

Taming Treacherous Data | DHSI 2018 | Day 1 PM | Deck 2

# Best & Worst Visualization Practices



# Defense Against the Dark Arts







AROUND  
THE  
WORLD

GIANT HORNETS KILL 42 PEOPLE IN CHINA

LIVE  
CNN

RIGHT NOW

CHICAGO 71°

DETROIT 66°

HOUSTON 77°

MENTAL HEALTH EVALUATION IN MIRIAM CAREY'S HOME AFTER DC C

CNN.com



# 2012 PRESIDENTIAL RUN

GOP CANDIDATES



FOX

47°

SOURCE: OPINIONS

DYNAMIC



## OBAMACARE ENROLLMENT



AS OF  
MARCH 27

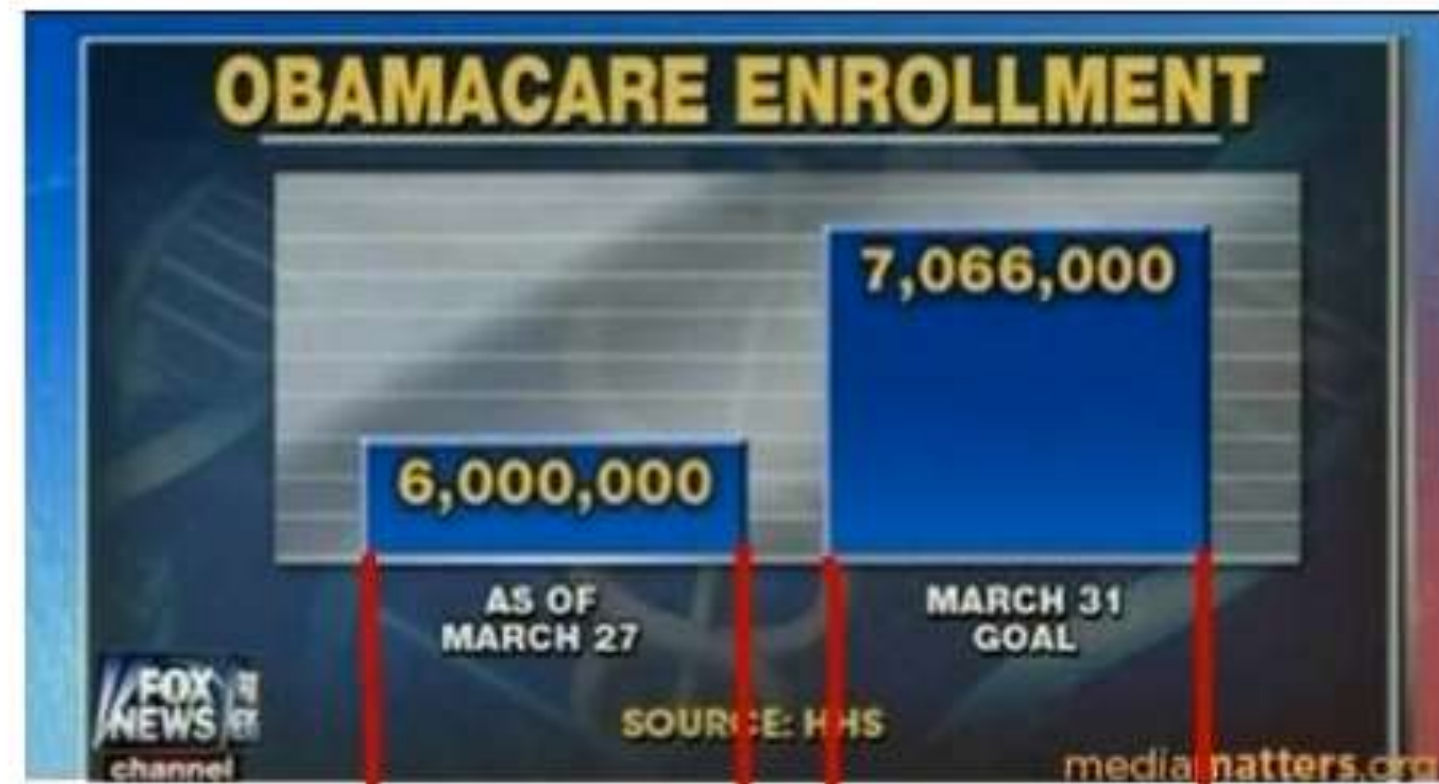
MARCH 31  
GOAL



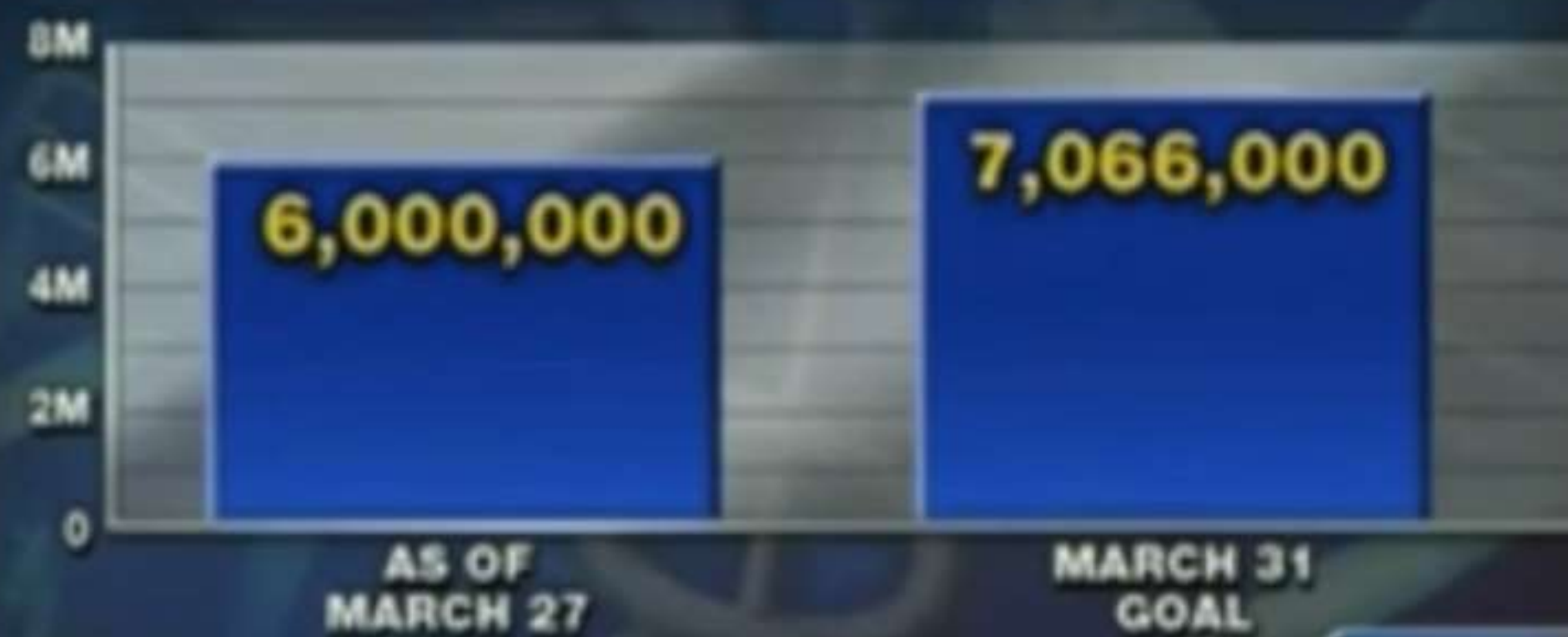
SOURCE: HHS

[mediamatters.org](http://mediamatters.org)

