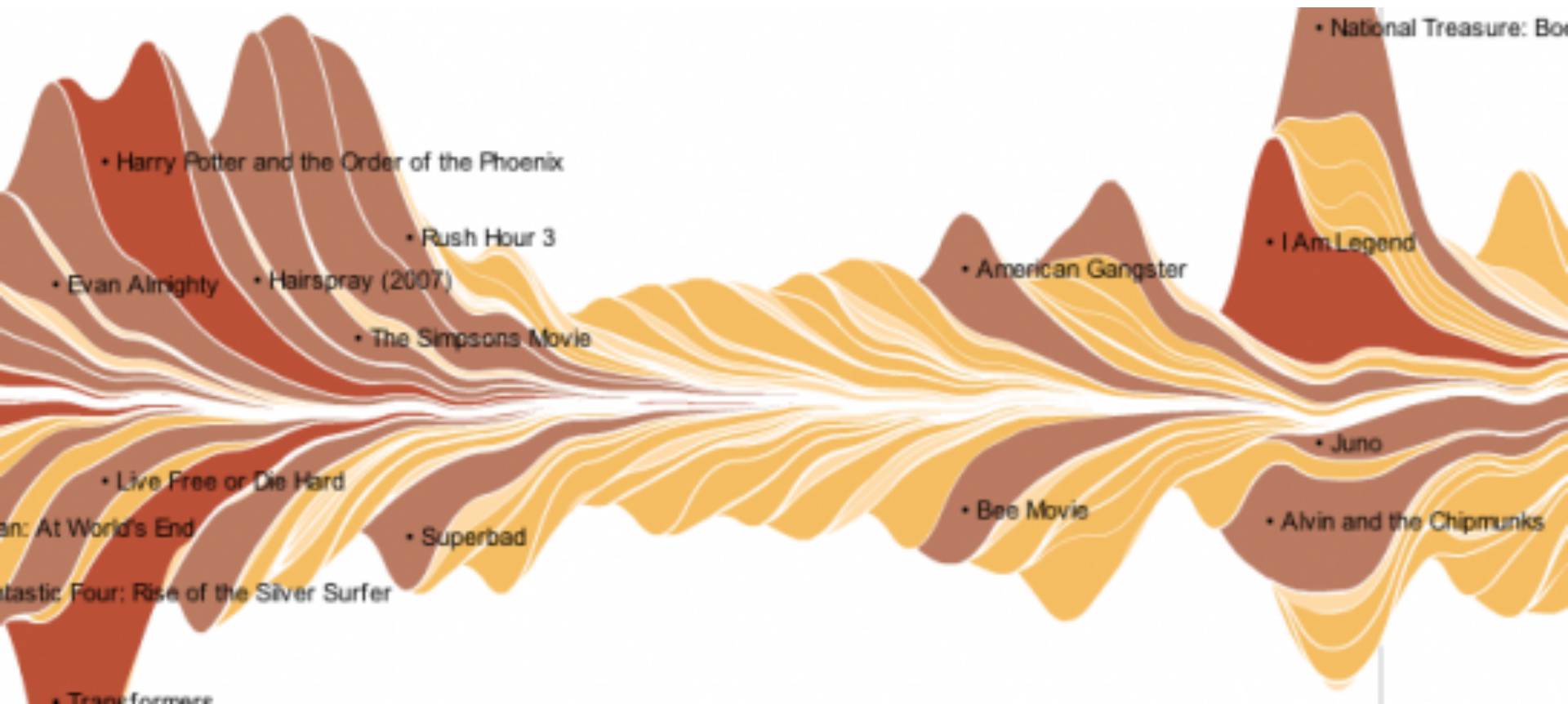
- Huh?
- Better to have two graphs:

(1) total sales over time, (2) trajectories for individual movies

- Again, graph as puzzle



- Yau: “Discussion burst out across the Web . . . that I am convinced would not have come about if instead of a Streamgraph, they used say, a **stacked bar chart**.” [emphasis added]



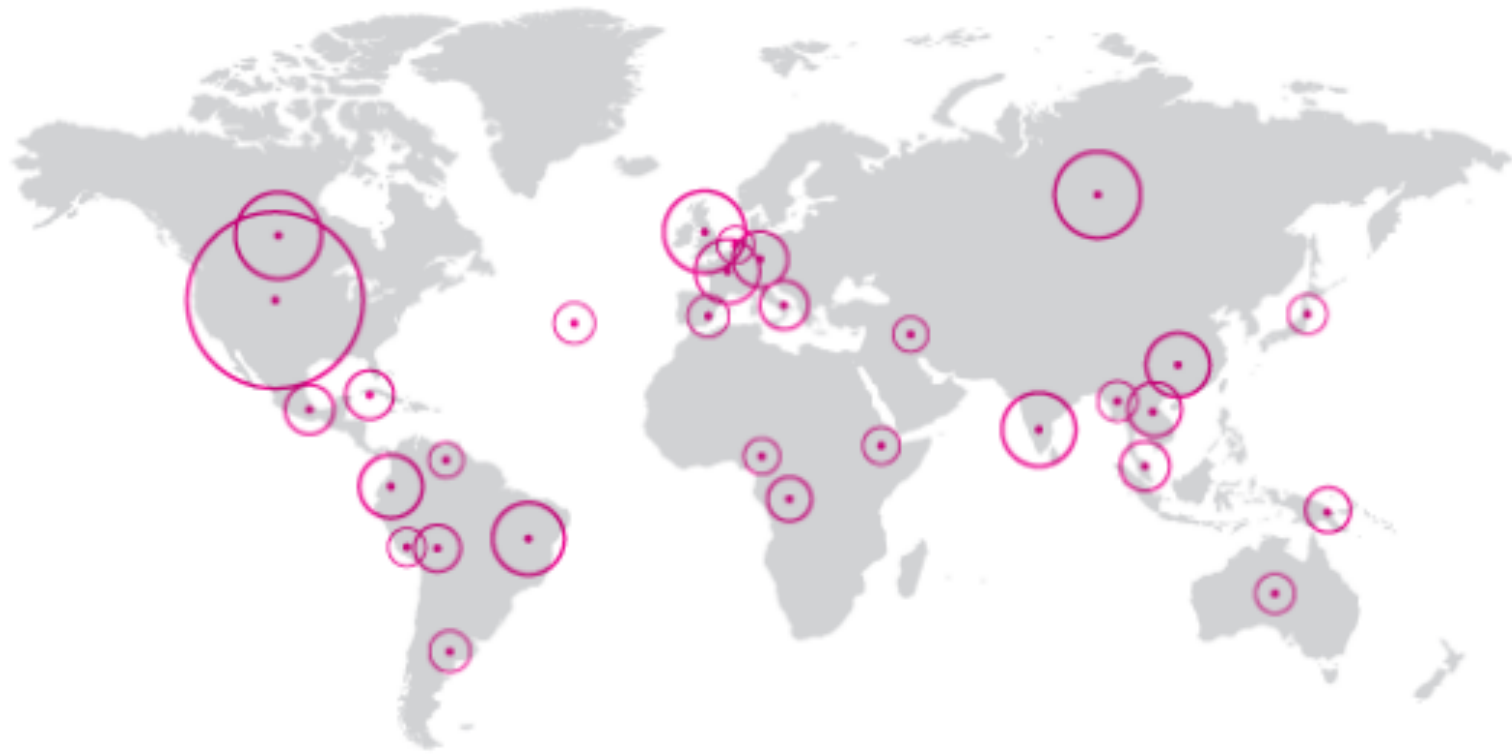
“5 Best Data Visualizations”: our view

- Eye-catching graphics
- State-of-the art methods in stat and comp sci
- No attempt to achieve the traditional goals of statistical graphics (communication, discovery)

