

Sit together with your groupmates (Canvas->People->Groups) – same group as Tue

▼ Week 2 - Group 1

4 students



Yerramsetti Dharma Teja	⋮
Prithviraj Maurya	⋮
Abhinav Krishna Narvaneni	⋮

▼ Week 2 - Group 6

4 students



Piyush Chaudhari	⋮
Hemanth Reddy G	⋮

4 students



▼ Week 2 - Group 2

4 students



Abhishek Dhar	⋮
Muhammad Siddiq Khan	⋮
Jignesh Kirti Nagda	⋮

▼ Week 2 - Group 7

4 students



Pooja Hegde	⋮
Shanthan Reddy Muddasani	⋮
Megha Nagabhushana Red...	⋮

4 students



▼ Week 2 - Group 3

4 students



Laxmikant Maheshji Kabra...	⋮
Ayush Khaneja	⋮
Jait Mahawarkar	⋮

▼ Week 2 - Group 8

4 students



Shruti Houji (she/her/hers)	⋮
Harini Sugumar (she/her/h...	⋮
Mohit Mathrani	⋮

4 students



▼ Week 2 - Group 4

4 students



Nikhil Sai Dandamudi	⋮
Snehal Prafulla Patil (she/h...	⋮
Sahithi Thummuri	⋮

▼ Week 2 - Group 9

4 students



Aniruddho Chatterjee (he/...	⋮
Sreekanth Sanam	⋮
Kashmira Jitendra Golatka...	⋮

4 students



▼ Week 2 - Group 5

4 students



Radhika Agarwal	⋮
Subhranil Das (he/him/his)	⋮
Shiva Kumar Pendem	⋮

▼ Week 2 - Group 10

4 students



Sricharan Cheeti	⋮
Dhananjay Srivastava	⋮
Sanjana Jairam	⋮

4 students



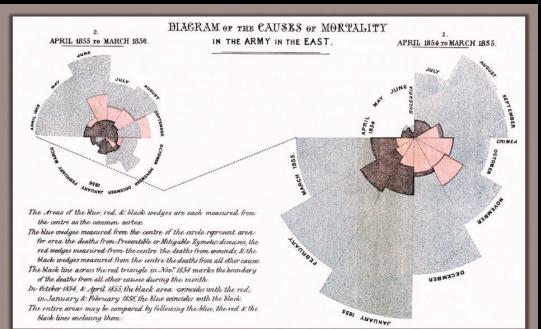
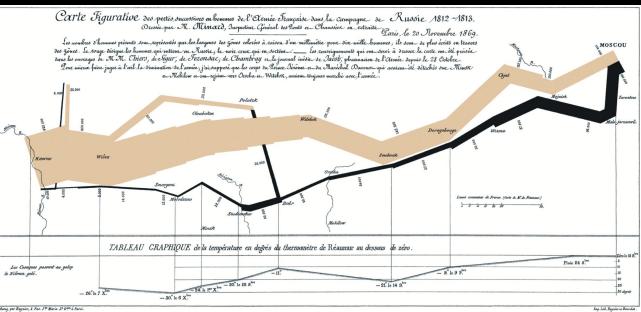
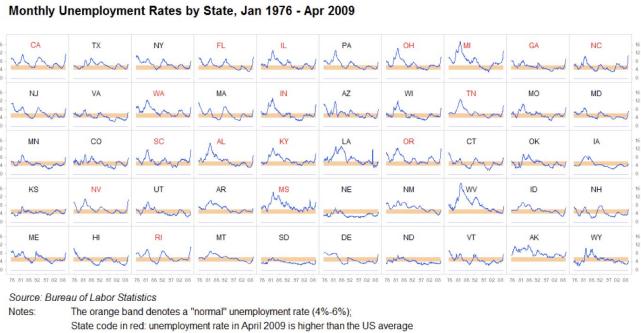
Data Visualization W2: integrity

Announcements

- NO class on next Tuesday. We'll meet on next Thursday (7 September)
- First Visualization of the Week presentation will be on next Thursday. Please upload yours on Canvas Module 4 -> “Visualization of the Week” if you present VotW on 7 Sep.
- If you feel unwell, please stay at home (and let us know!)
- Share your experience on “Recap discussion” on Canvas after today’s class

Quiz

- What's the name of a visualization method that lays out many similar, 'small' plots side by side to show the differences/changes?
- What makes Minard's map describing Napoleon's March so special?
- Explain Florence Nightingale's rose chart and its key message.



In-class exercise



The dark side of visualization

*“There are three kinds of lies:
lies, damned lies, and statistics.”*

Benjamin Disraeli
(Politician and writer)



A Cartesian coordinate system showing a right-angled triangle. The vertical leg is labeled b , and the horizontal leg is labeled a . The hypotenuse is labeled $y = -x + b$.

$$= (a + b)(a - b)$$

$$V = \frac{G \cdot h}{3}$$

$$\frac{\pi \cdot r^2 \cdot h}{3}$$

Za

$$-b \pm \sqrt{b^2 - 4ac}$$

$$Z = m^2$$

三

Same Facts, Different Interpretations: Partisan Motivation and Opinion on Iraq

Brian J. Gaines University of Illinois at Urbana-Champaign

James H. Kuklinski University of Illinois at Urbana-Champaign

Paul J. Quirk University of British Columbia

Buddy Peyton University of Illinois at Urbana-Champaign

Jay Verkuilen City University of New York

Scholars assume that citizens perform better when they know pertinent facts. Factual beliefs, however, become relevant for political judgments only when people interpret them. Interpretations provide opportunities for partisans to rationalize their existing opinions. Using panel studies, we examine whether and how partisans updated factual beliefs, interpretations of beliefs, and opinions about the handling of the Iraq war as real-world conditions changed. Most respondents held similar, fairly accurate beliefs about facts. But interpretations varied across partisan groups in predictable ways. In turn, interpretations, not beliefs, drove opinions. Perversely, the better informed more effectively used interpretations to buttress their existing partisan views.

Imagine a row of tombstones marking the graves of late, great public opinion scholars. On each tombstone is an epitaph, all beginning: “If only citizens were better informed. . . .” Each epitaph ends differently—“then they would perform more effectively;” “then they would make well-grounded political judg-

ments;” or “then they would be more likely to support the president’s policies.” These epitaphs indicate that the president’s economic policies are working? Do an additional 200 troop casualties represent a big, moderate, or small increase? Why did the United States not find weapons of mass destruction (WMD) in Iraq? Only when people interpret facts can those facts influence their political opinions.





UNEMPLOYMENT RATE

UNDER PRESIDENT OBAMA



FOX
NEWS
radio

2011
SOURCE: BUREAU OF LABOR STATISTICS

WAR AND A TROOP WITHDRAWAL AT THE END OF THE MONTH
NAS FUT 2,292.50

SIMPLY WRONG

UNEMPLOYMENT RATE

UNDER PRESIDENT OBAMA



FOX
NEWS
radio

2011
SOURCE: BUREAU OF LABOR STATISTICS

WAR AND A TROOP WITHDRAWAL AT THE END OF THE MONTH
NAS FUT 2,292.50

Unemployment Rate in 2011



Source: Bureau of Labor Statistics

NBC2 VIEWER VOTE

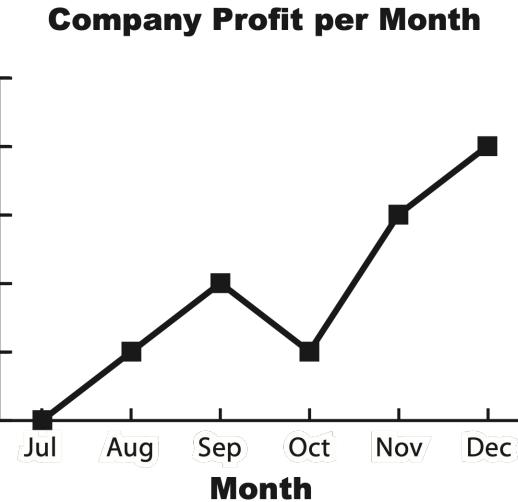
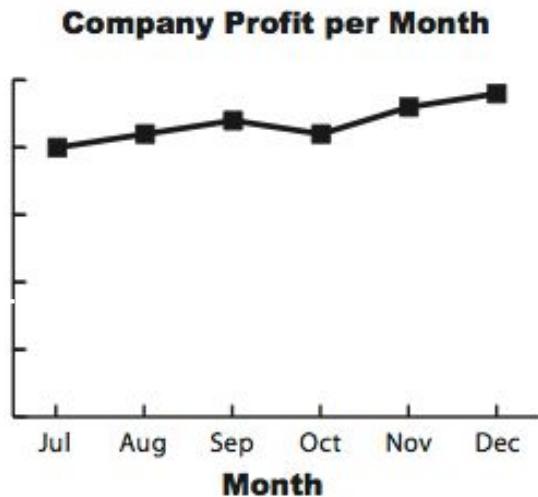
NBC-2.COM