IE IN SECOND PLACE WITH \$26.5 MIL, WHILE "MUPP DOW FUT 16,325.00



## OBAMACARE ENROLLMENT



FOX NEWS  
channel

SOURCE: CBO

AMERICA'S  
newsroom

ED FUEL TO FMR UKRAINIAN PRES VIKTOR Y



# UNEMPLOYMENT RATE

UNDER PRESIDENT OBAMA



2011

SOURCE: BUREAU OF LABOR STATISTICS

EAR WAR AND A TROOP WITHDRAWAL AT THE E NAS FUT 2,292.50



# UNEMPLOYMENT RATE

UNDER PRESIDENT OBAMA



2011

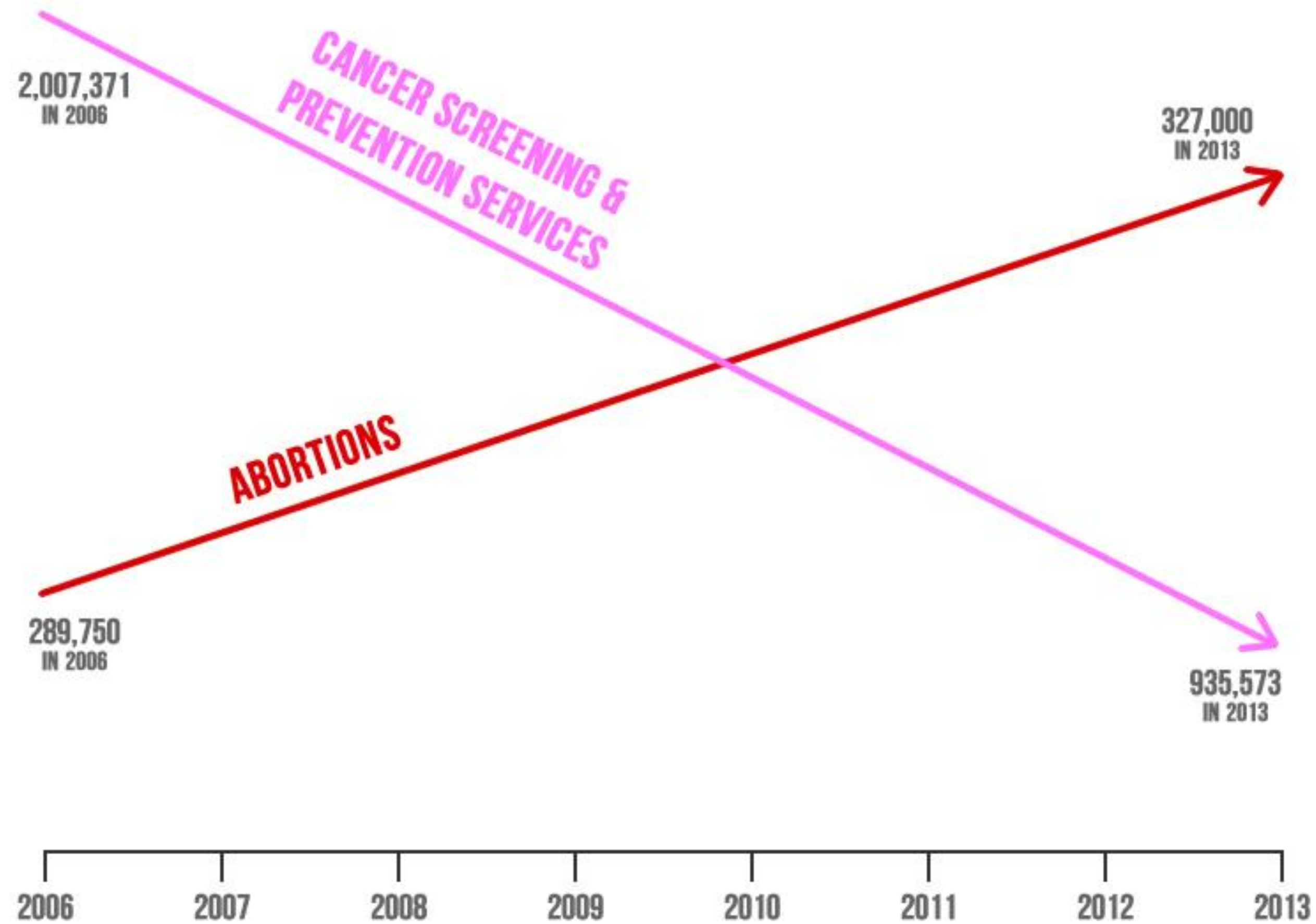
SOURCE: BUREAU OF LABOR STATISTICS

EAR WAR AND A TROOP WITHDRAWAL AT THE E NAS FUT 2,292.50



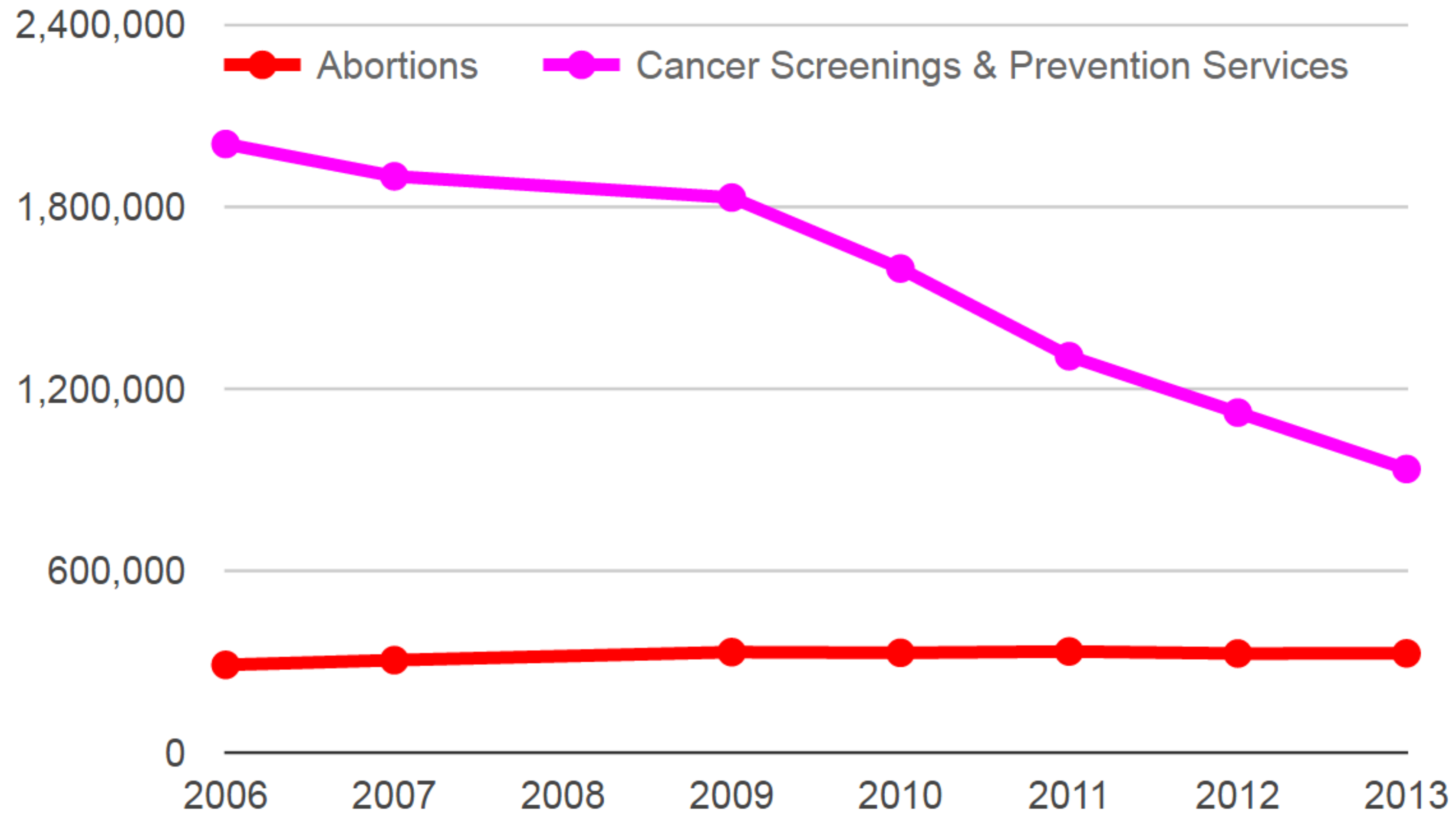
## PLANNED PARENTHOOD FEDERATION OF AMERICA: ABORTIONS UP — LIFE-SAVING PROCEDURES DOWN

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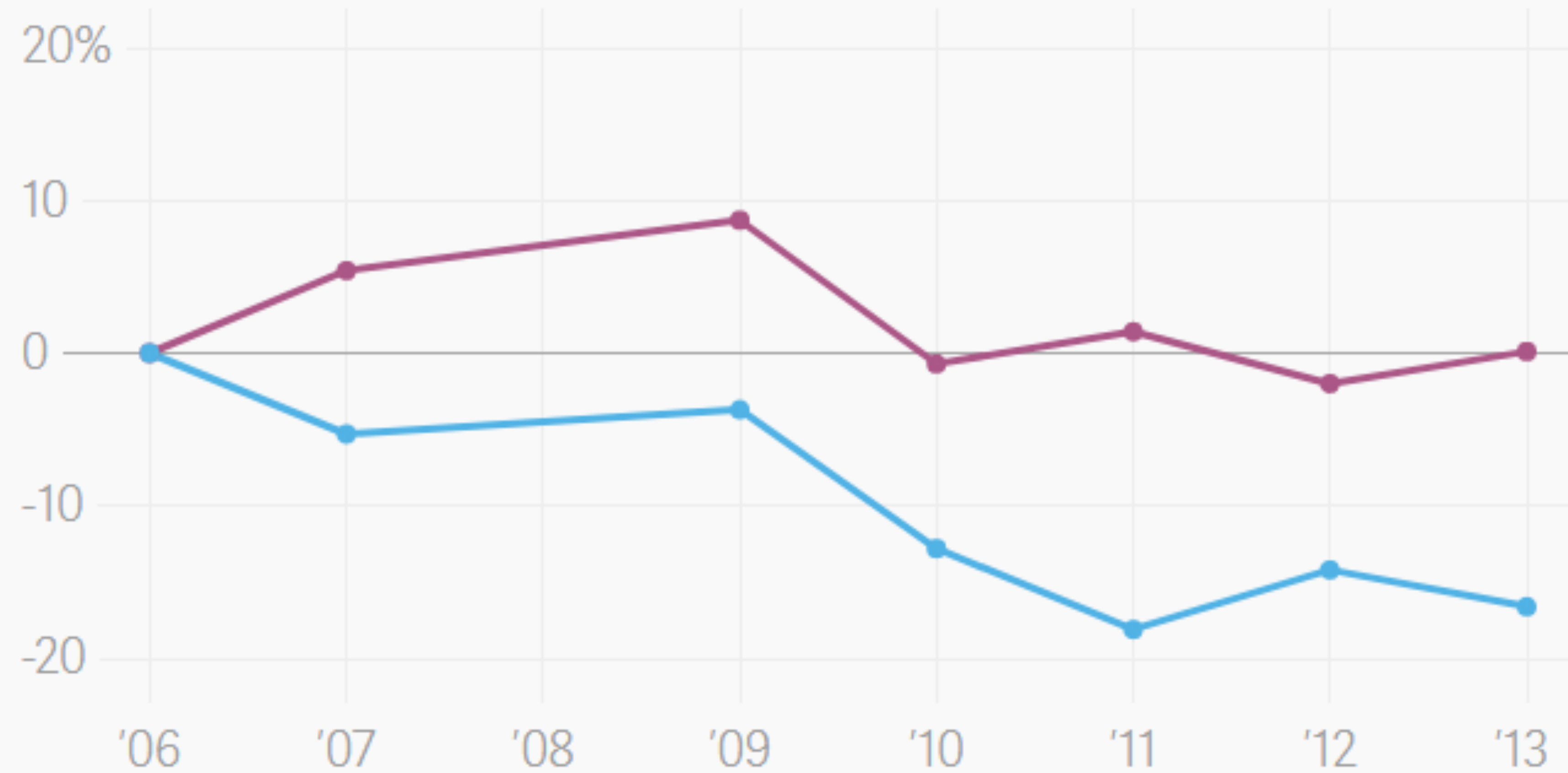
## Planned Parenthood Federation of America: Abortions vs. Cancer and Prevention Services