Winner of *Guardian* newspaper's Visualization Contest

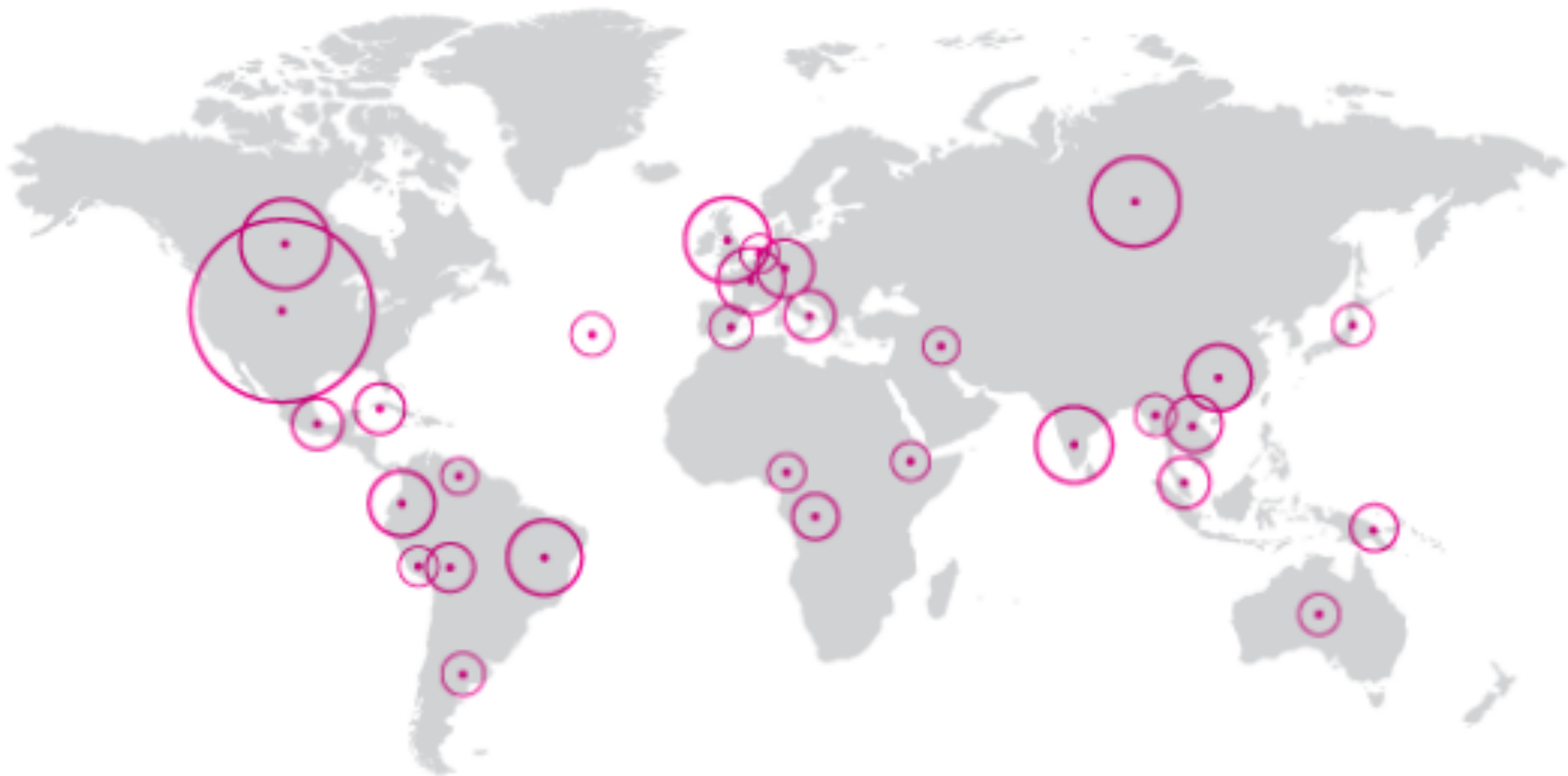
Final Destination

Density of fatal accidents 1942-2009



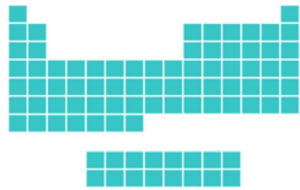
David McCandless

- Our view:
 - Display looks clean and efficient but isn't!
 - Analogy to some modern architecture



MOST POPULAR INFOGRAPHICS

YOU CAN FIND
AROUND THE WEB



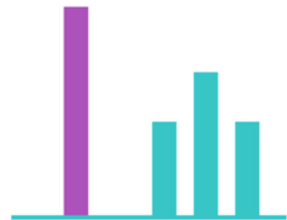
PERIODIC TABLE OF SOMETHING



CREDIT CRISIS VISUALIZED
WITH NUMBERS THAT ARE
NOT EXPLAINING ANYTHING



WORLD'S TALLEST BUILDINGS PLUS
SOMETHING THEY ARE BUILDING IN DUBAI



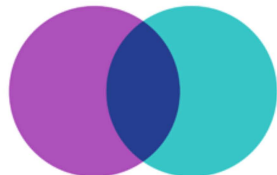
WATER, GAS, OIL OR WHATEVER
UNITED STATES CONSUMES
MORE THAN ANY OTHER COUNTRY



TUBE MAP OF SOMETHING



A CRAPLOAD OF IRRELEVANT DATA
PUT TOGETHER IN A BIG VERTICAL IMAGE



VENN DIAGRAM OF SOMETHING



TAG CLOUD WITH RANDOM WORDS
IN THE SHAPE OF SOMETHING

Florence Nightingale's coxcomb

<http://www.Florence-Nightingale-Avengeing-Angel.co.uk/Coxcomb.htm>

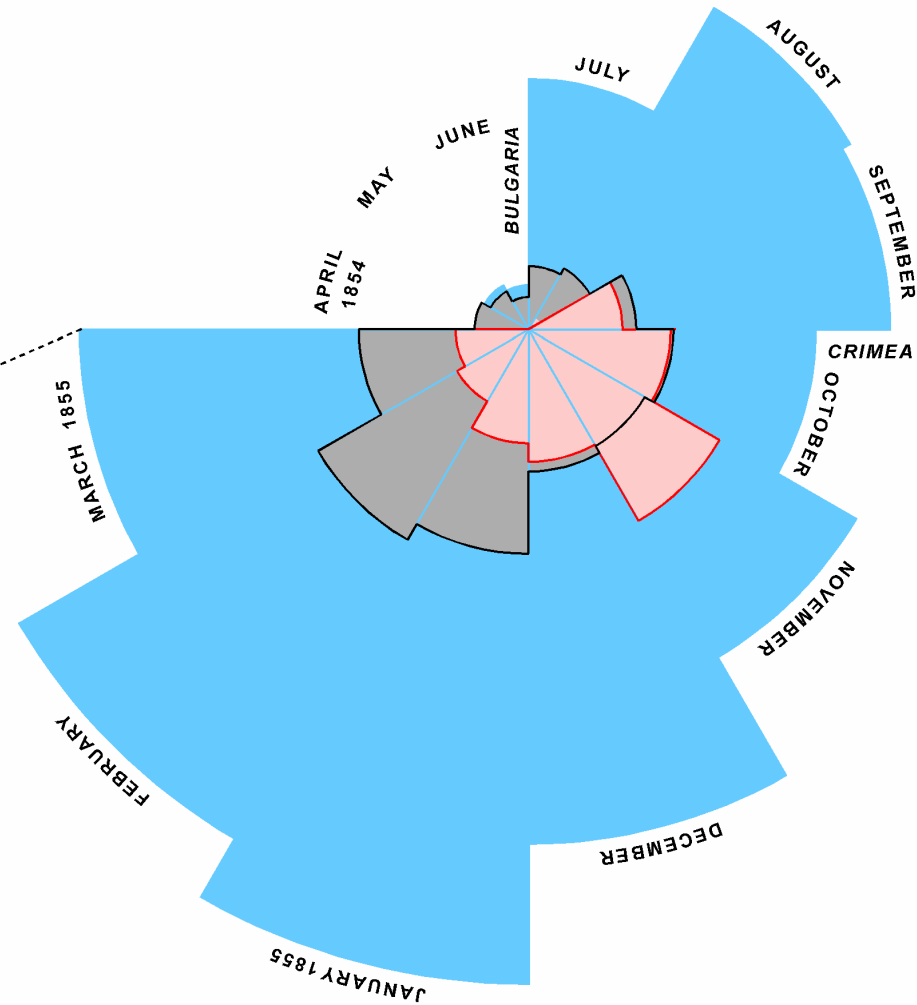
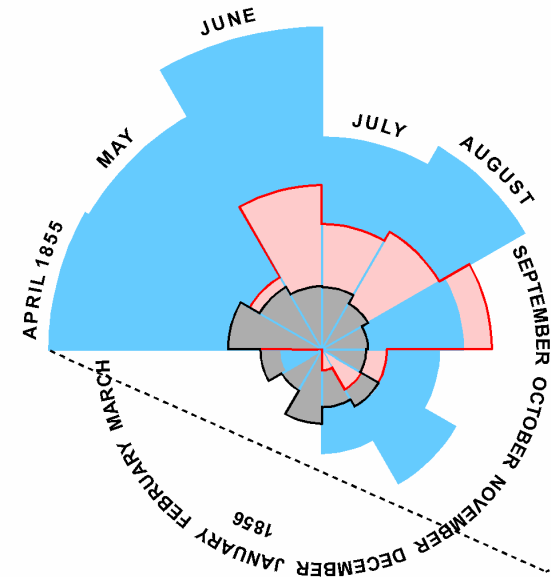
DIAGRAM OF THE CAUSES OF MORTALITY IN THE ARMY IN THE EAST.

2.

APRIL 1855 TO MARCH 1856.

1.

APRIL 1854 TO MARCH 1855.