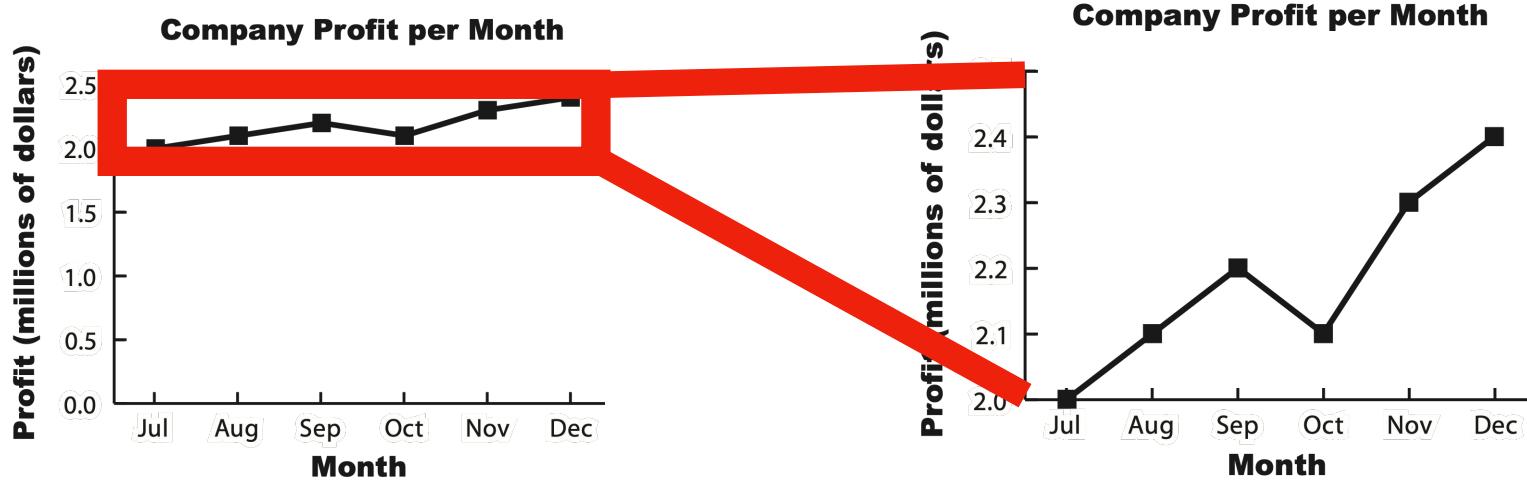
HOW CONCERNED ARE YOU ABOUT THE ZIKA VIRUS?



SCALES

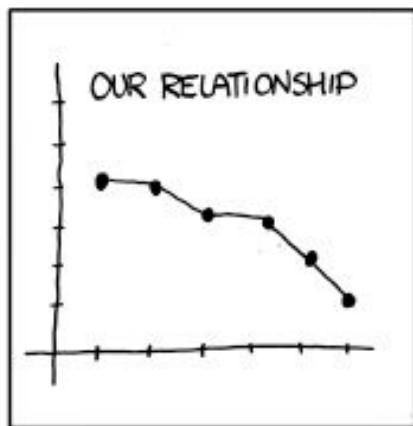
Which company will you buy?



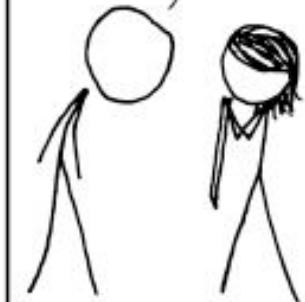


I THINK WE SHOULD
GIVE IT ANOTHER SHOT.

{ WE SHOULD BREAK
UP, AND I CAN
PROVE IT.

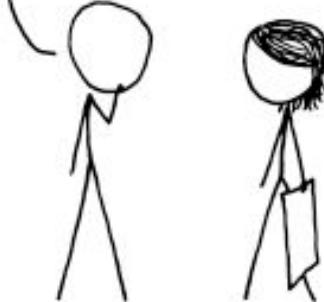


HUH.

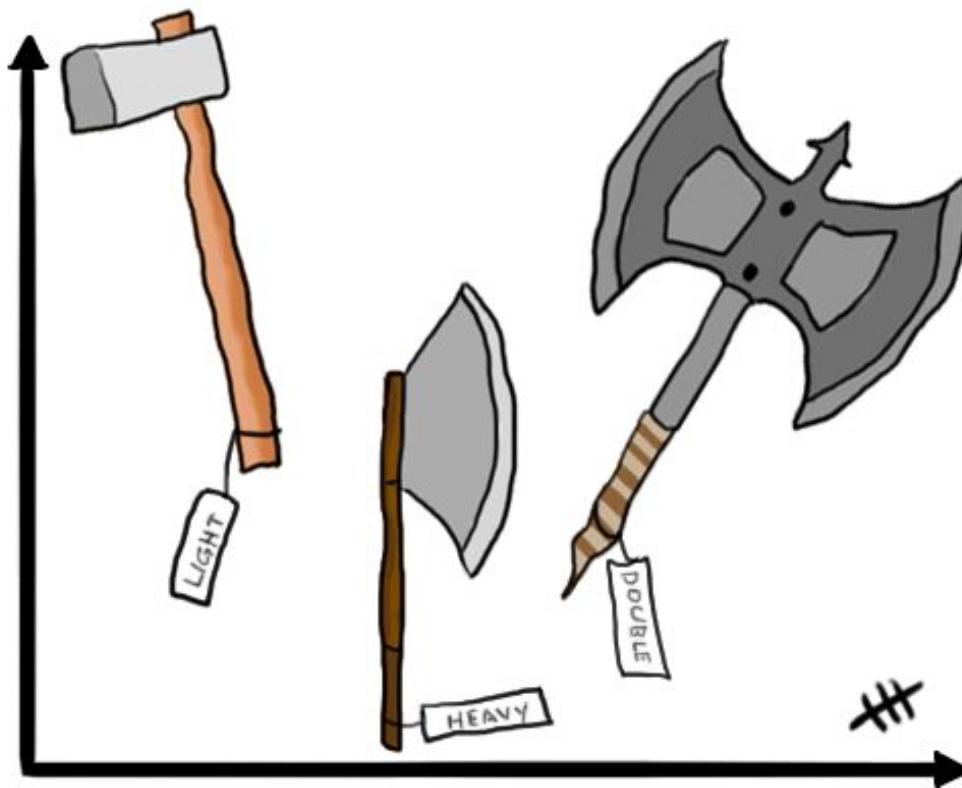


MAYBE YOU'RE RIGHT.

{ I KNEW DATA WOULD CONVINCE YOU.
NO, I JUST THINK I CAN DO
BETTER THAN SOMEONE WHO
DOESN'T LABEL HER AXES.



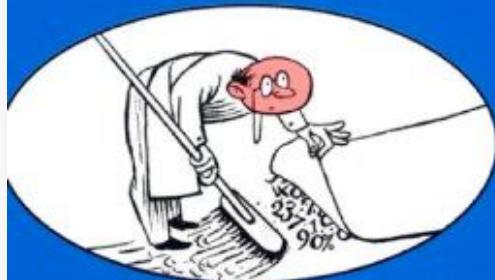
Always label your axes



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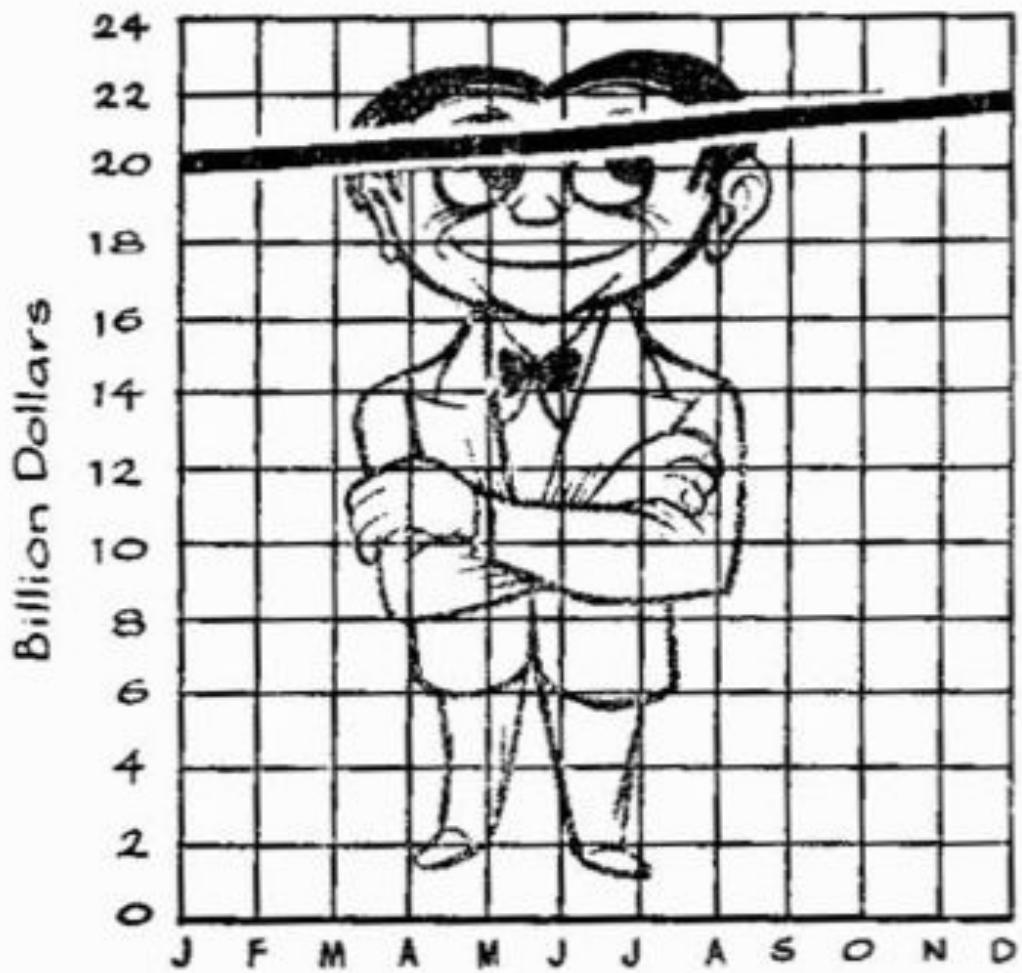
HOW TO LIE WITH STATISTICS