## Planned Parenthood changes in services, year-over-year

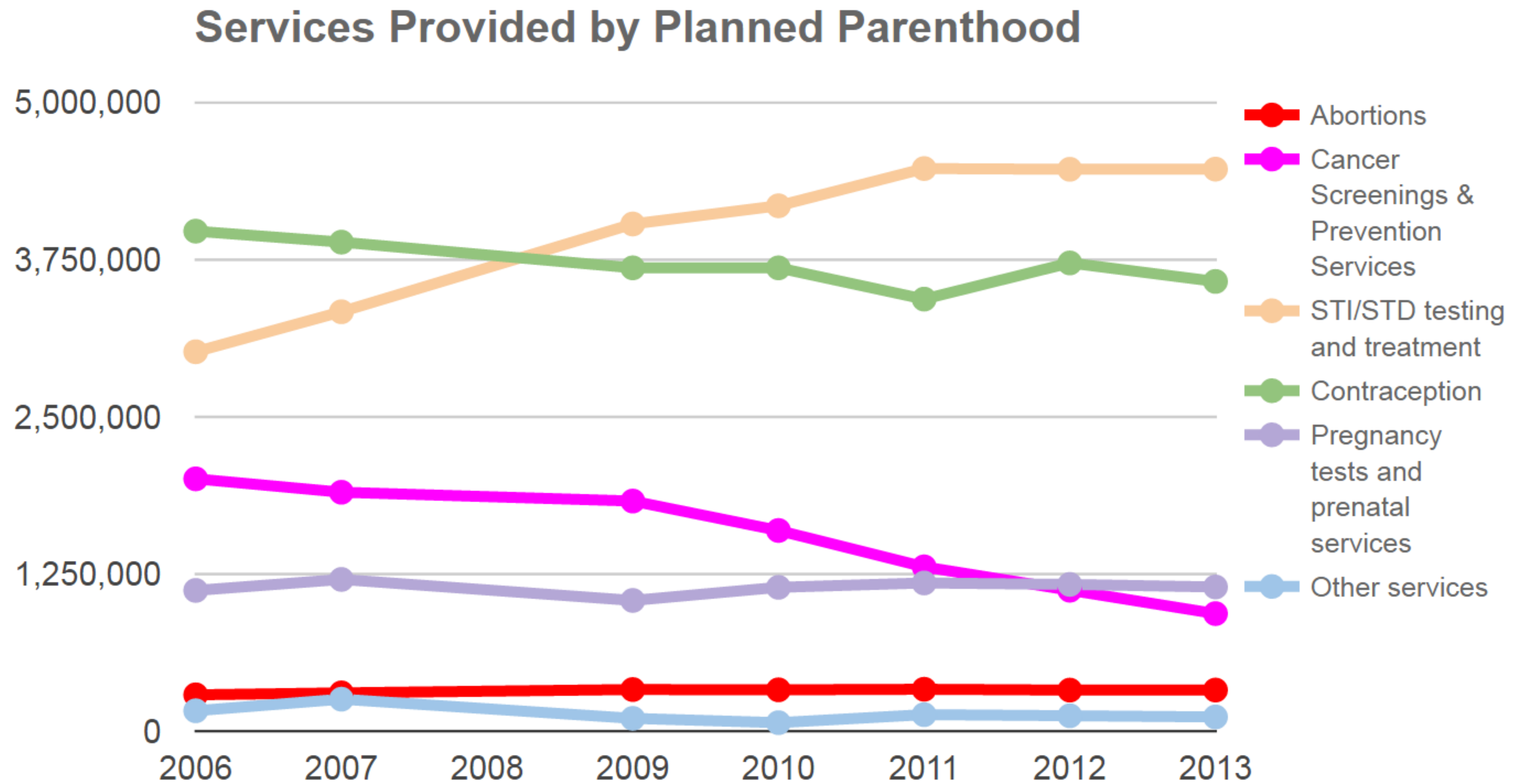
■ Abortion procedures ■ Cancer screening / preventative services