The Areas of the blue, red, & black wedges are each measured from the centre as the common vertex

The blue wedges measured from the centre of the circle represent area for area the deaths from Preventible or Mitigable Zymotic Diseases, the red wedges measured from the centre the deaths from wounds, & the black wedges measured from the centre the deaths from all other causes

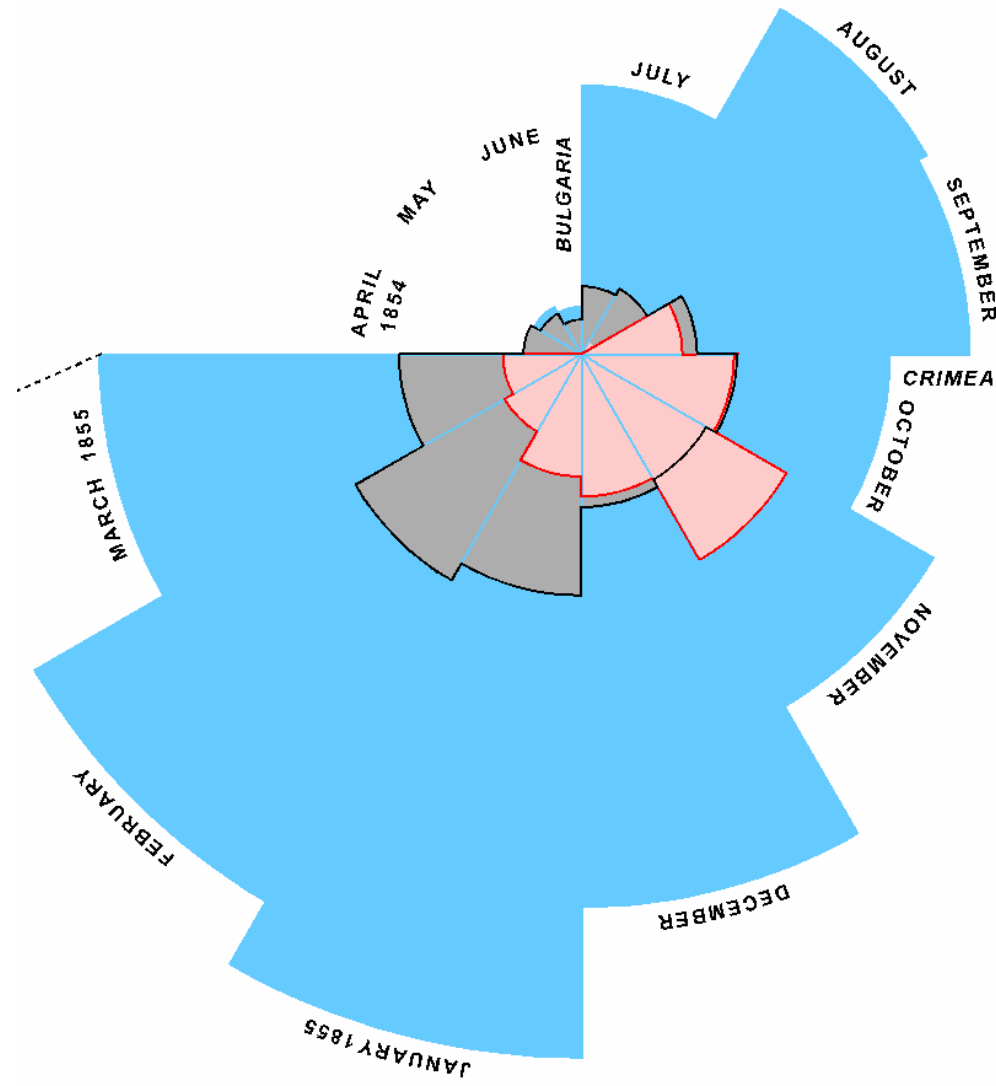
The black line across the red triangle in Nov' 1854 marks the boundary of the deaths from all other causes during the month

In October 1854, & April 1855, the black area coincides with the red, in January & February 1856, the blue coincides with the black

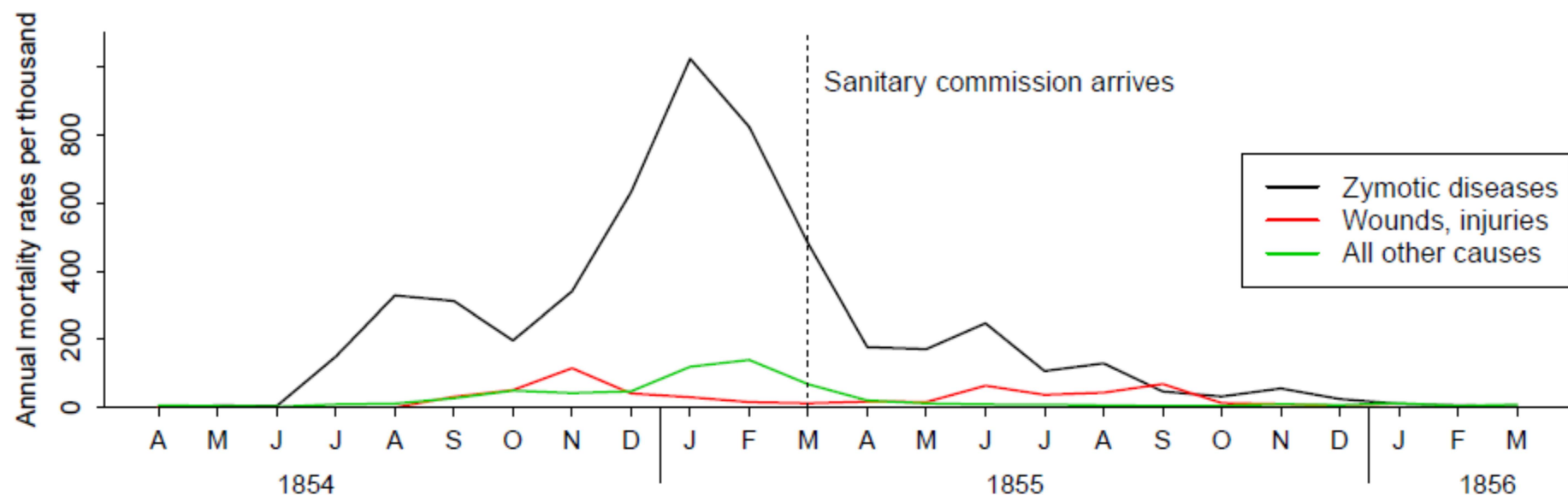
The entire areas may be compared by following the blue, the red & the black lines enclosing them

- Our view:

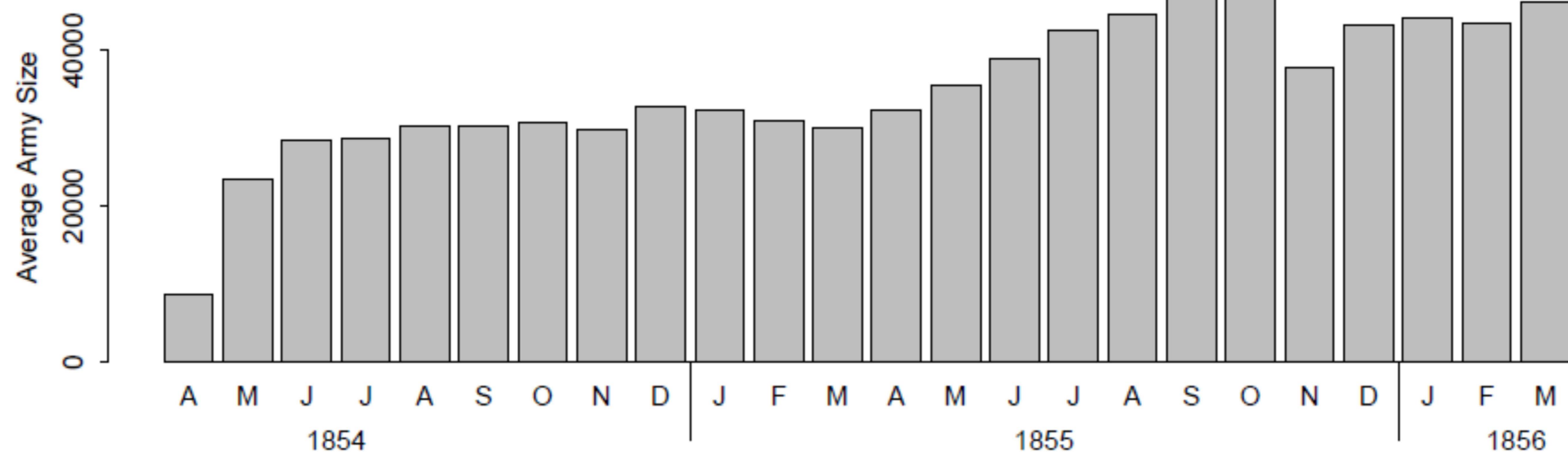
- Excellent “infographic”—it’s attractive, grabby, thought-provoking
- Graph as puzzle
- Not a good “statistical graphic,” does not push to deeper understanding
- “Clock plot” as dead end