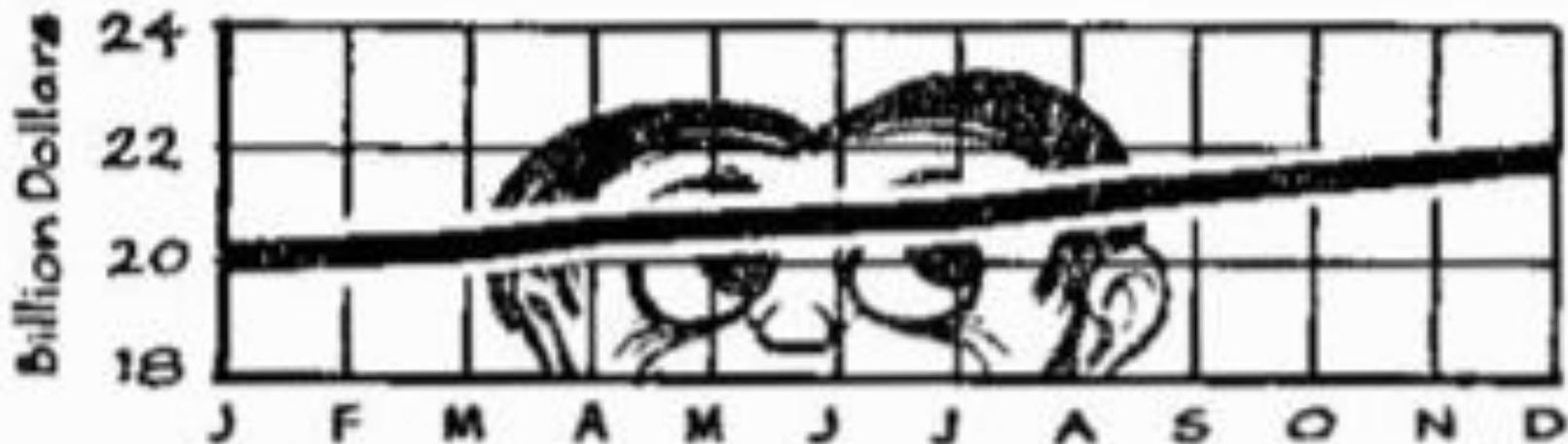
Darrell Huff
Illustrated by Irving Geis

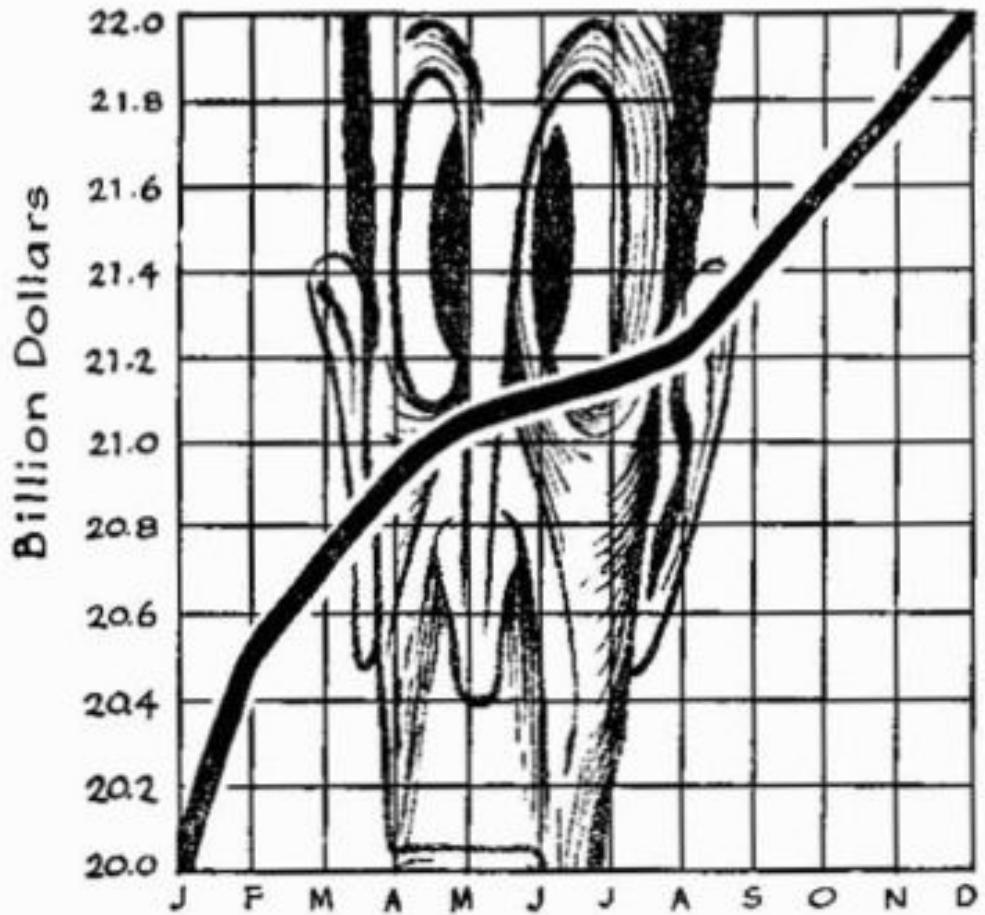


Over Half a Million Copies Sold—
An Honest-to-Goodness Bestseller

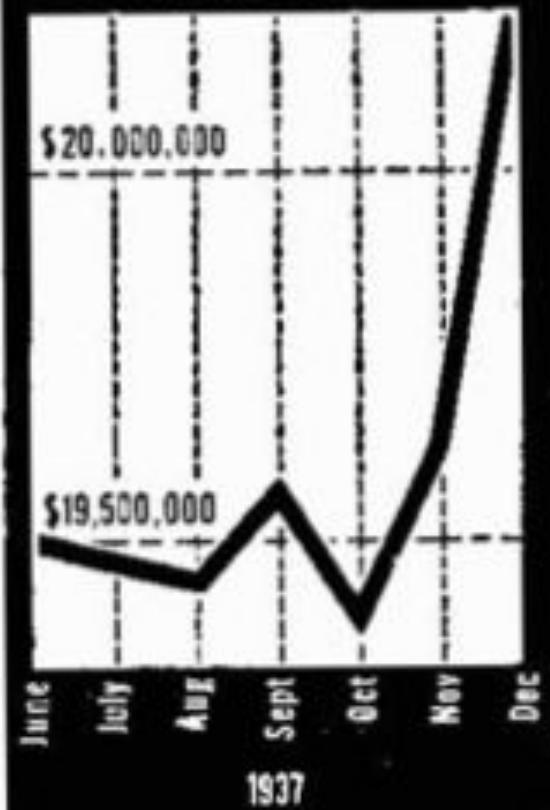
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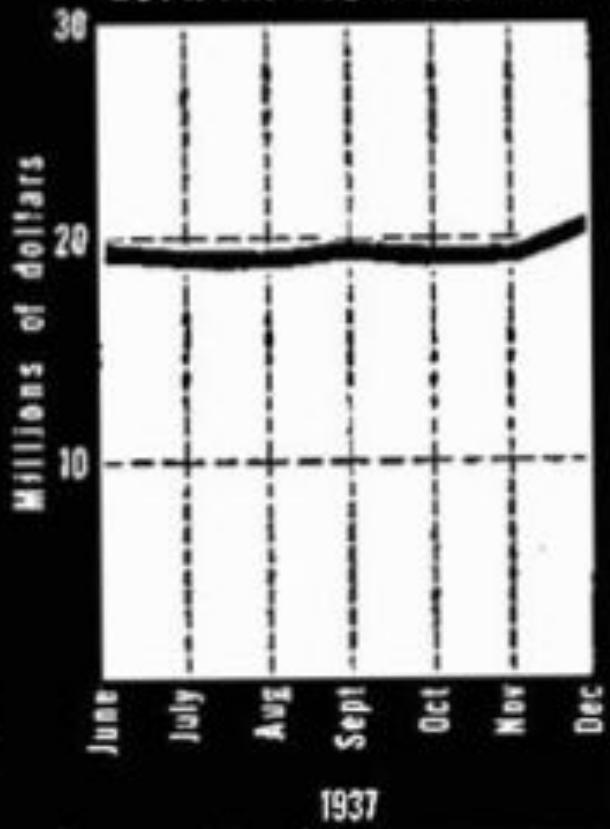




GOVT. PAY ROLLS UP!