Δ T L Δ S | Data: Politifact

Share

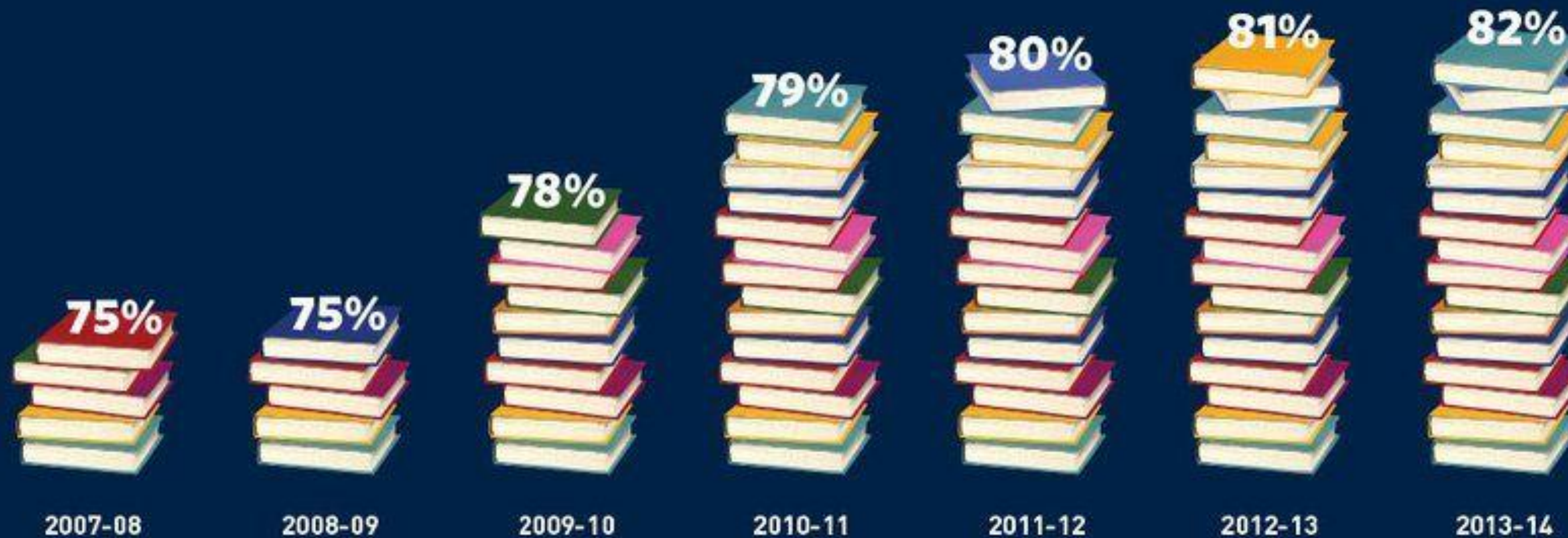






UNDER PRESIDENT OBAMA,  
**MORE STUDENTS ARE EARNING THEIR HIGH SCHOOL DIPLOMAS THAN EVER BEFORE**

HIGH SCHOOL GRADUATION RATE

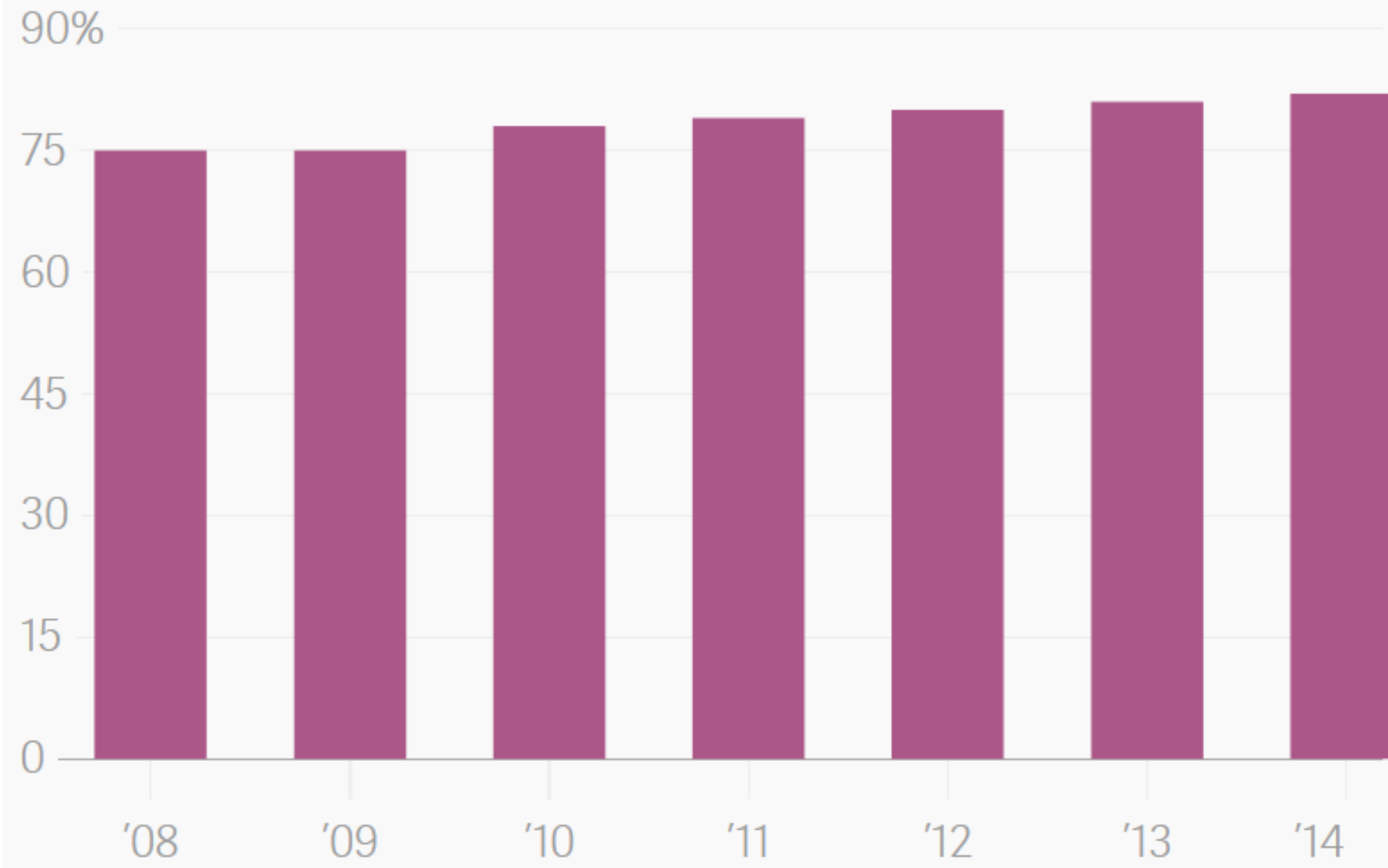


#LeadOnEducation

SOURCE: U.S. DEPARTMENT OF EDUCATION,  
NATIONAL CENTER FOR EDUCATION STATISTICS

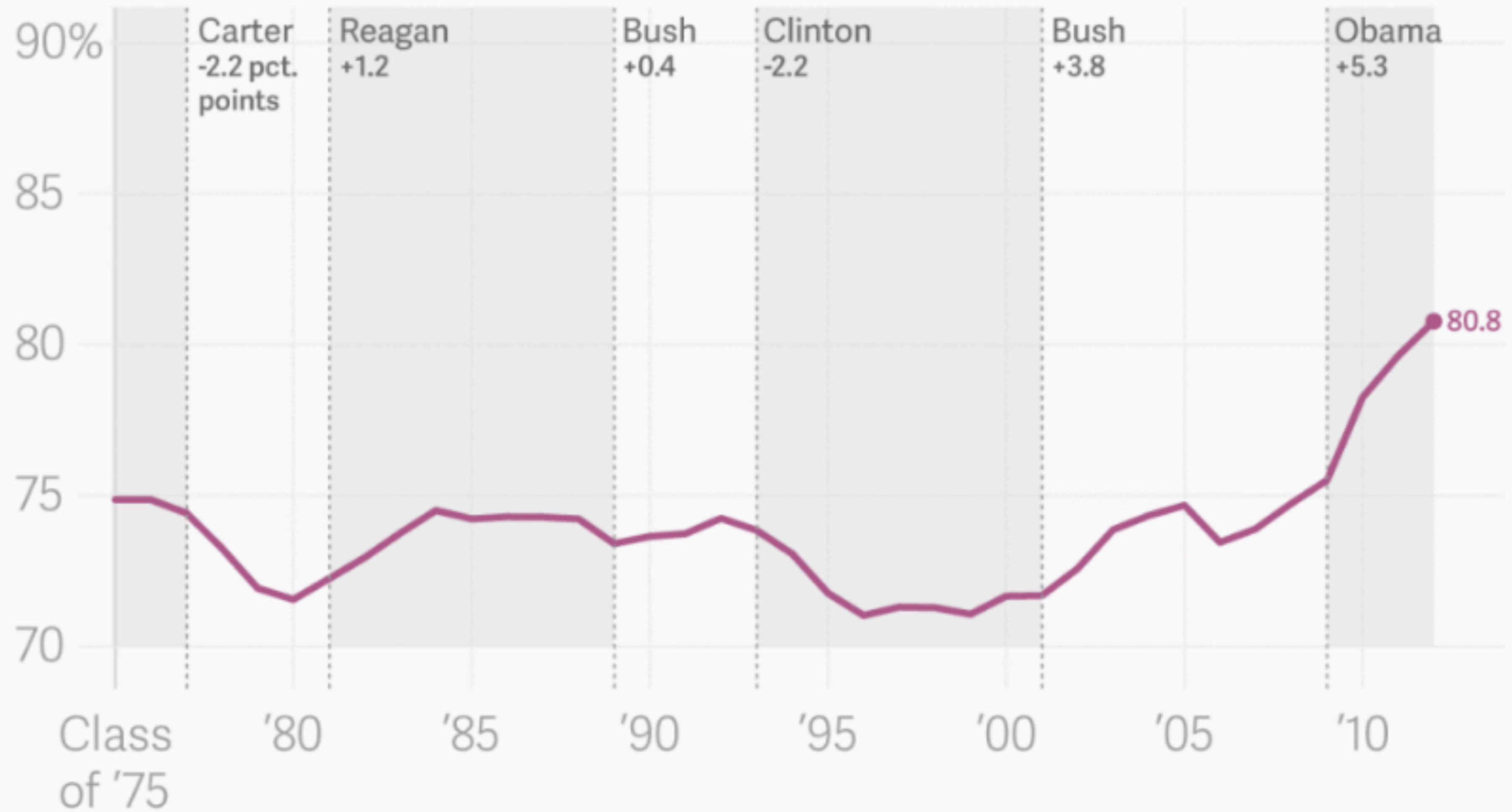


## High school graduation rates in the US





## High school graduation rates in the US, 1975 to 2012

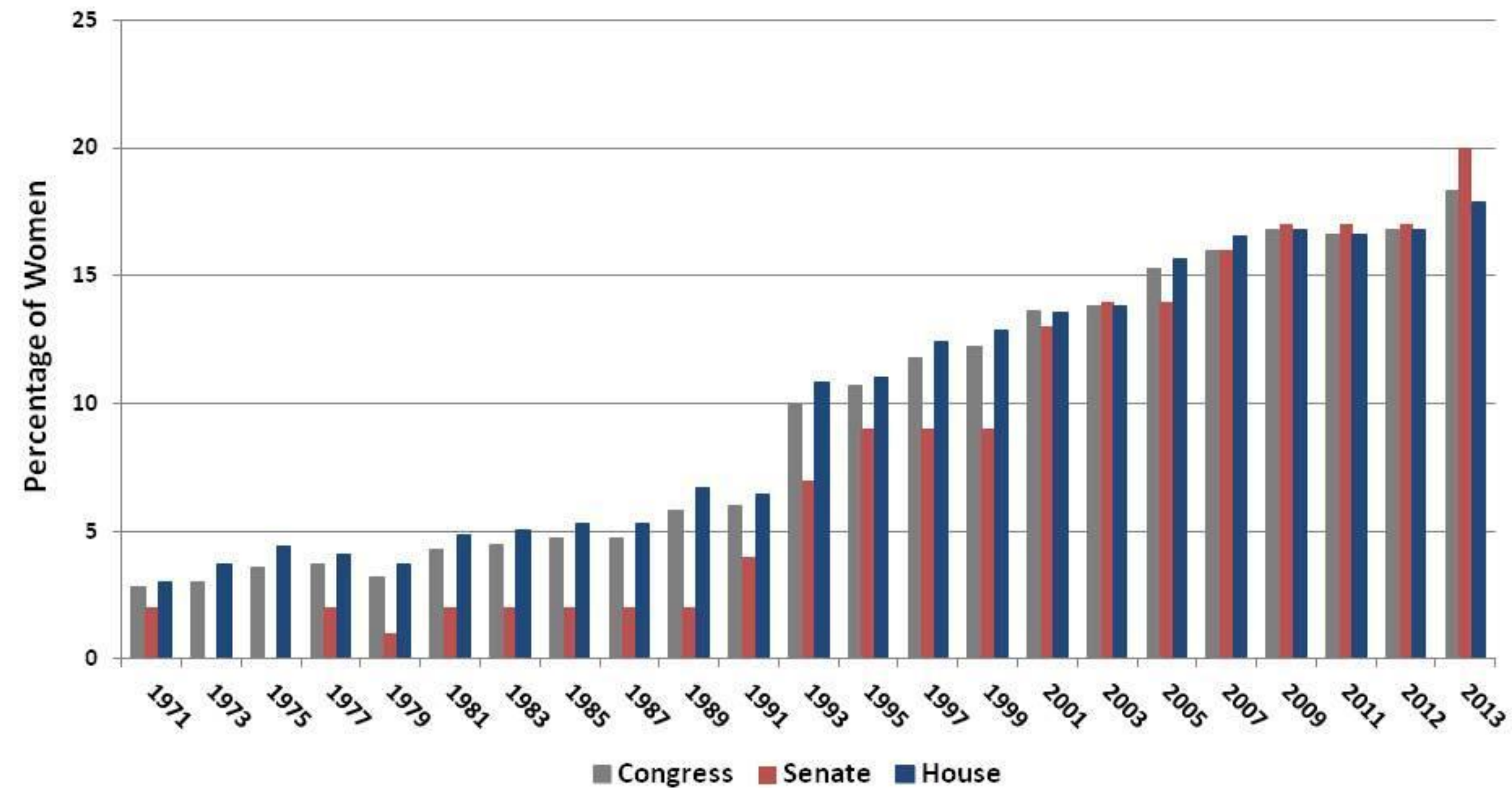


Quartz | qz.com

Data: National Center for Education Statistics



# Women in the U.S. Congress 1971-2013



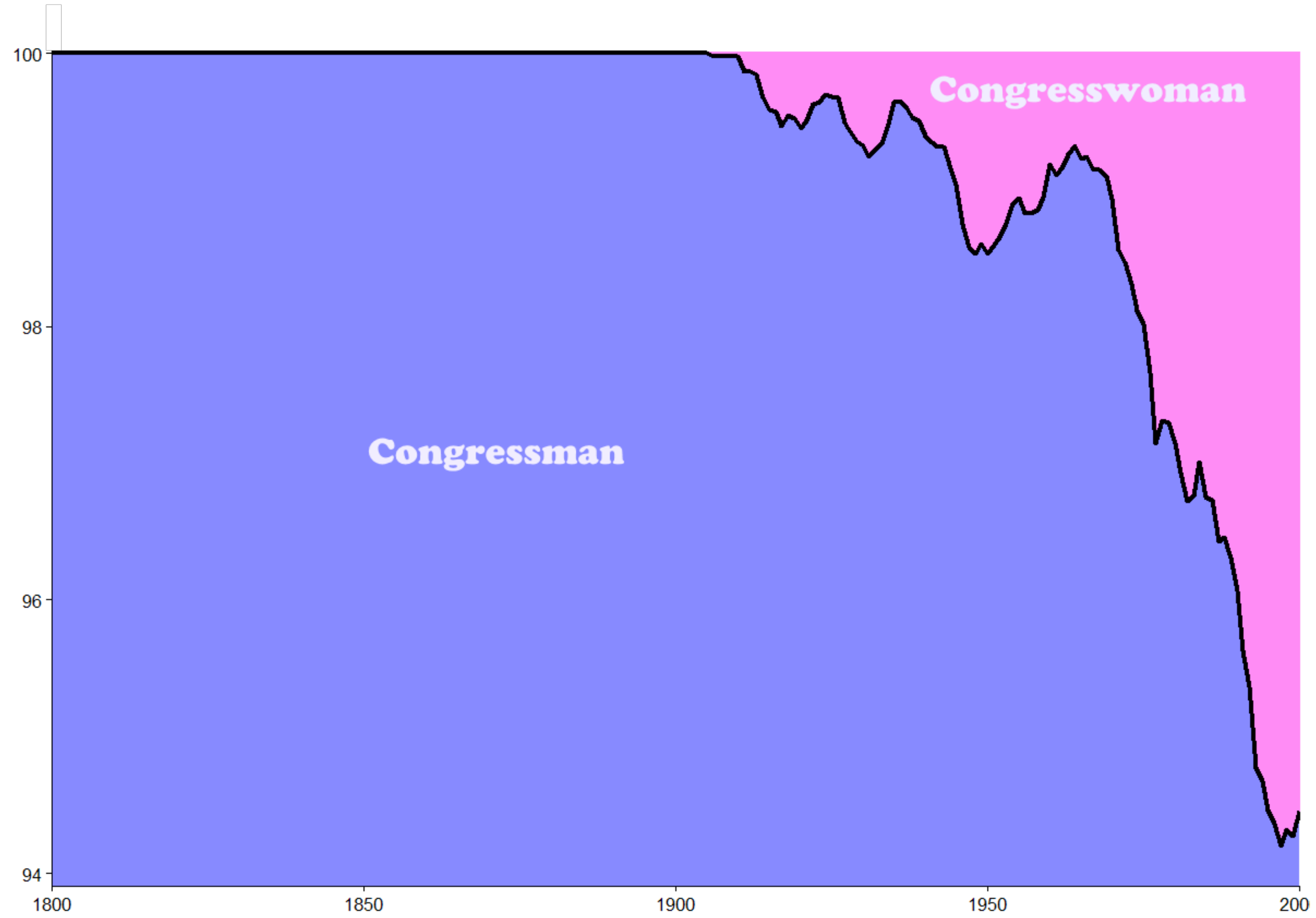
© Center for American Women and Politics  
Updated 1/8/13