Mortality rates in the Crimean War from April 1854 to March 1856



British Army Size in the Crimean War from April 1854 to March 1856



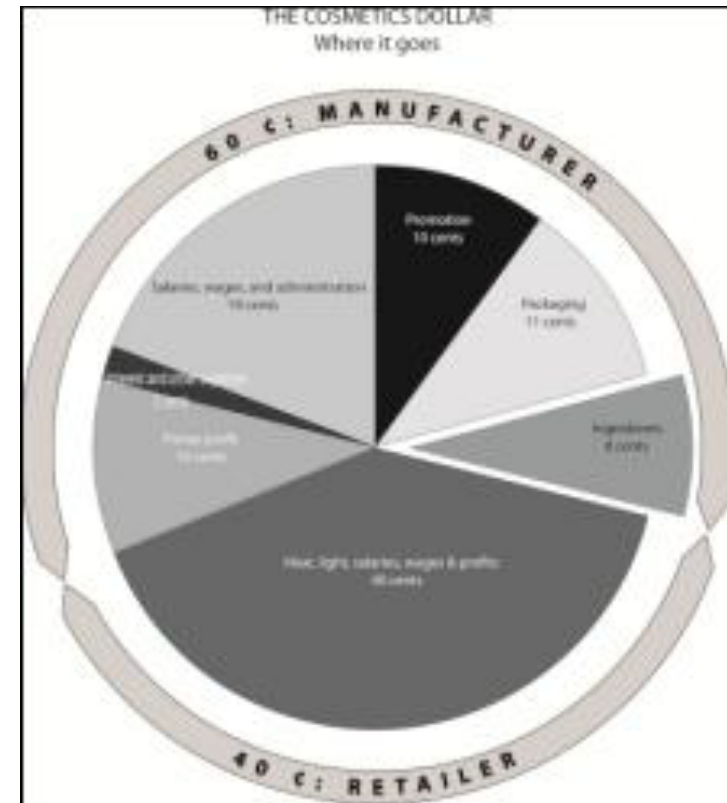
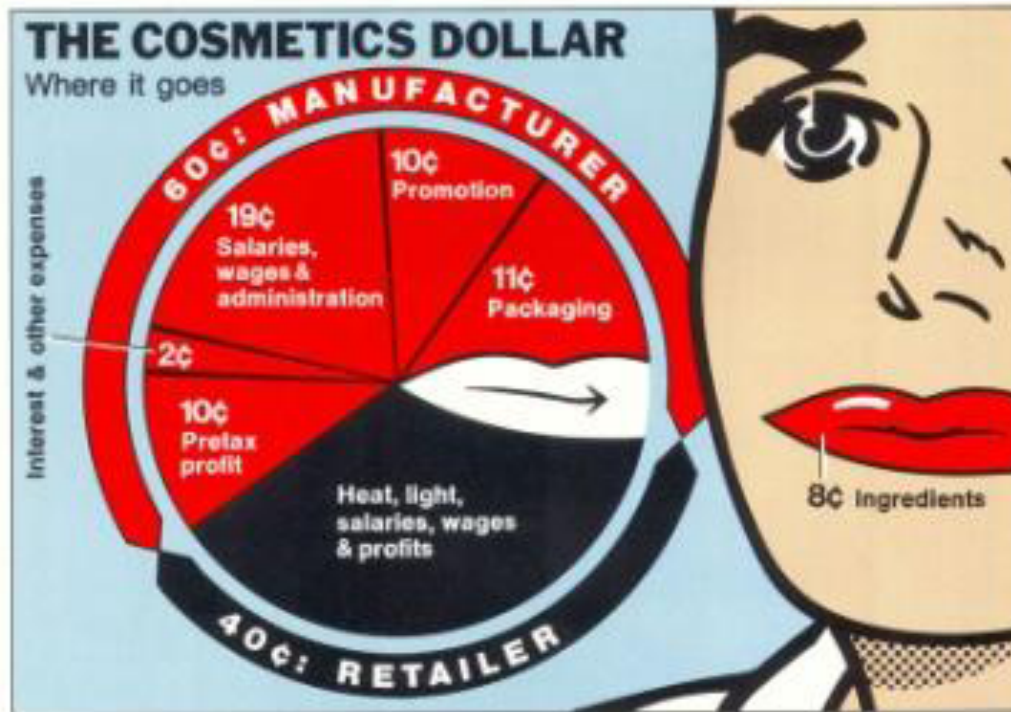
Challenges in effectiveness research

Research: Why Chart Junk is More Useful than Plain Graphs

“Yep, **it has been scientifically proven**: the accuracy of people in describing charts with ‘chart junk’ is no worse than for plain charts, and the recall after a 2-3 week gap was actually significantly better. In addition, people overwhelmingly preferred ‘chart junk’ diagrams . . .”

But, before you go and slashdot this . . .

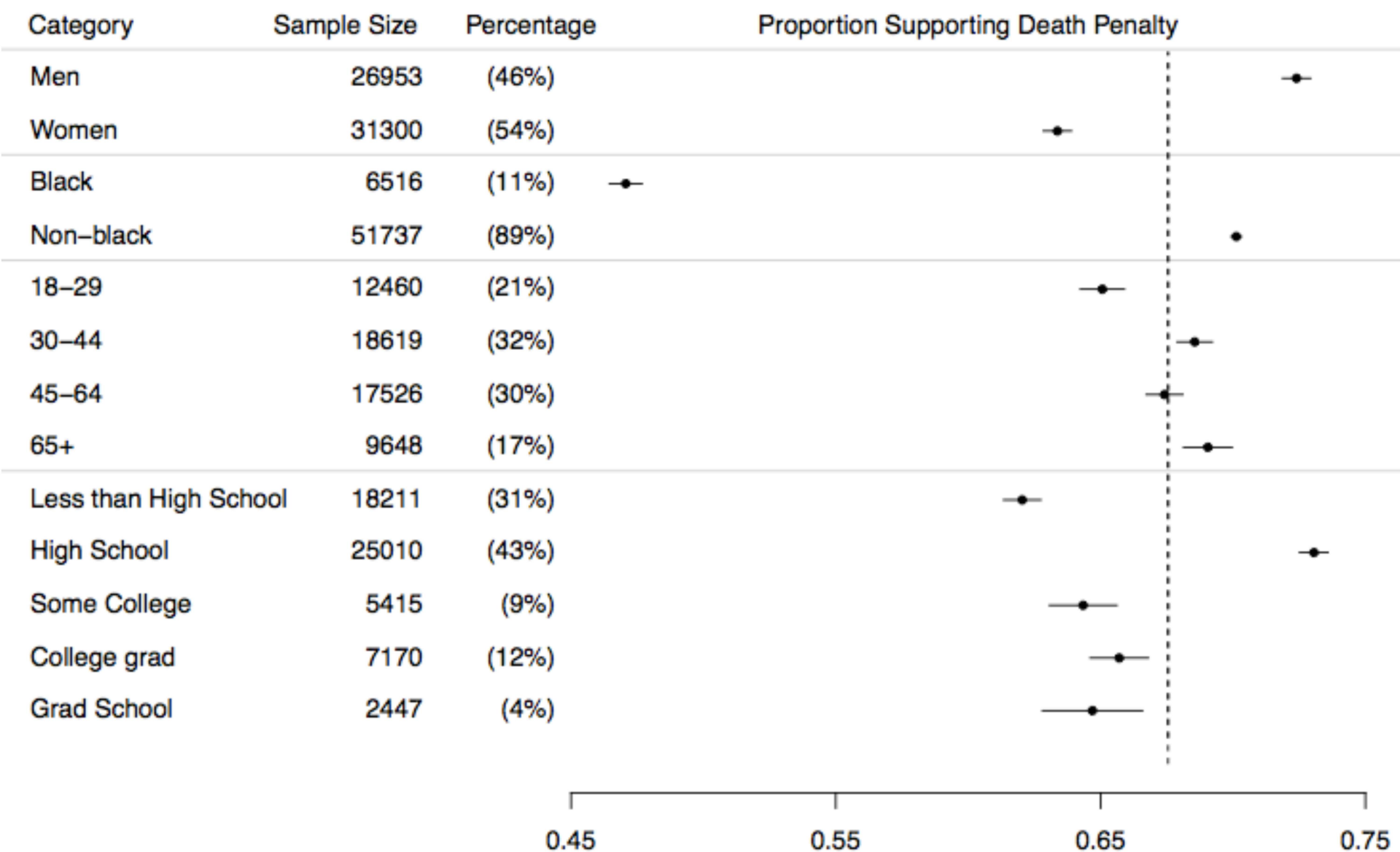
The “chartjunk” study is . . . junk!