GOVT. PAY ROLLS STABLE!



Should we always start from
“0”?

IF BUSH TAX CUTS EXPIRE

TOP TAX RATE

Huge change?

35%

NOW

39.6%

JAN. 1, 2013

42%

40

38

36

34

Starts at 34%

8:01p ET

FOX
BUSINESS

TOP STORIES

TECHNOLOGY

CONSUMER

WITH THE JUSTICE DEPARTMENT AND AQUIRES FULL T

DOW

13008.68 ▼ 64.33

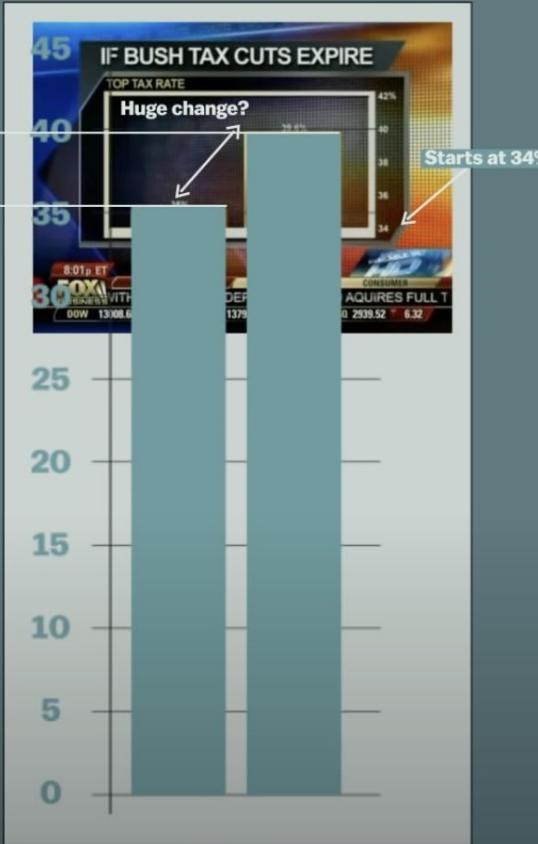
S&P

1379.32 ▼ 5.98

NASDAQ

2939.52 ▼ 6.32

Nope!



FAHRENHEIT

104

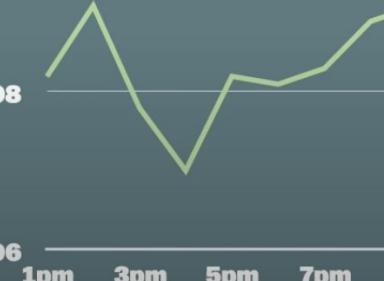
102

100

98

96

BODY TEMP



BODY TEMPERATURE OVER TIME

313

234.75

156.5

78.25

0

KELVIN

ABSOLUTE ZERO

0

1pm

3pm

5pm

7pm

9pm

11pm

1am

3am

5am

7am

10am

1pm

3pm

5pm

7pm

9pm

11pm

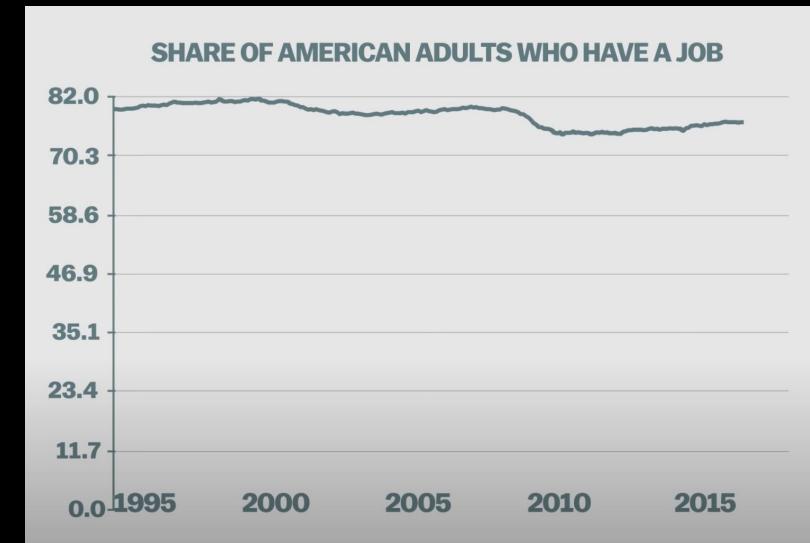
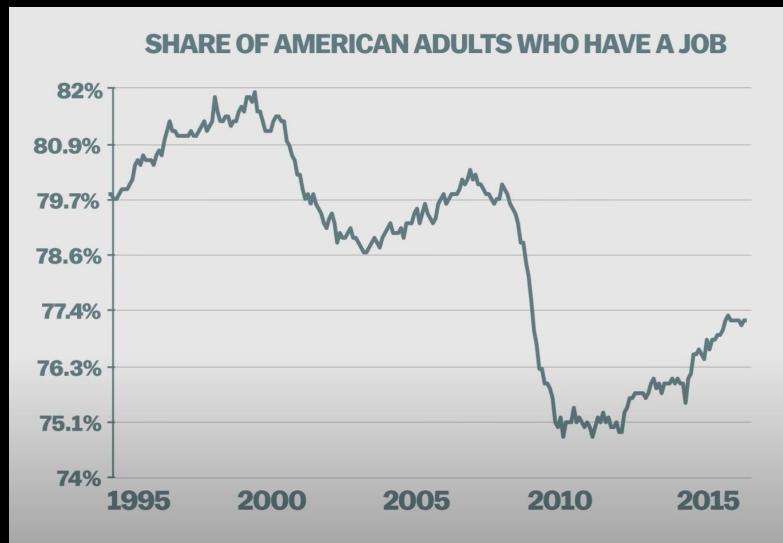
1am