**RUTGERS**  
Center for American  
Women and Politics

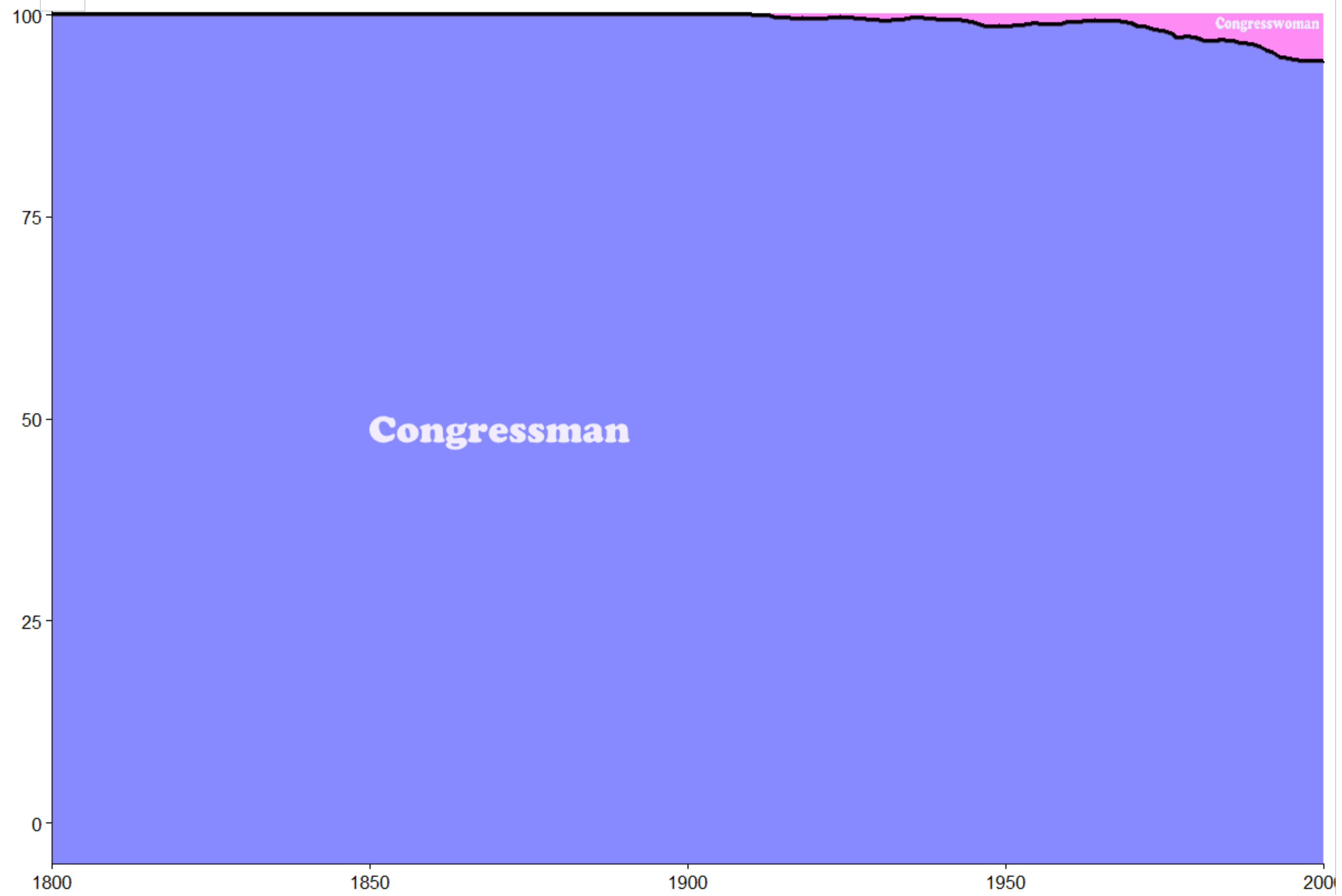




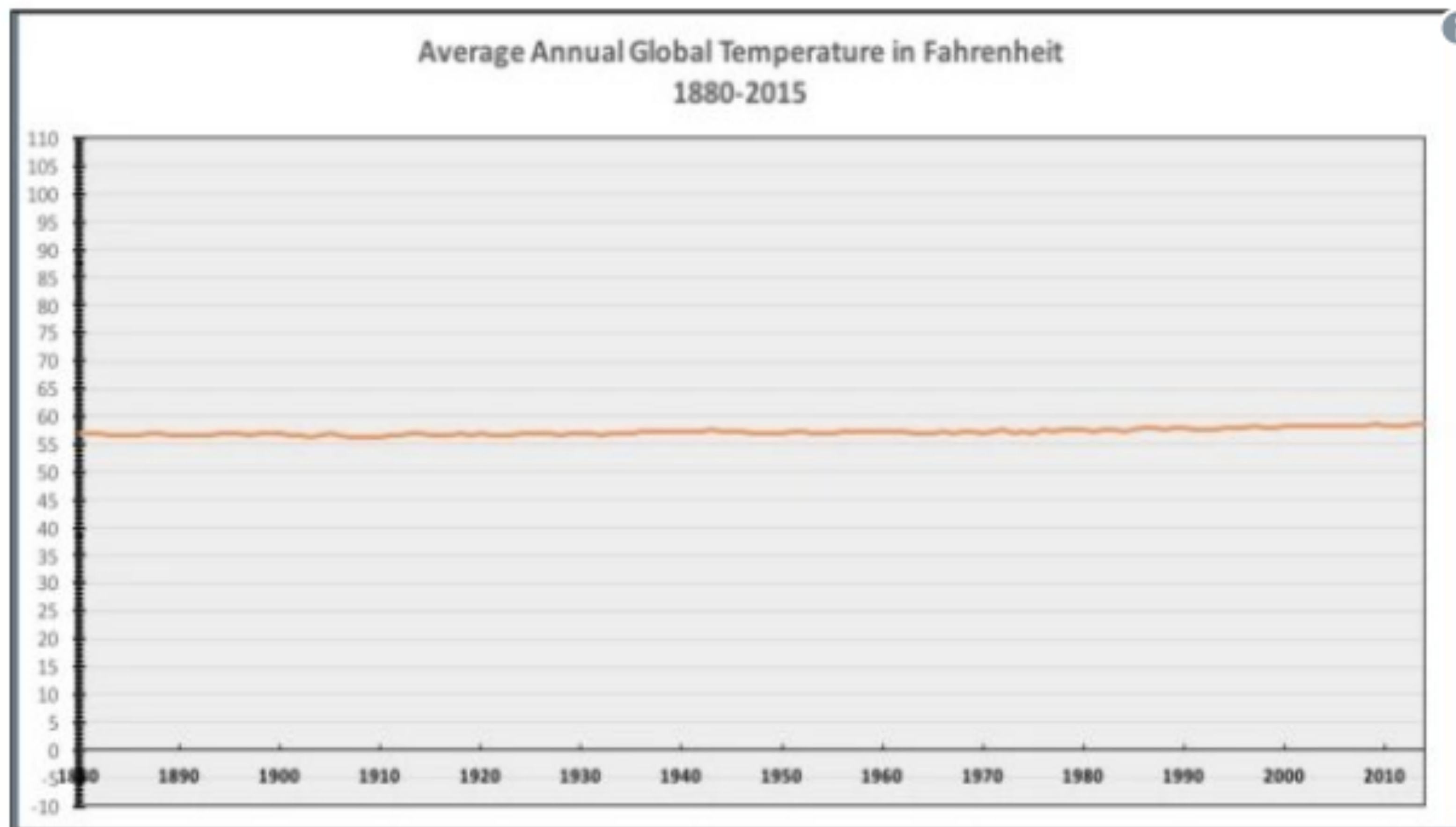
N-Gram, Congressman vs. Congresswoman as a total percentage of mentions (congressman + congresswoman)




N-Gram, Congressman vs. Congresswoman as a total percentage of mentions (congressman + congresswoman)