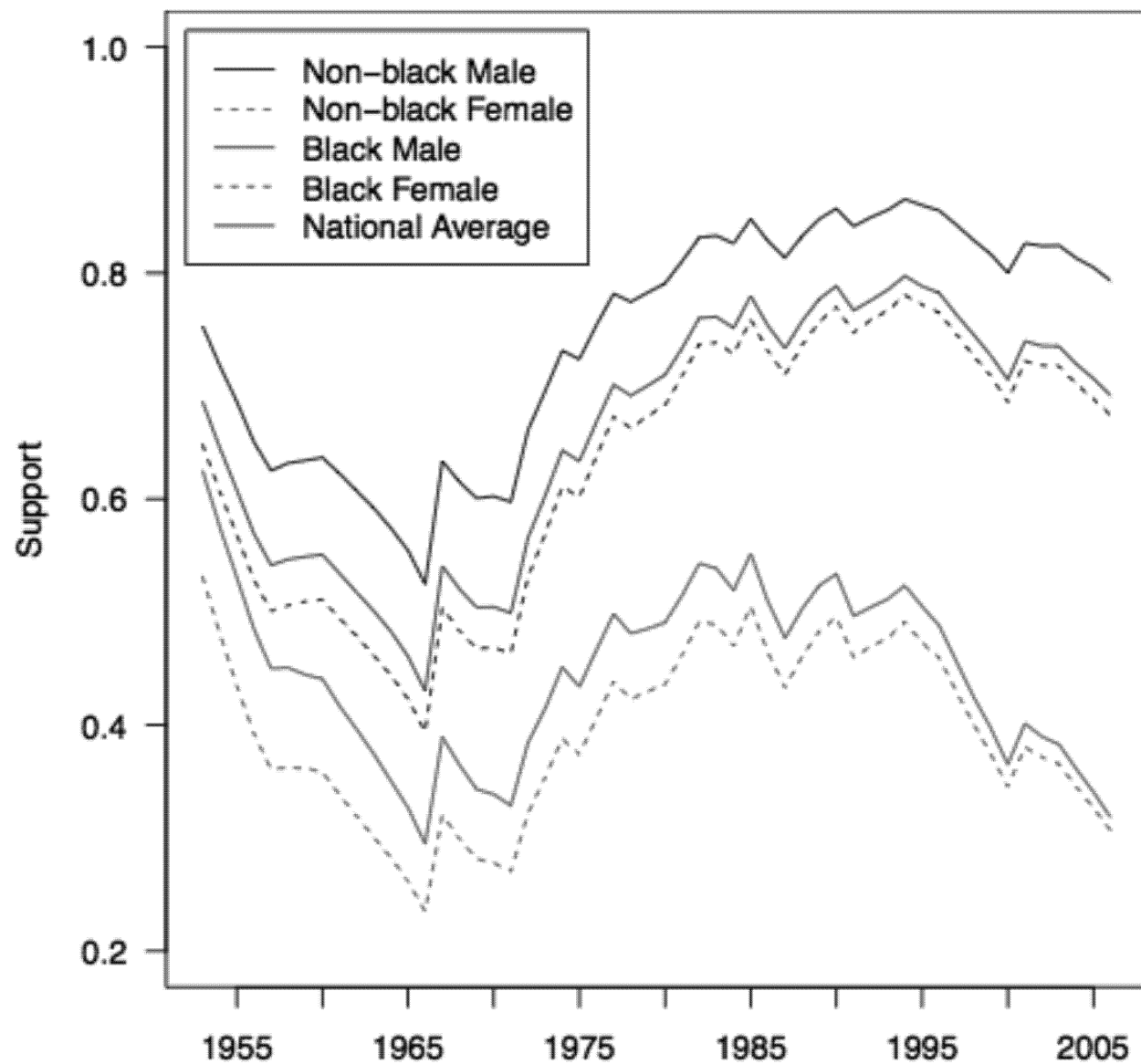
- OK. Good chartjunk is better than crap chartjunk

Some practical tips

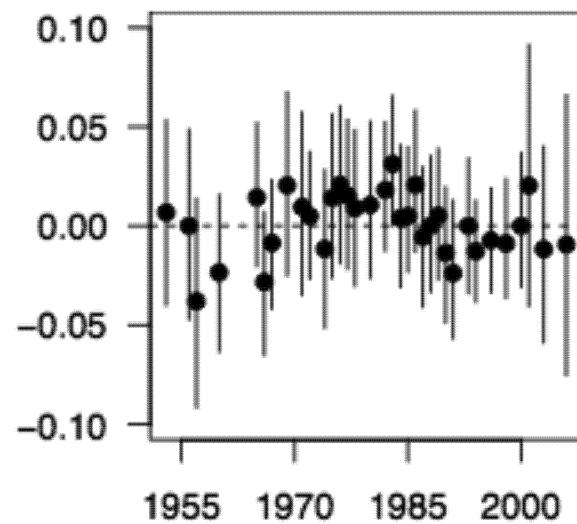
- Line plots and small multiples
- Avoid the graphical equivalent of the data dump
- Don't try to cram everything into one plot
- Combine graphics with text
 - A picture plus 1000 words is worth more than two pictures or 2000 words