3am

5am

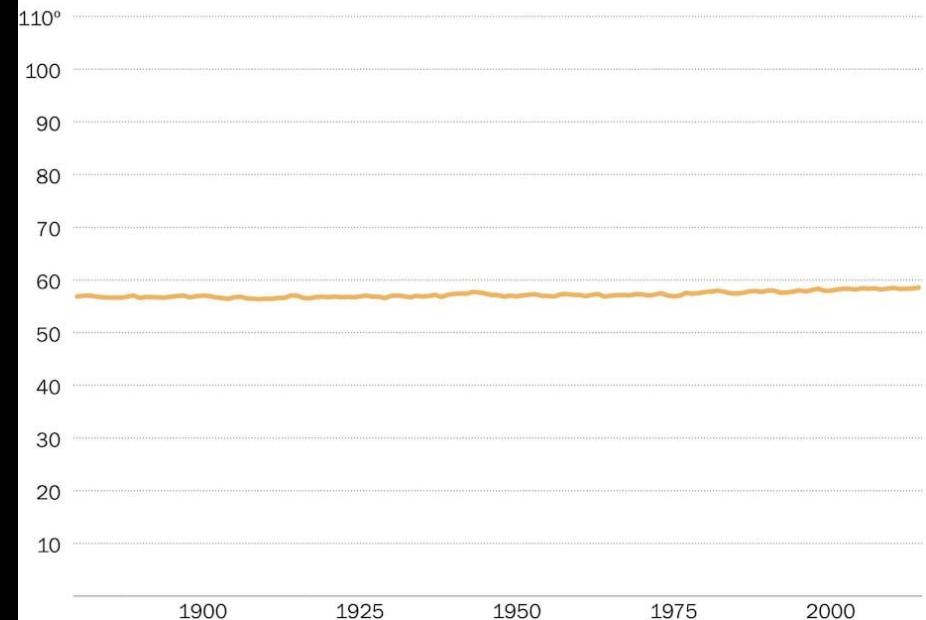
7am

10am

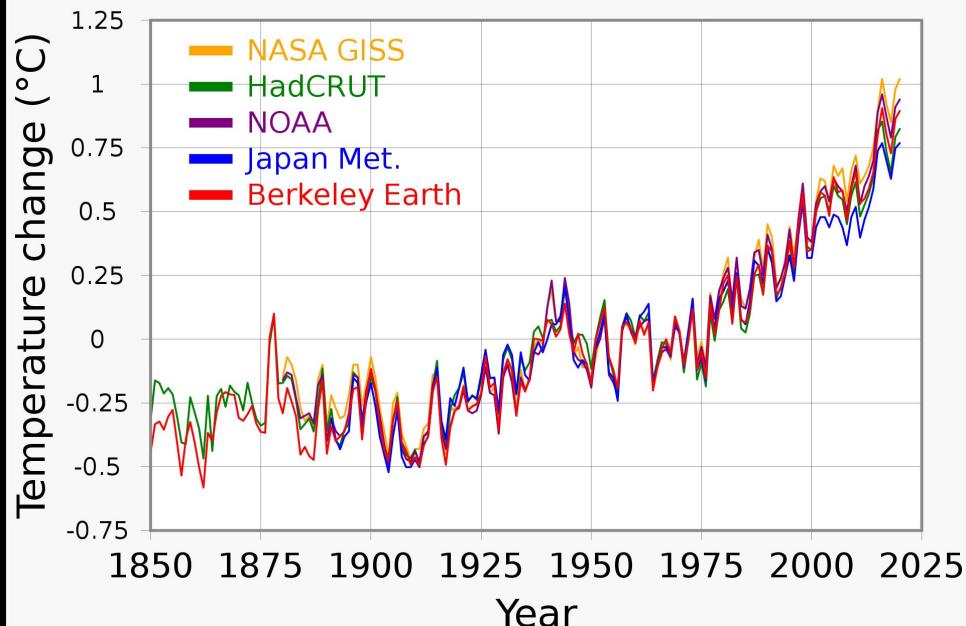


Average global temperature by year, 50x scale

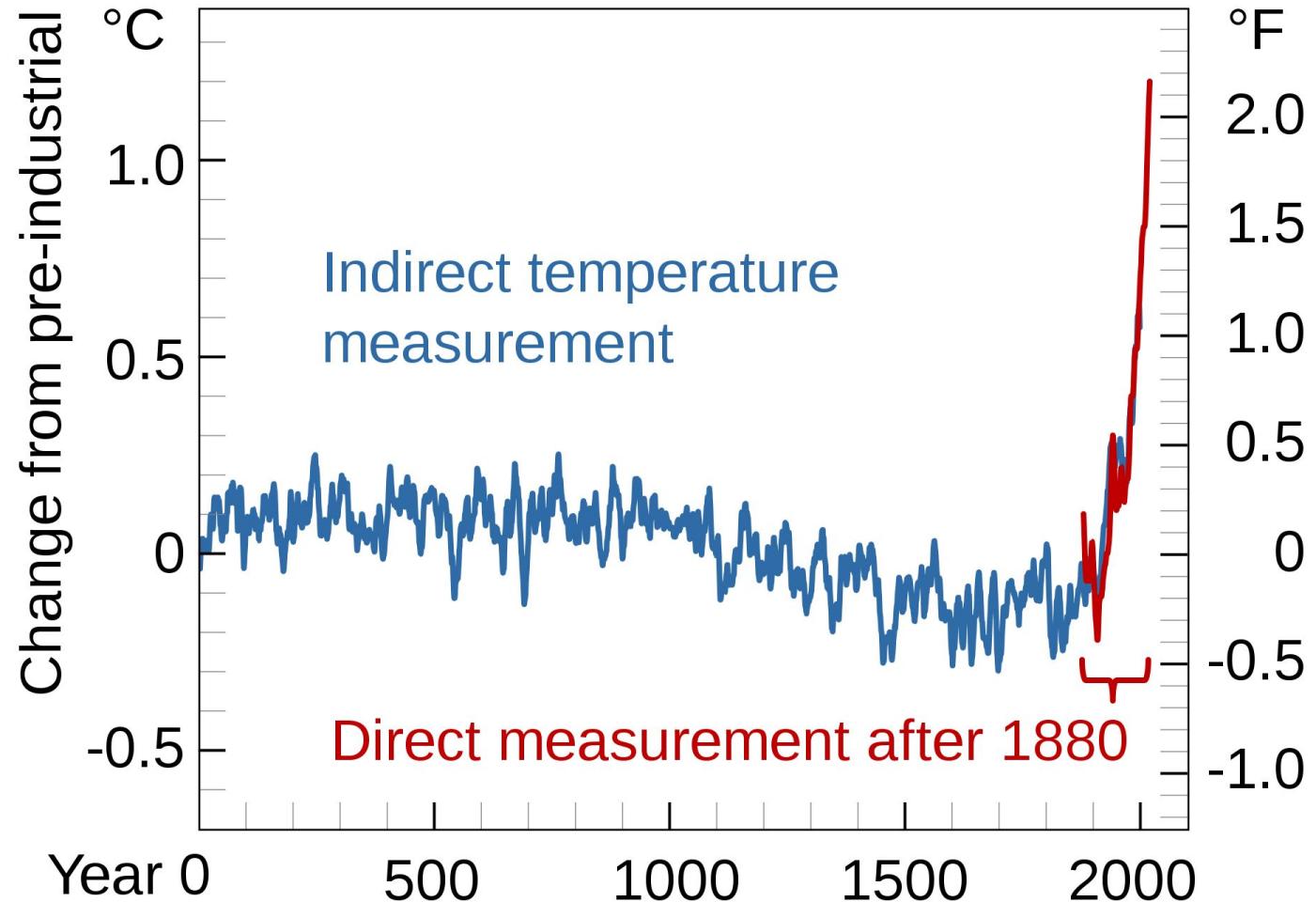
Data from NASA/GISS.



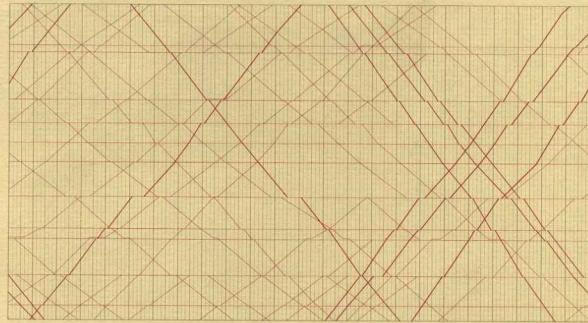
Global average temperature change



Global temperature in the Common Era

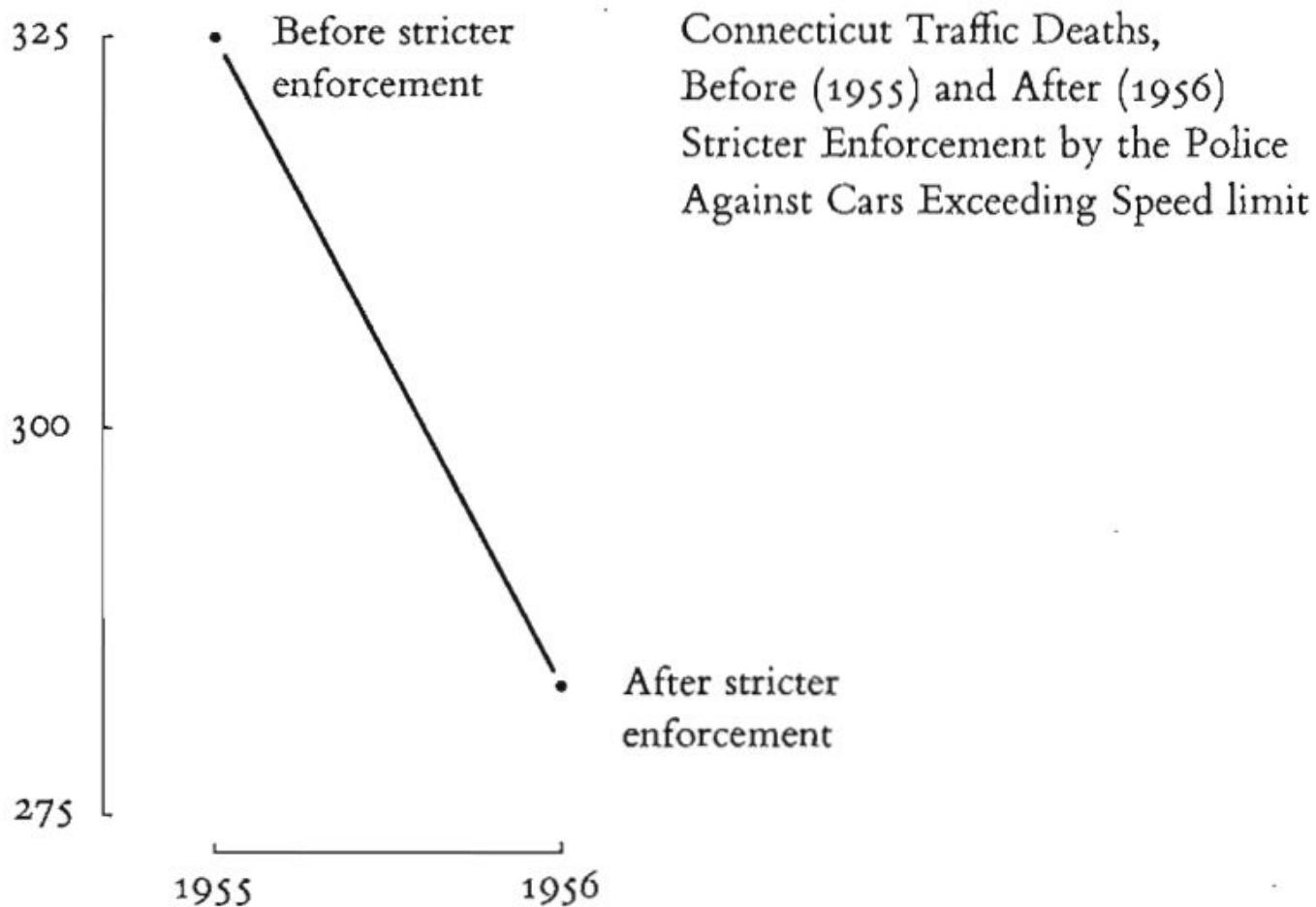


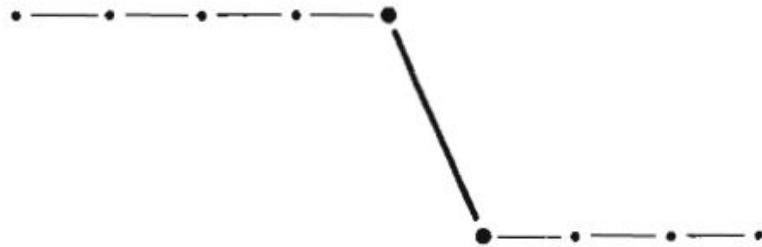
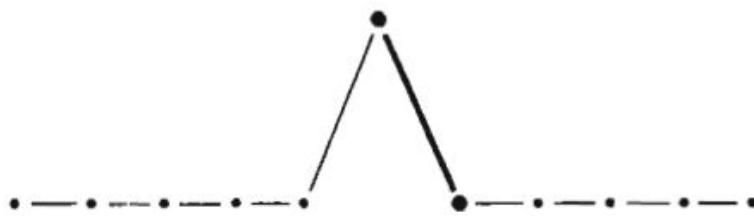
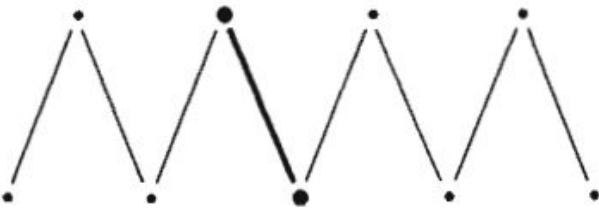
CONTEXTS