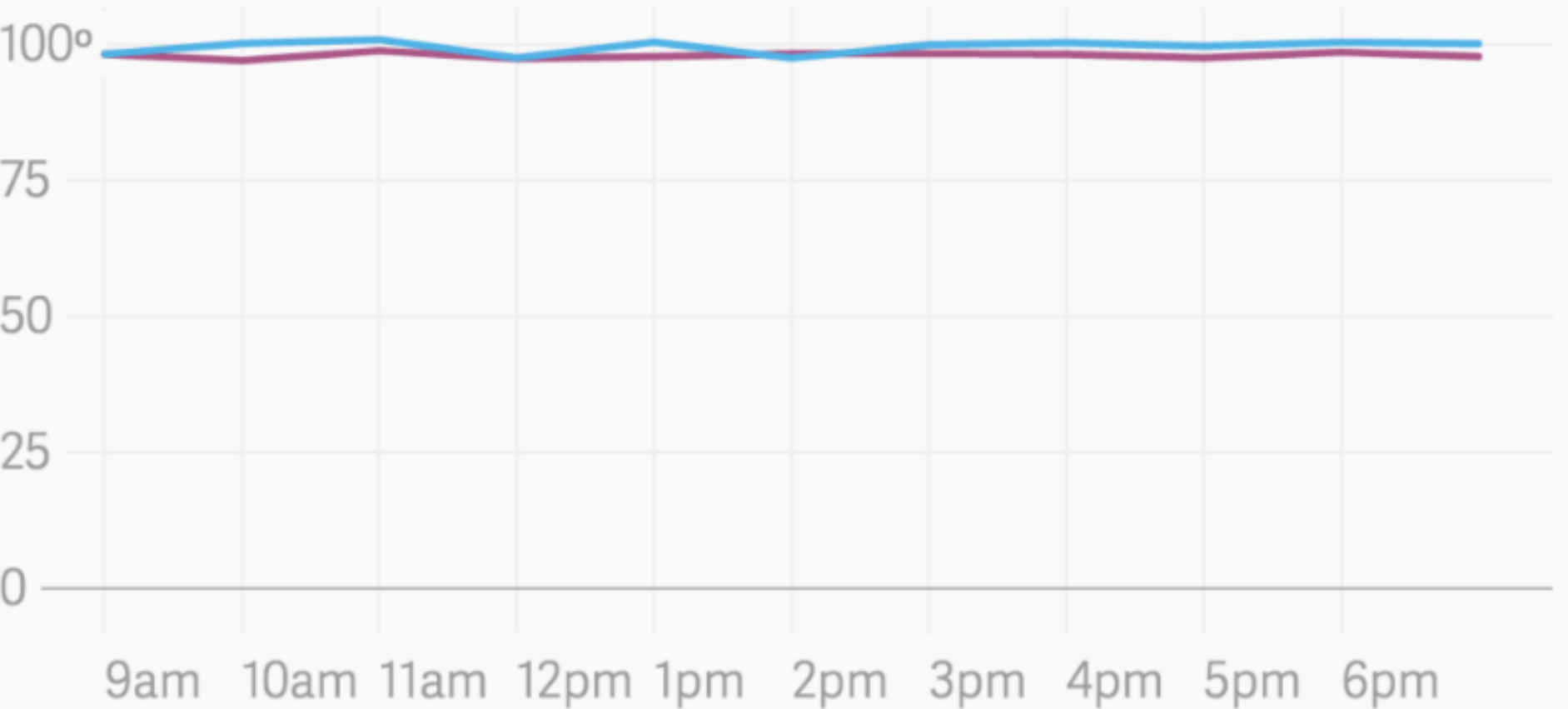
**NR** National Review   
@NRO



The only #climatechange chart you need to see. [natl.re/wPKpro](http://natl.re/wPKpro)