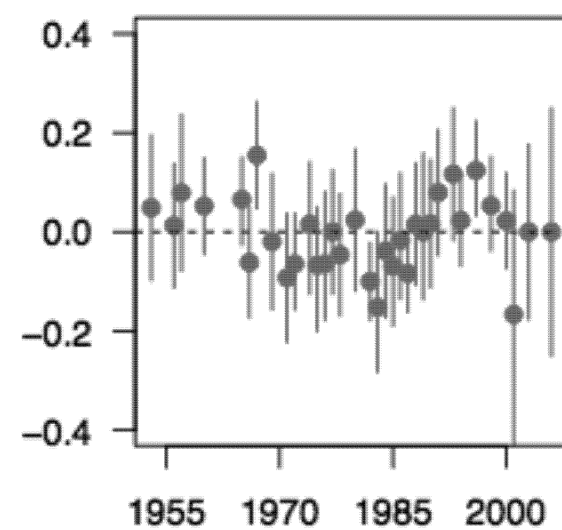
Yearly Estimates by Race and Sex



Non-black Male residuals

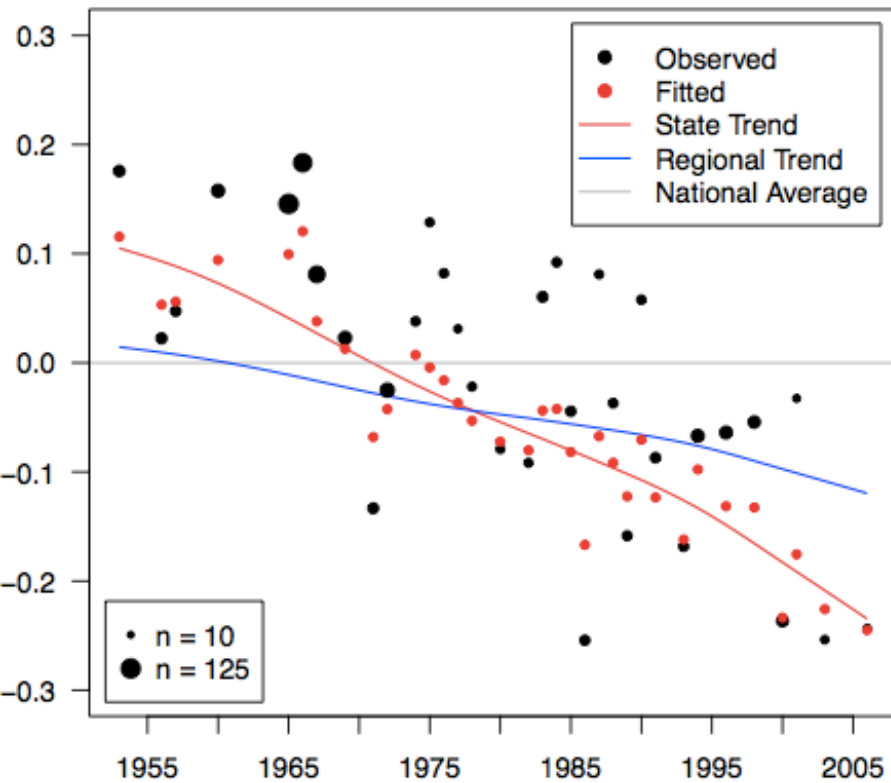


Black Male residuals

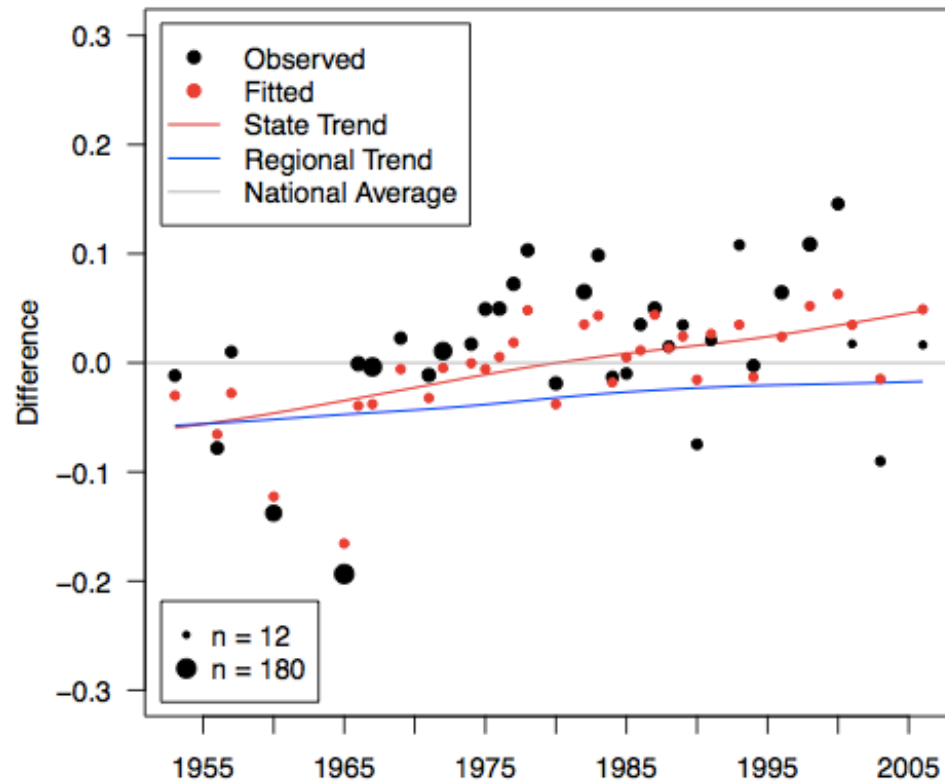


Graphing data and fitted models

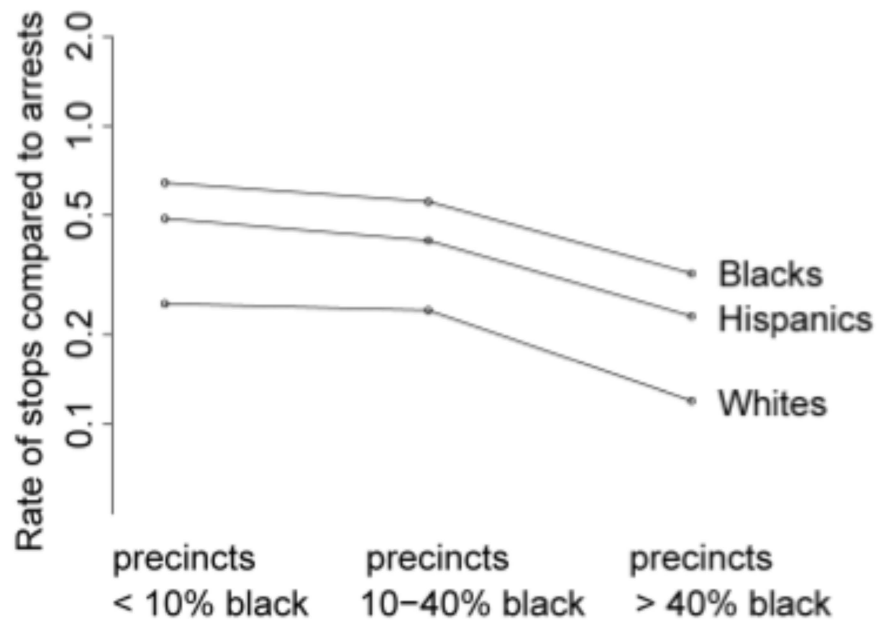
MA (North); Mean yearly sample size = 43



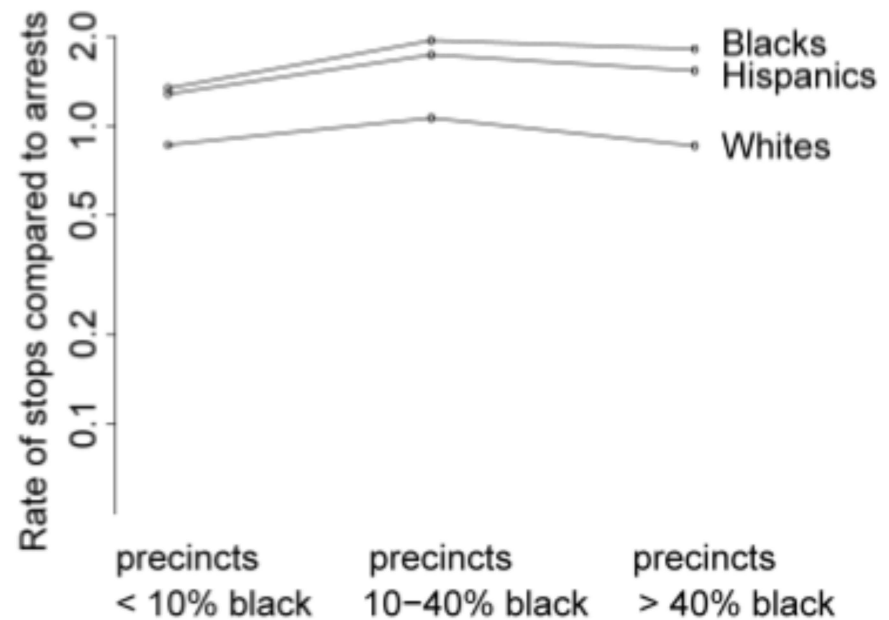
OH (Midwest); Mean yearly sample size = 85



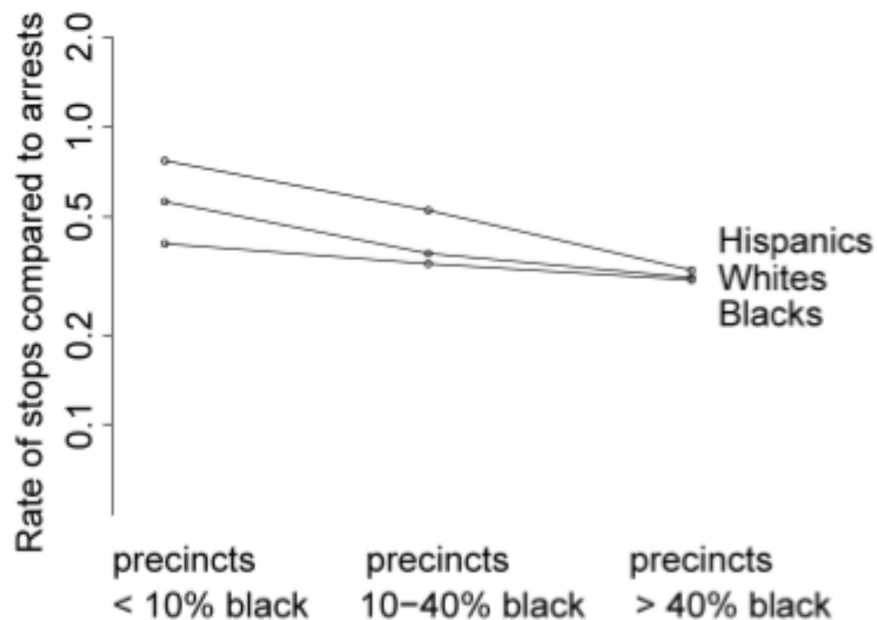
Violent crimes (25% of all stops)



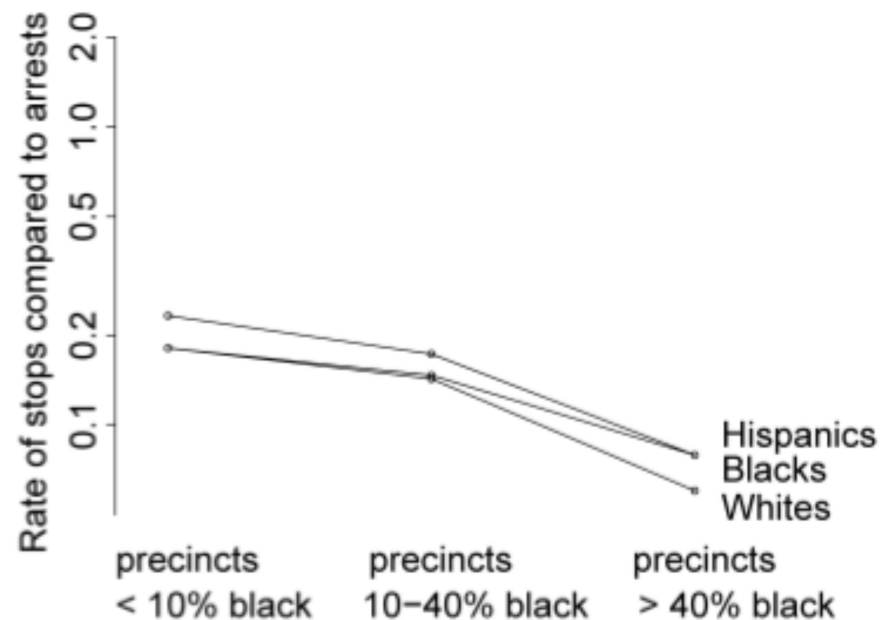
Weapons crimes (44% of all stops)