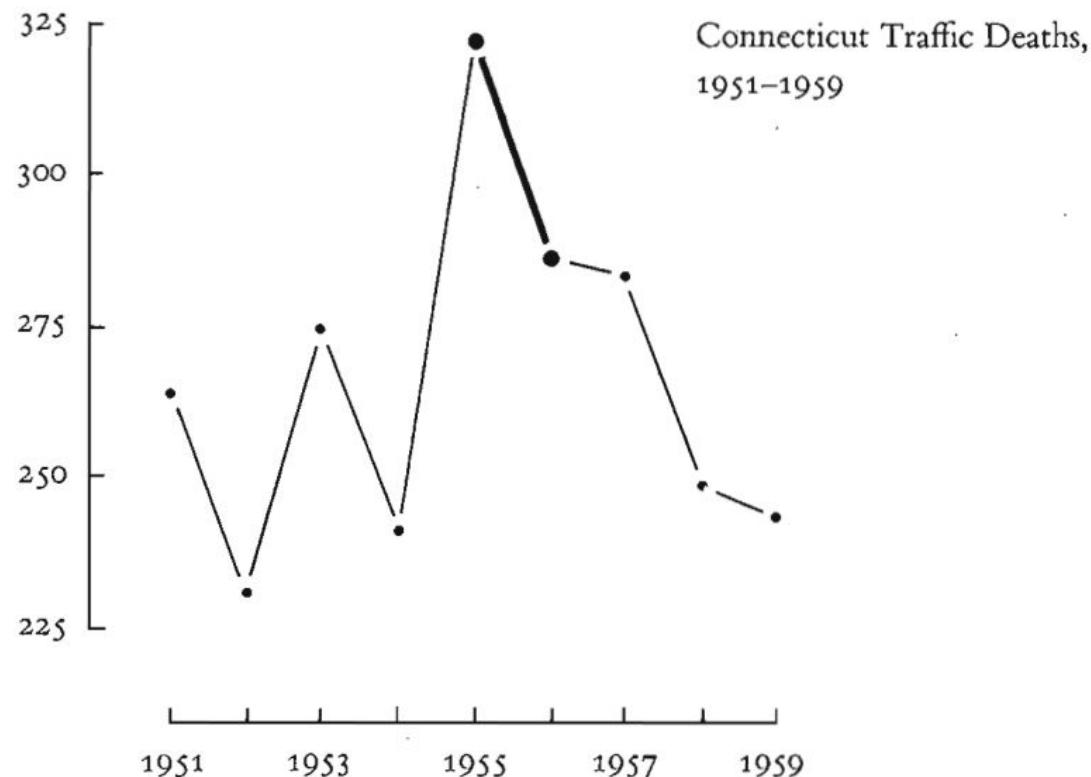
The Visual Display
of Quantitative Information

EDWARD R. TUFTE

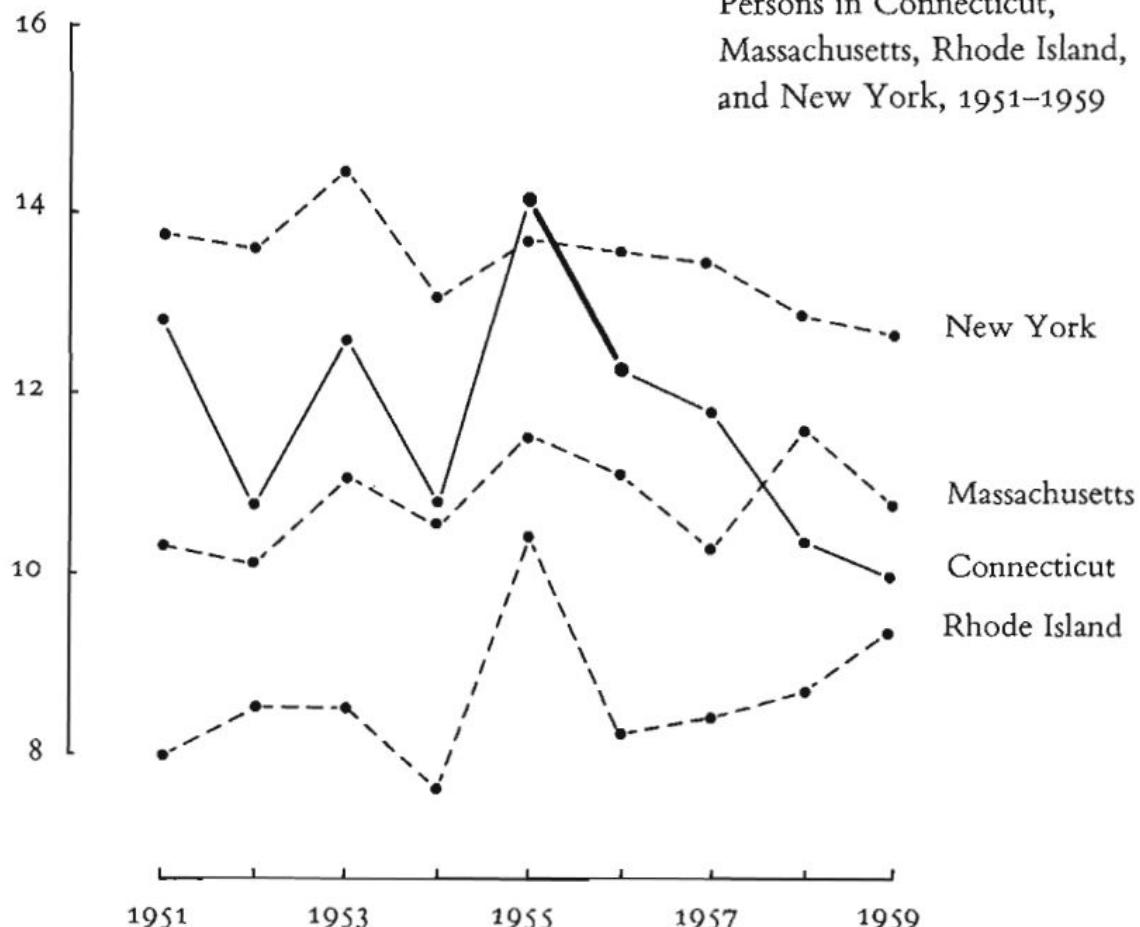




A few more data points add immensely to the account:



Traffic Deaths per 100,000
Persons in Connecticut,
Massachusetts, Rhode Island,
and New York, 1951–1959



IF BUSH TAX CUTS EXPIRE

TOP TAX RATE

Huge change?