# Oral temperature

■ Sara ■ Bob





## Average global temperature, 1880 to 2014

60° fahrenheit

59

58

57

56

55

1880

1900

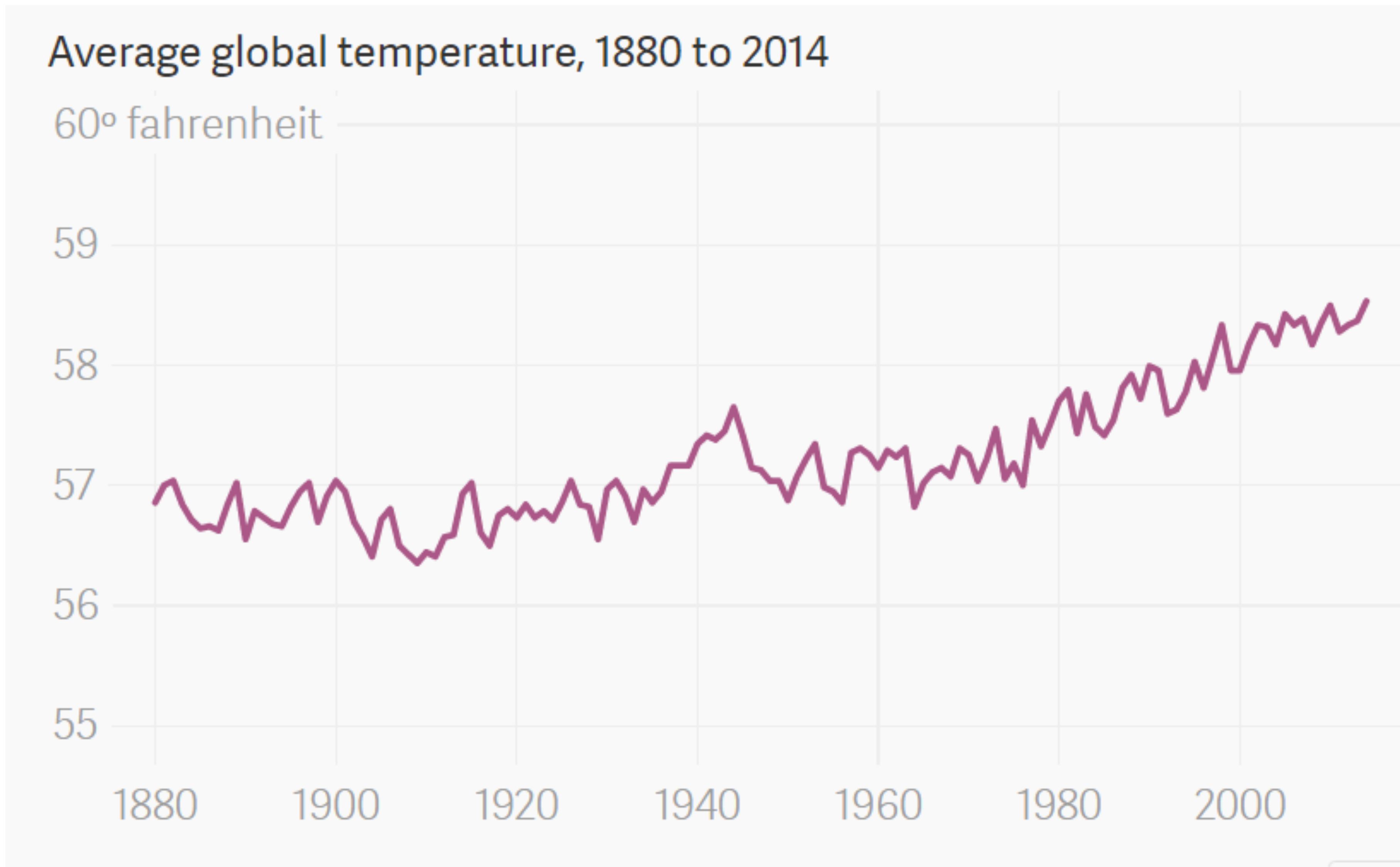
1920

1940

1960

1980

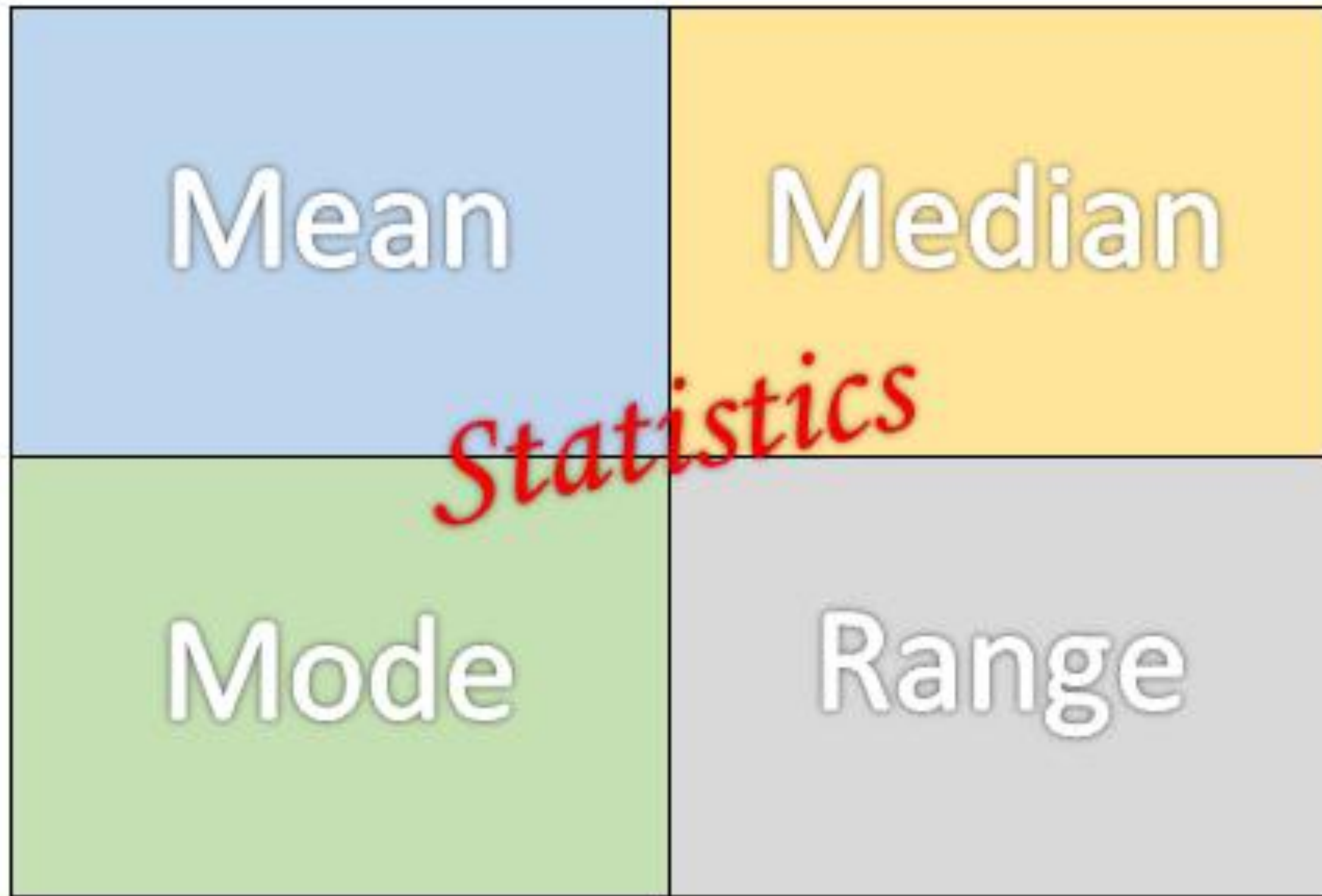
2000



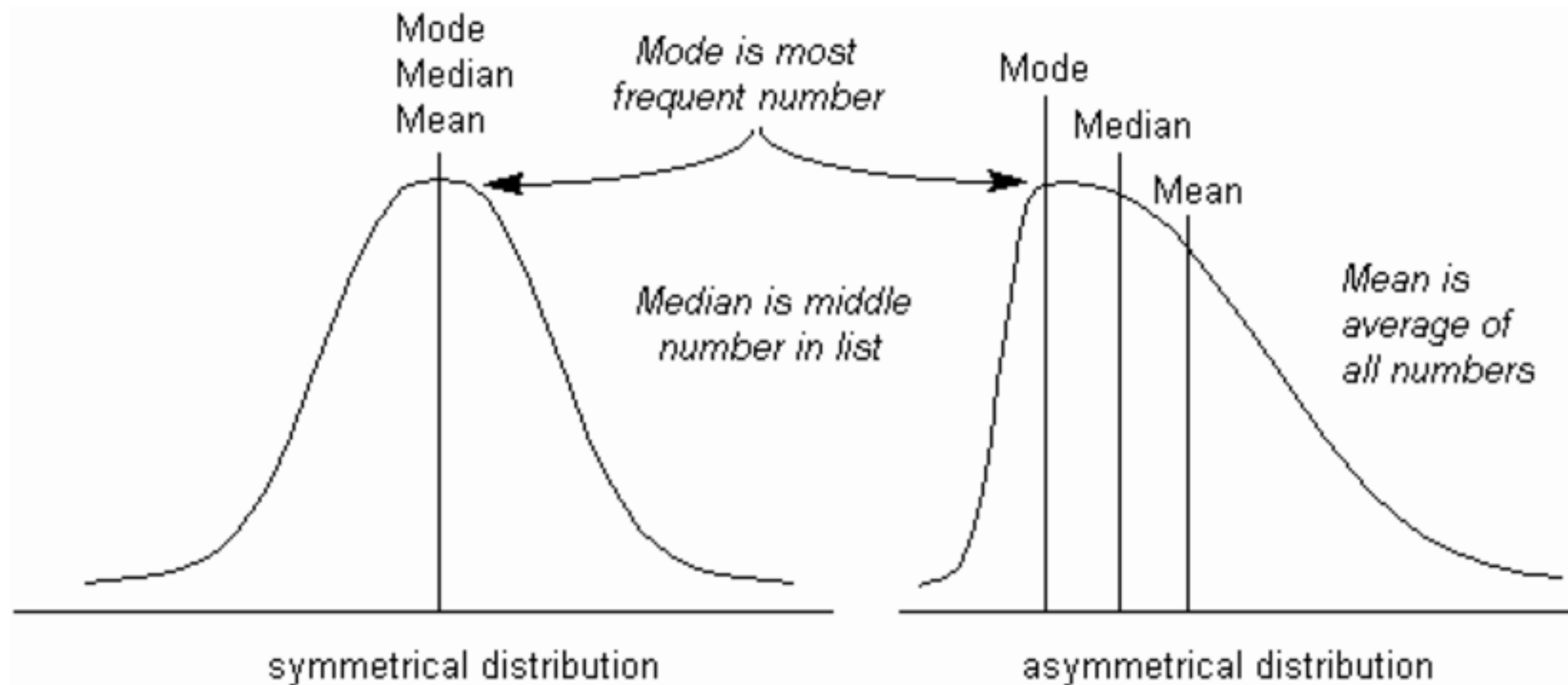
# Lying with Statistics







# Distribution Matters!





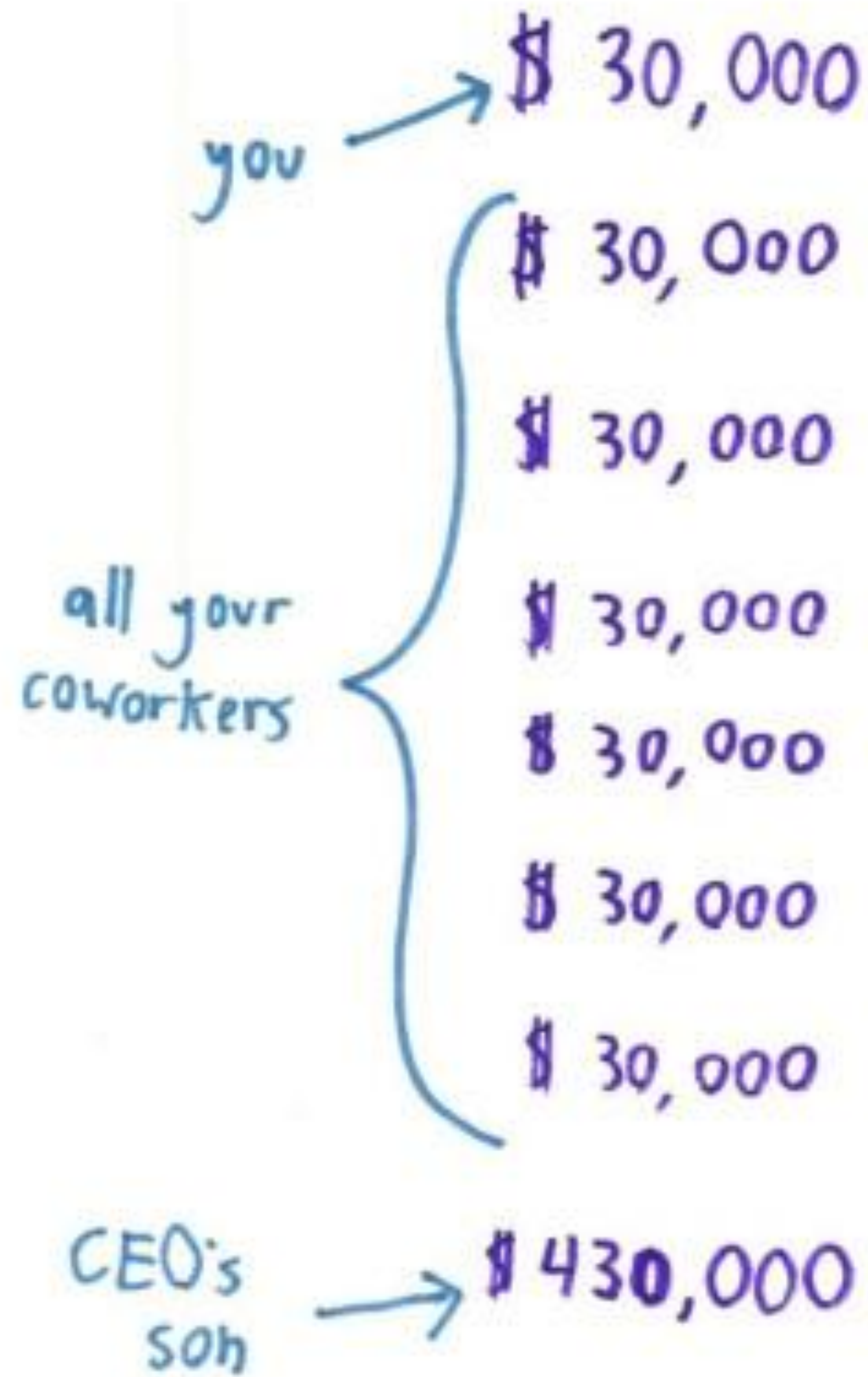
# Mean

What would my  
starting salary be?



I'll put it this way:  
our average starting  
salary is \$80,000!





Average: \$80,000.