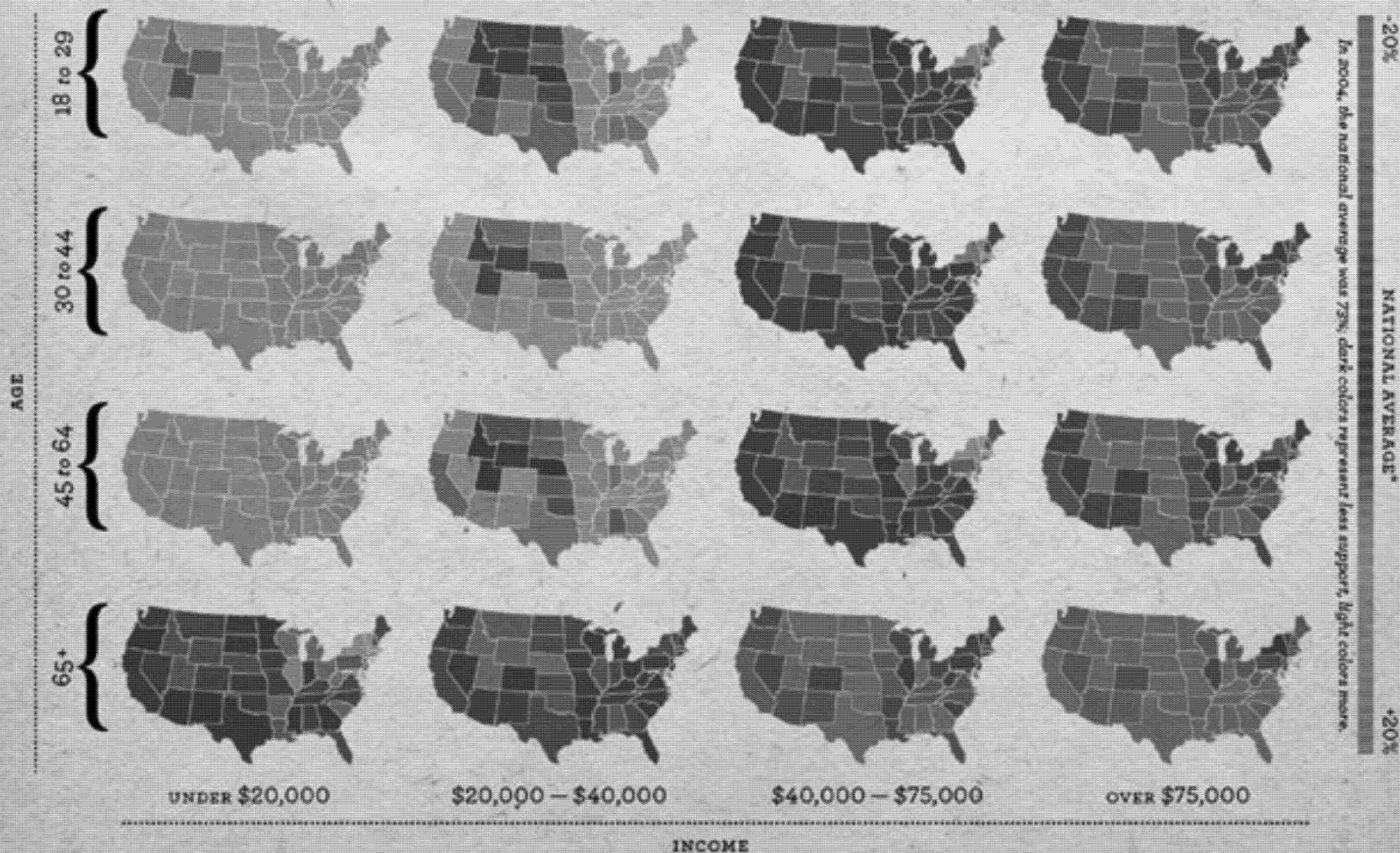
Property crimes (20% of all stops)



Drug crimes (11% of all stops)

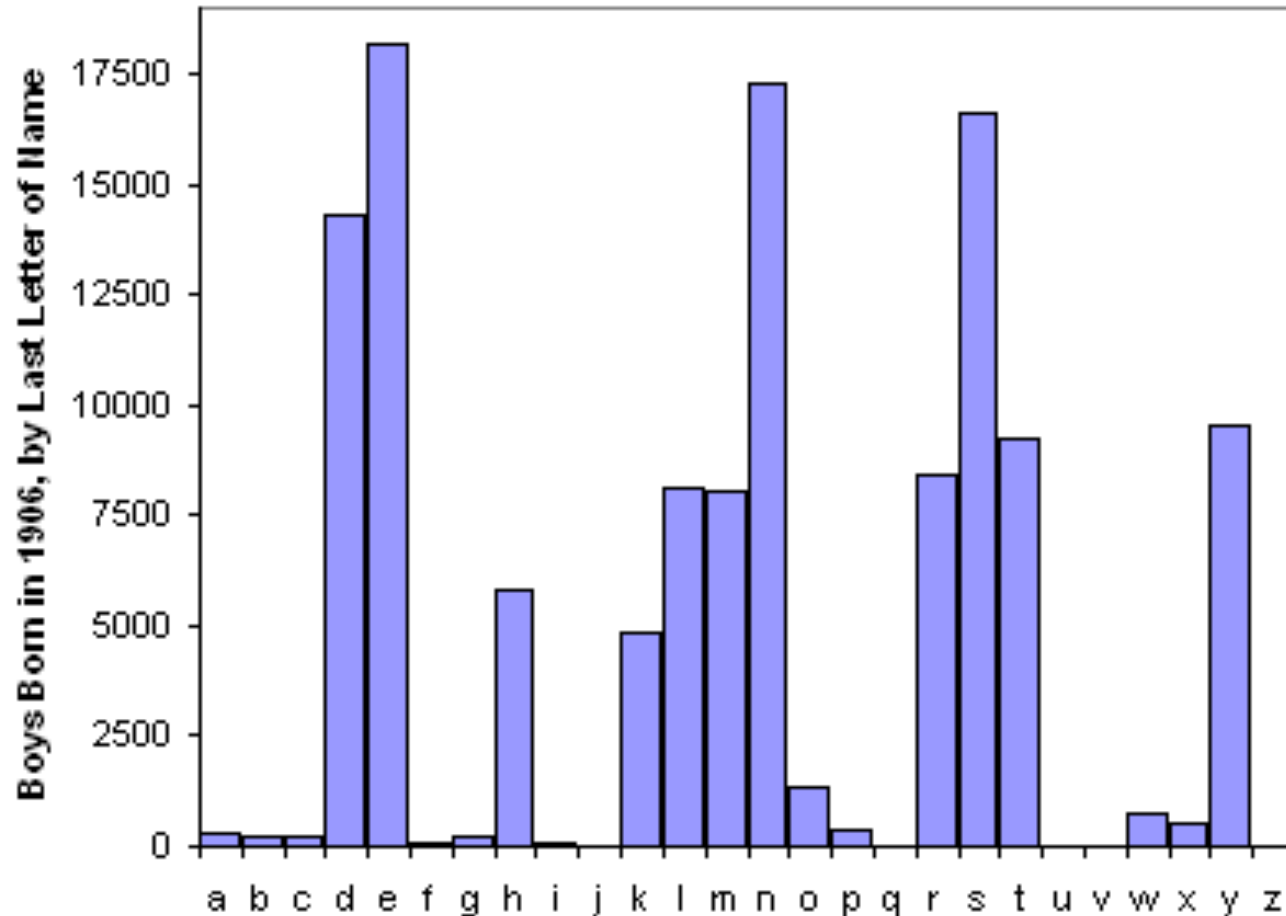


WHO SUPPORTS HEALTH CARE REFORM?