35%

NOW

39.6%

JAN. 1, 2013

42%

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36

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Starts at 34%

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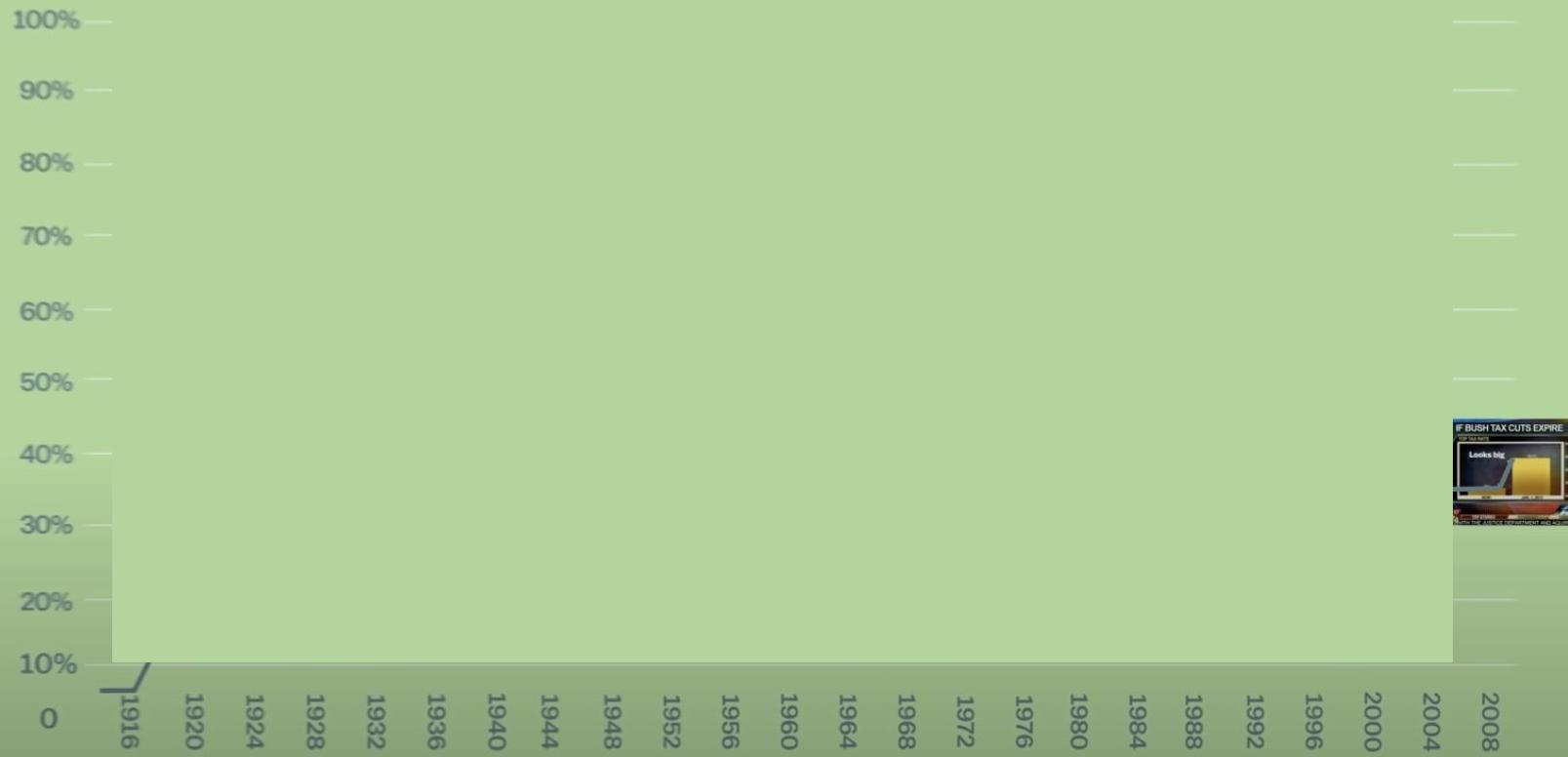
S&P

1379.32 ▼ 5.98

NASDAQ

2939.52 ▼ 6.32

(Marginal) TAX RATE FOR TOP EARNERS



CORRELATION

(for interpretation)

I USED TO THINK
CORRELATION IMPIED
CAUSATION.



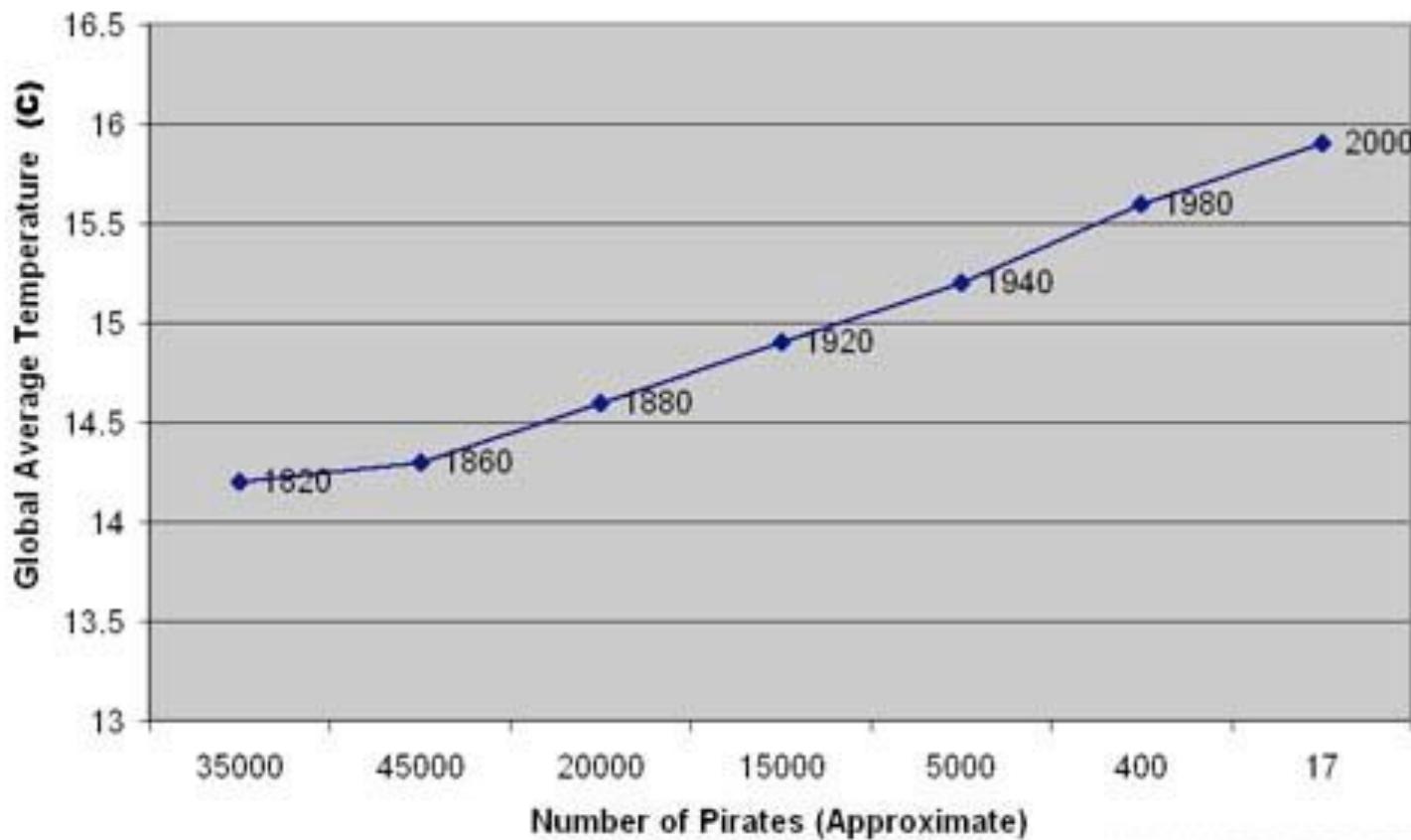
THEN I TOOK A
STATISTICS CLASS.
NOW I DON'T.



SOUNDS LIKE THE
CLASS HELPED.
WELL, MAYBE.



Global Average Temperature Vs. Number of Pirates



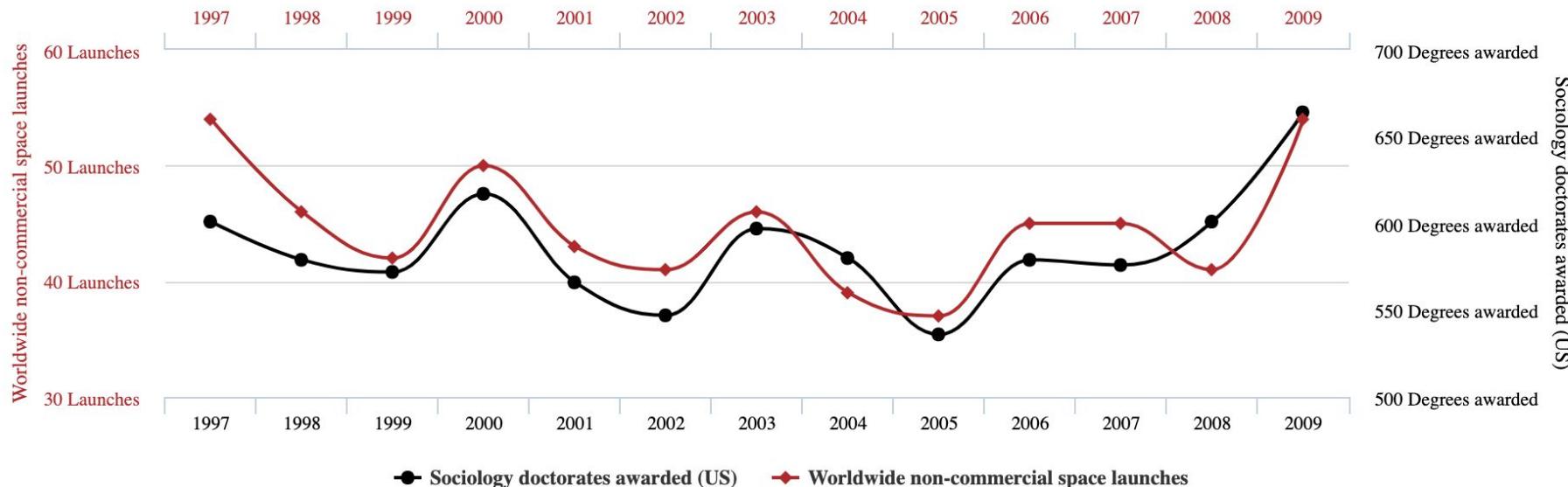


Worldwide non-commercial space launches

correlates with

Sociology doctorates awarded (US)