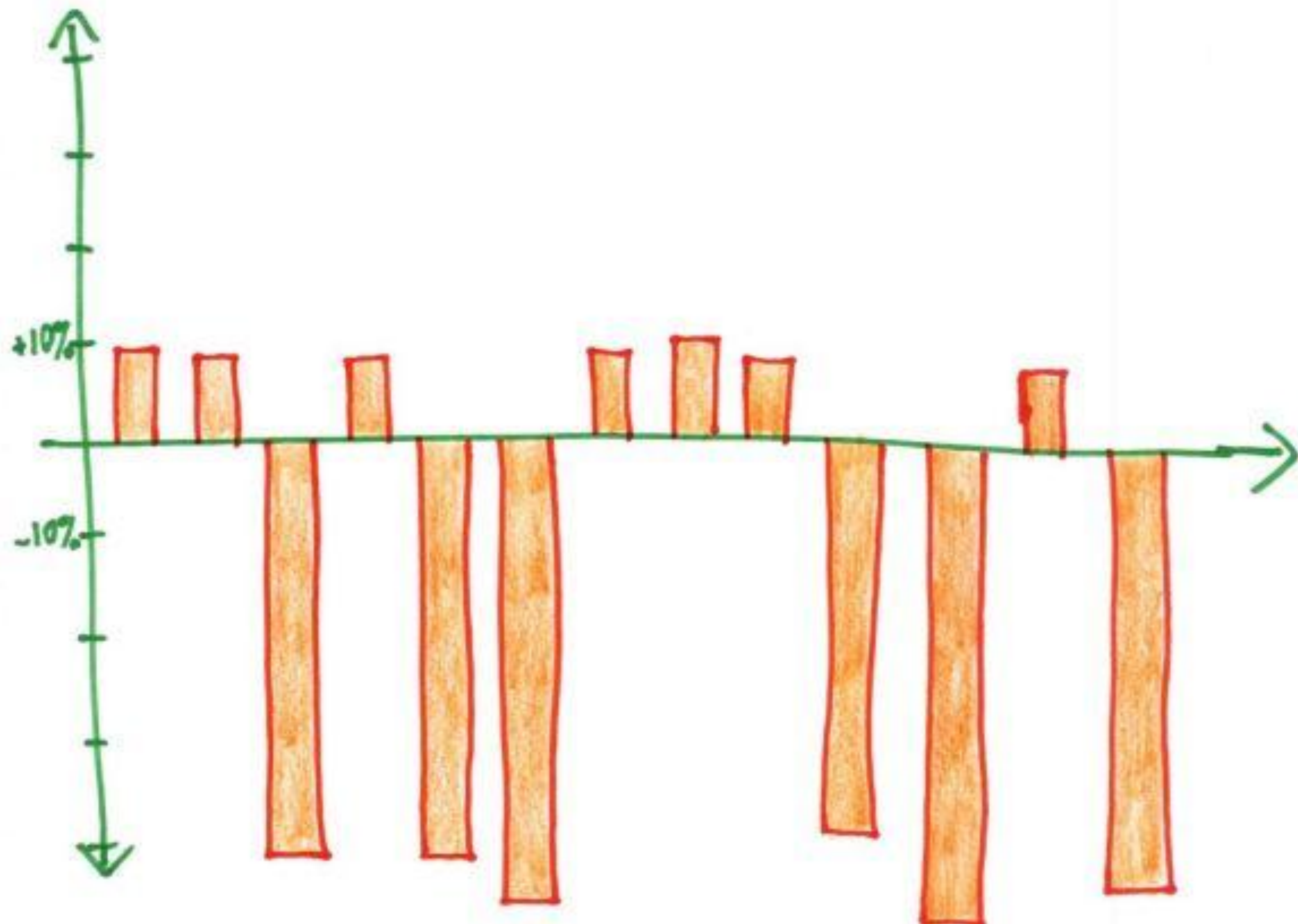
# Median

So, why should I  
invest with you?



Well, not to brag, but  
my fund has a median  
gain of 8% per year!







# Mode

How are you doing  
on your tests?



My modal category  
is 70-80%!







Score Category	Number of Tests
90s	0
80s	0
70s	2
60s	1
50s	1
40s	1
30s	1
20s	1

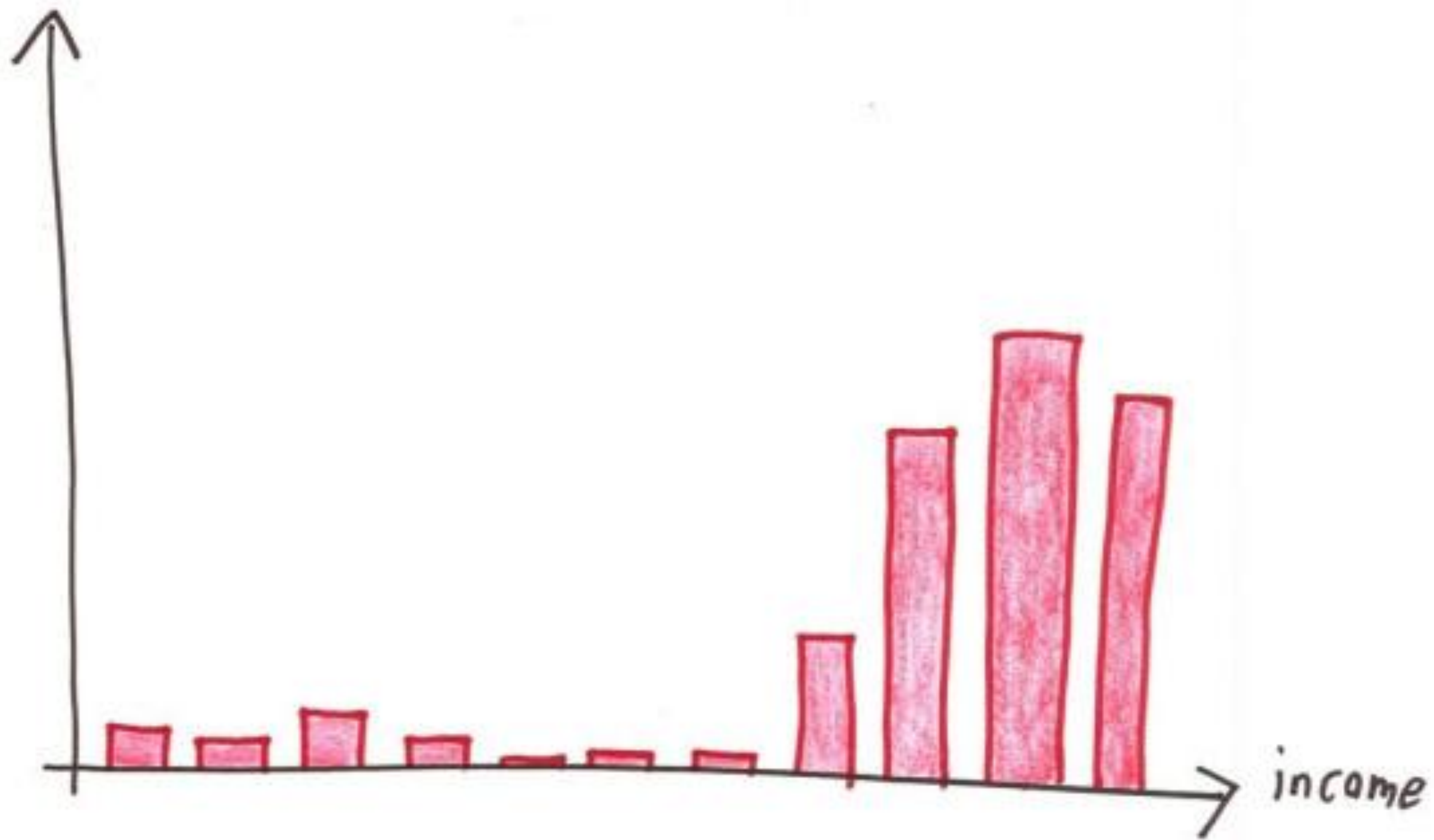


# Range

Our students come from a  
wide range of  
socioeconomic  
backgrounds...



number  
of students

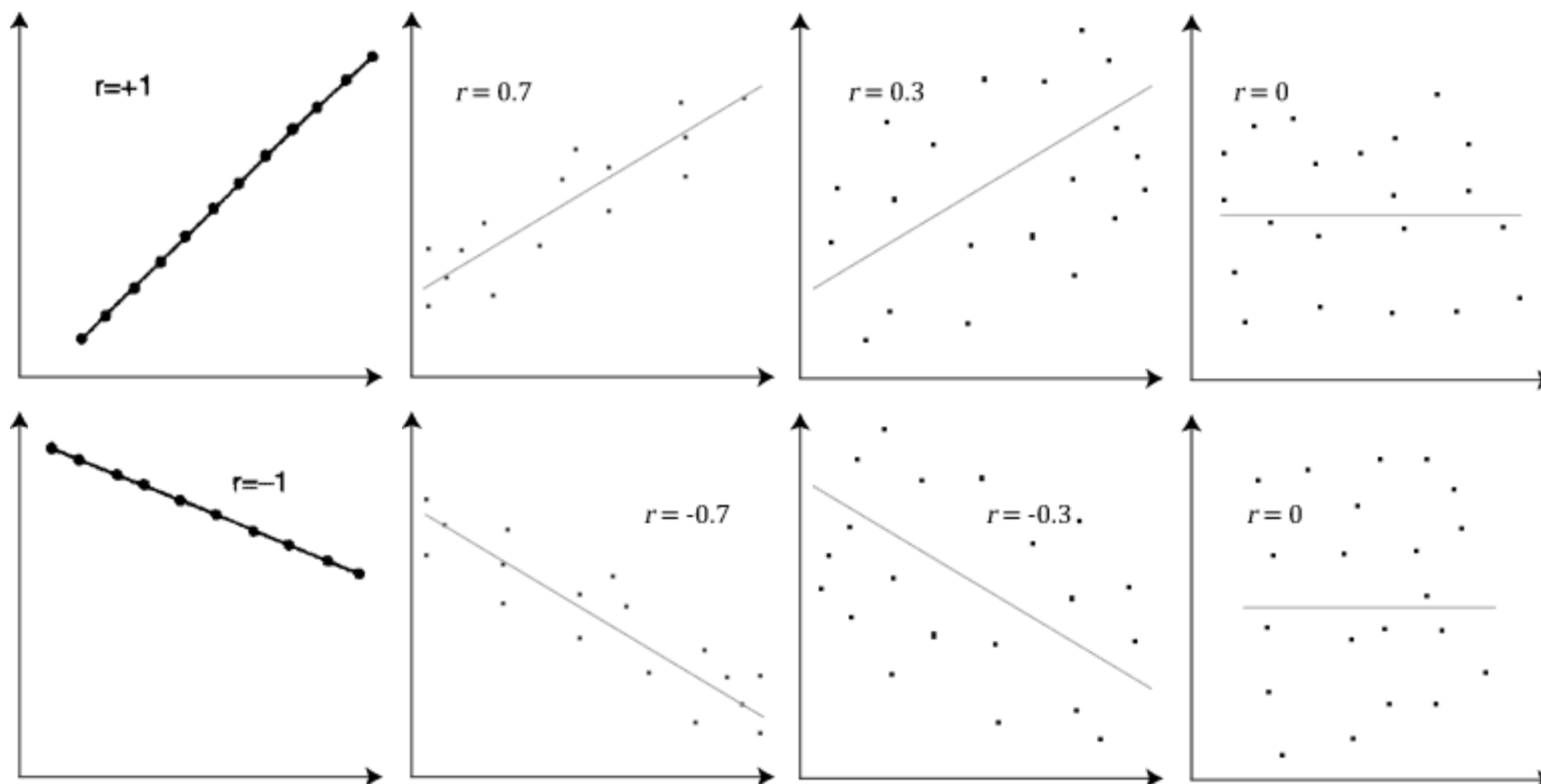




# Correlation Coefficient

Try our energy drink —  
it's highly correlated with  
performance!





**Correlation Coefficient**  
Shows Strength & Direction of Correlation





athletic  
performance

professional athletes we  
paid to guzzle the stuff



amount of  
drink consumed

# Variance





# Variance

These results are  
a disaster!



Sure, they look bad,  
but there's a lot of variance!

Don't rush  
to judgment.