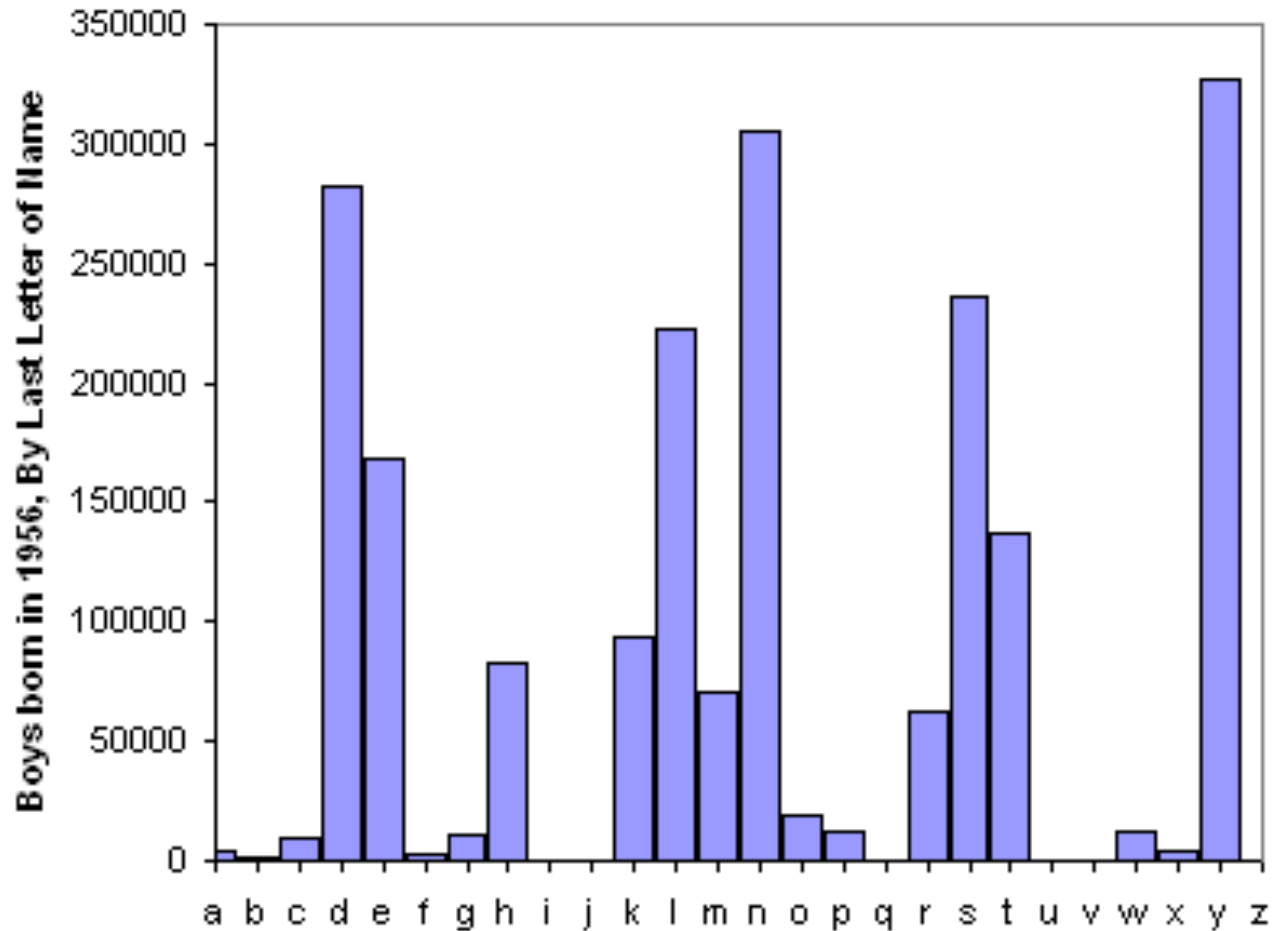
*Support for increased federal health care spending for the uninsured, based on the 2004 Annenberg survey.

Last letters of boys' names, 100 yrs ago



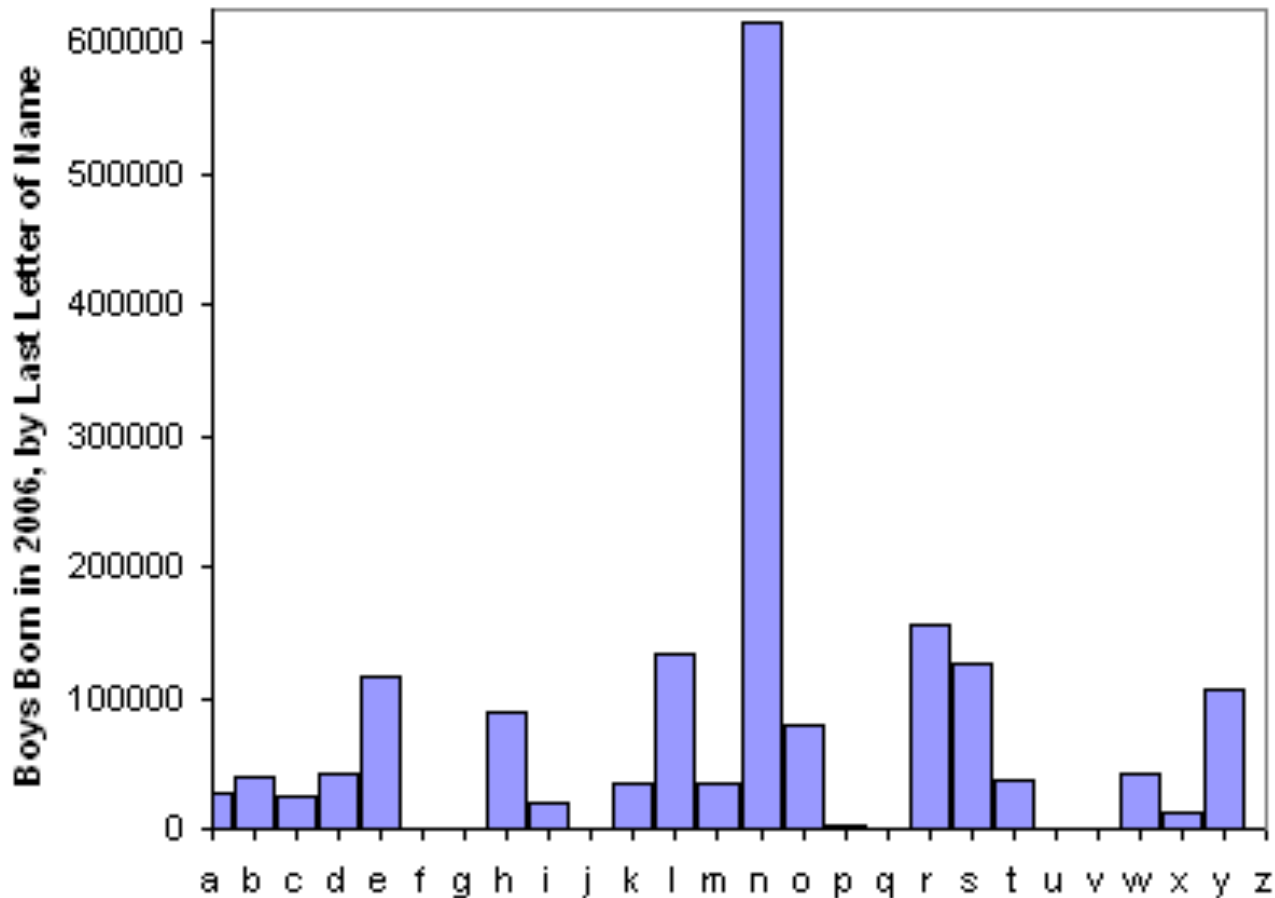
John, James, Edward, George, Henry, . . .

Last letters of boys' names, 50 yrs ago



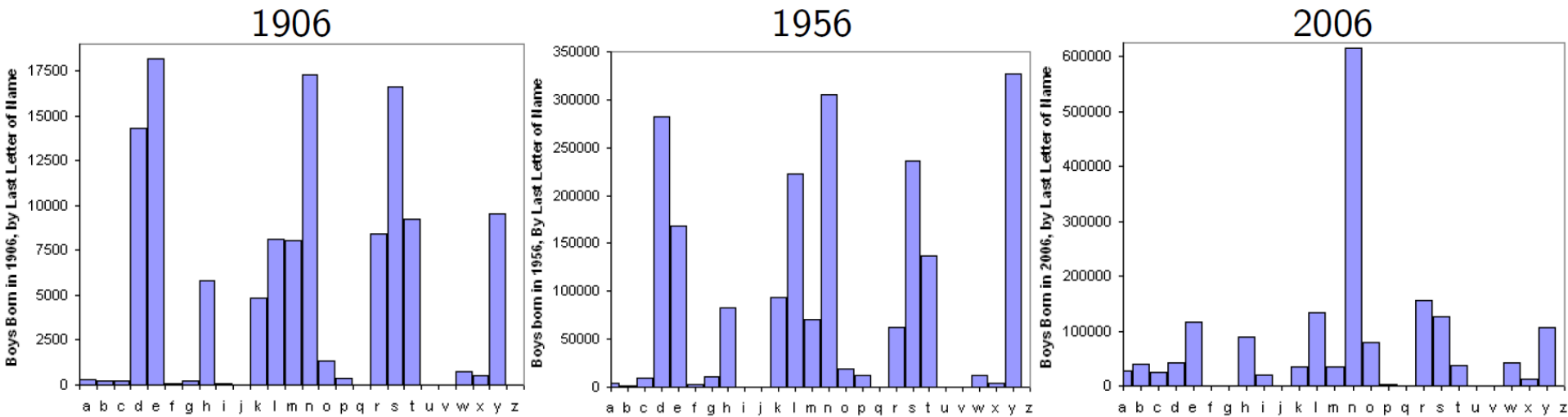
Michael, Thomas, Larry, Jeffrey, . . .

Last letters of boys' names, now



Ethan (#8), John (18), Jonathan (19), Brandon (21),
Christian (22), Dylan (23), also #25, 27, 28, 29, . . .

The trend in last letters of boys' names



- The long tail . . . and the paradox of freedom

Conclusion: Infovis vs. stat graphics

- Infovis:
 - Visual creativity, up-to-the-minute technology
 - Puzzles and the joy of recognition
- Statistical graphics:
 - Replication of standard forms
 - Discovery of the unexpected
- We can work together