Correlation: 78.92% ($r=0.78915$)



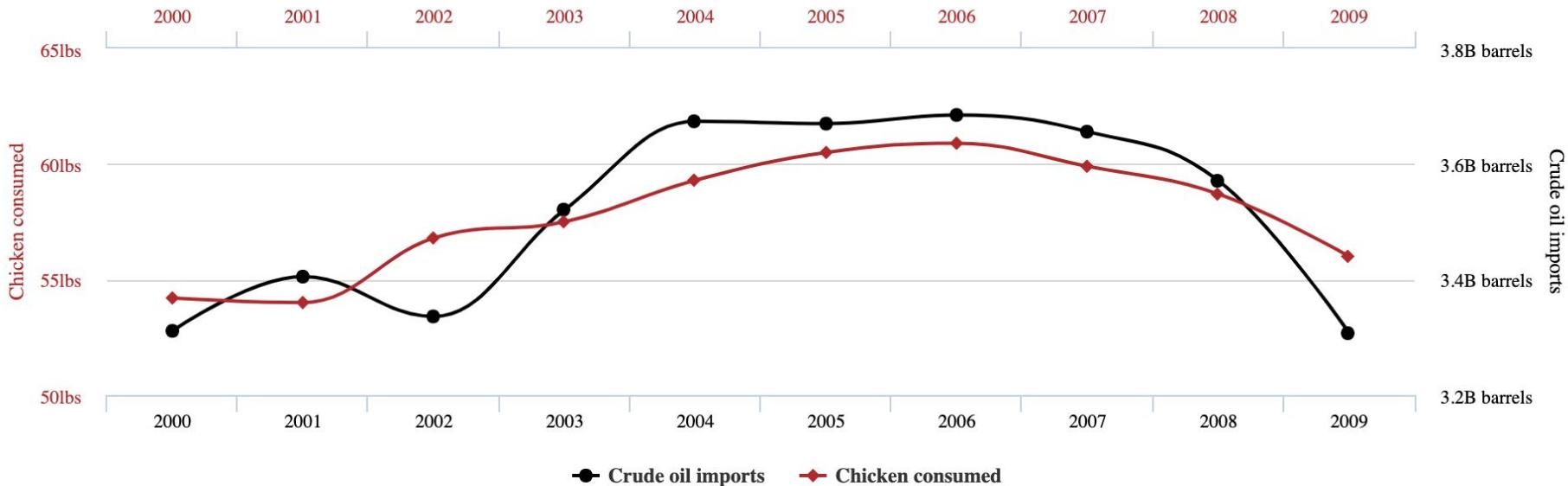
Data sources: Federal Aviation Administration and National Science Foundation

tylervigen.com



Per capita consumption of chicken correlates with Total US crude oil imports

Correlation: 89.99% ($r=0.899899$)

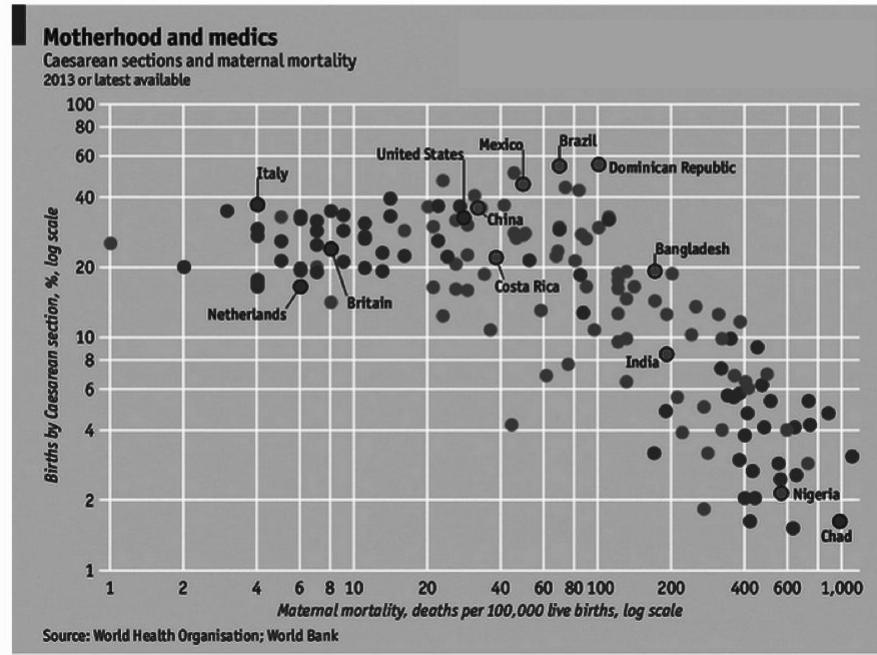


Data sources: U.S. Department of Agriculture and Dept. of Energy

tylervigen.com



The global link between maternal mortality and Caesarean sections in one fascinating chart econ.st/1IR5uRq

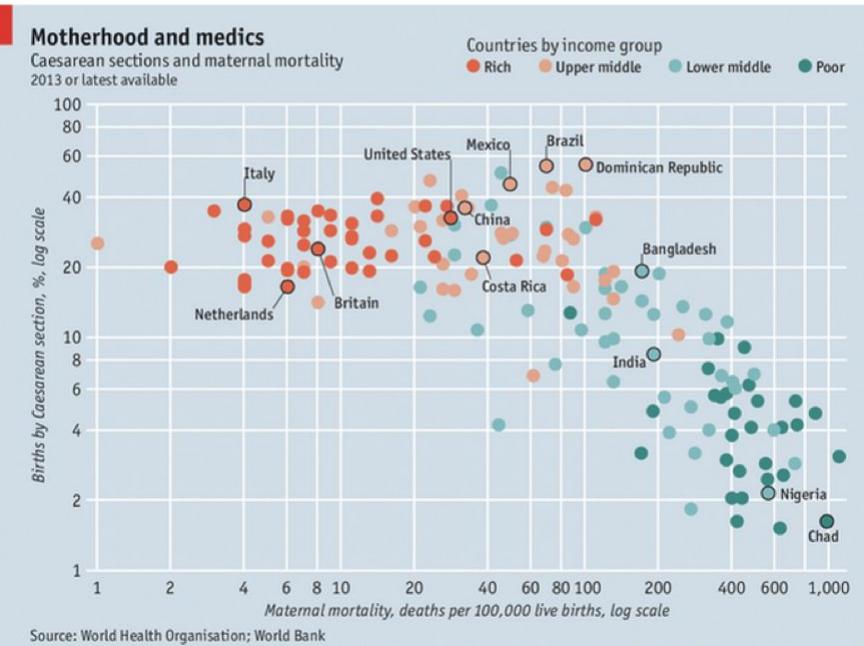


What's the message of this visualization?

Any issues?



The global link between maternal mortality and Caesarean sections in one fascinating chart econ.st/1IR5uRq



What's the message of this visualization?

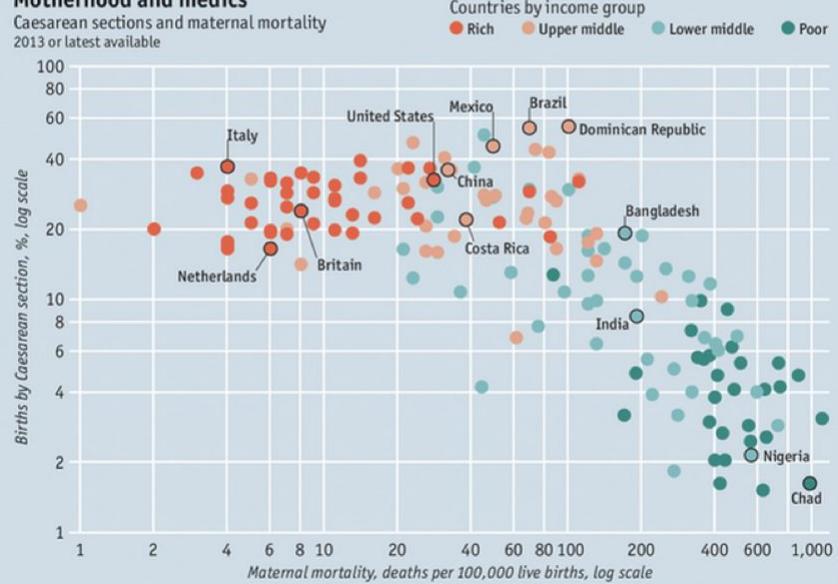
Any issues?



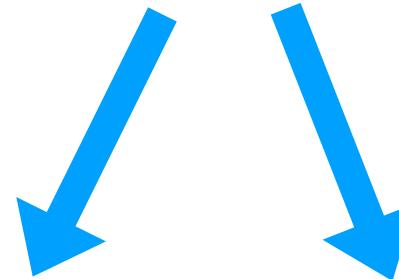
The global link between maternal mortality and Caesarean sections in one fascinating chart econ.st/1IR5uRq

Motherhood and medics

Caesarean sections and maternal mortality
2013 or latest available



Better healthcare and high income



C-sections

Lower mortality

