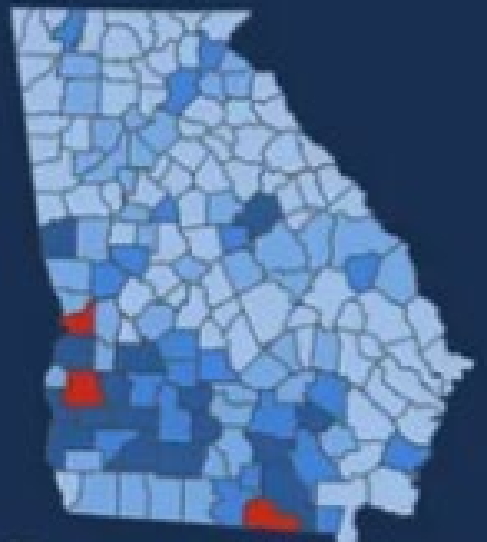
Misleading Visuals

Cases per 100K



Cases per 100K

None
1 - 620
621 - 1,070
1,071 - 1,622
1,623 - 2,960
2,961 - 4,661

Cases per 100K

Cases per 100K

None
1 - 949
950 - 1,555
1,556 - 2,336
2,337 - 3,768
3,769 - 5,165

Volksabstimmung und Großdeutscher Reichstag

Stimmzettel

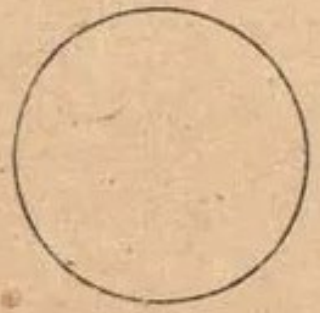
Bist Du mit der am 13. März 1938 vollzogenen

Wiedervereinigung Österreichs mit dem Deutschen Reich

einverstanden und stimmst Du für die Liste unseres Führers

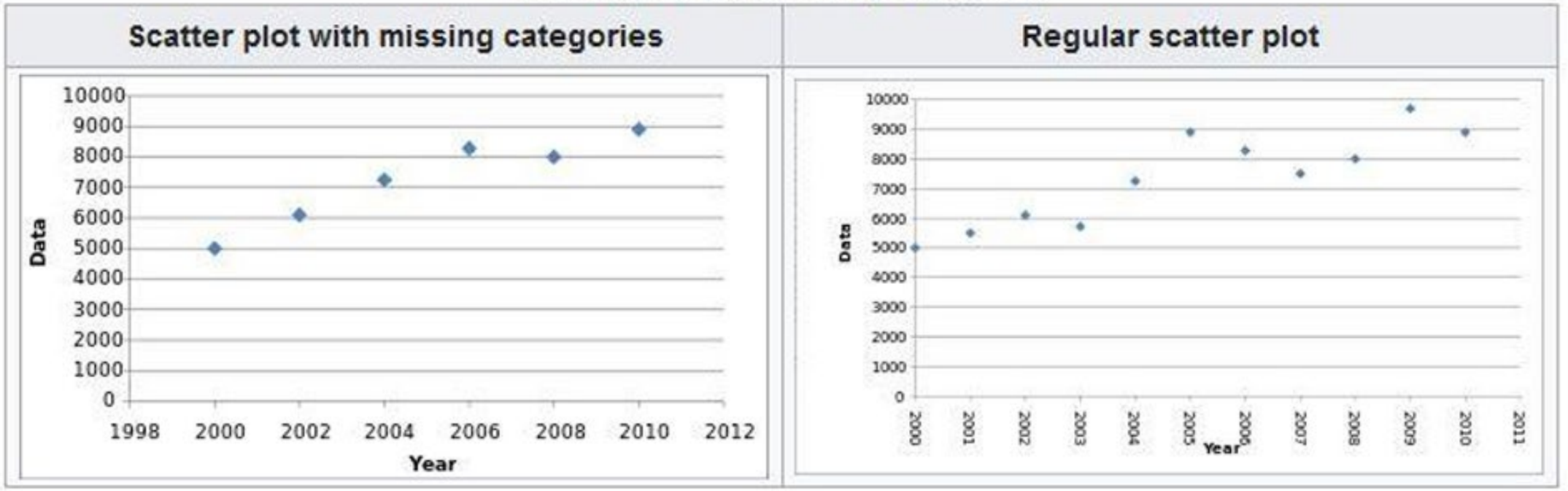
Adolf Hitler?

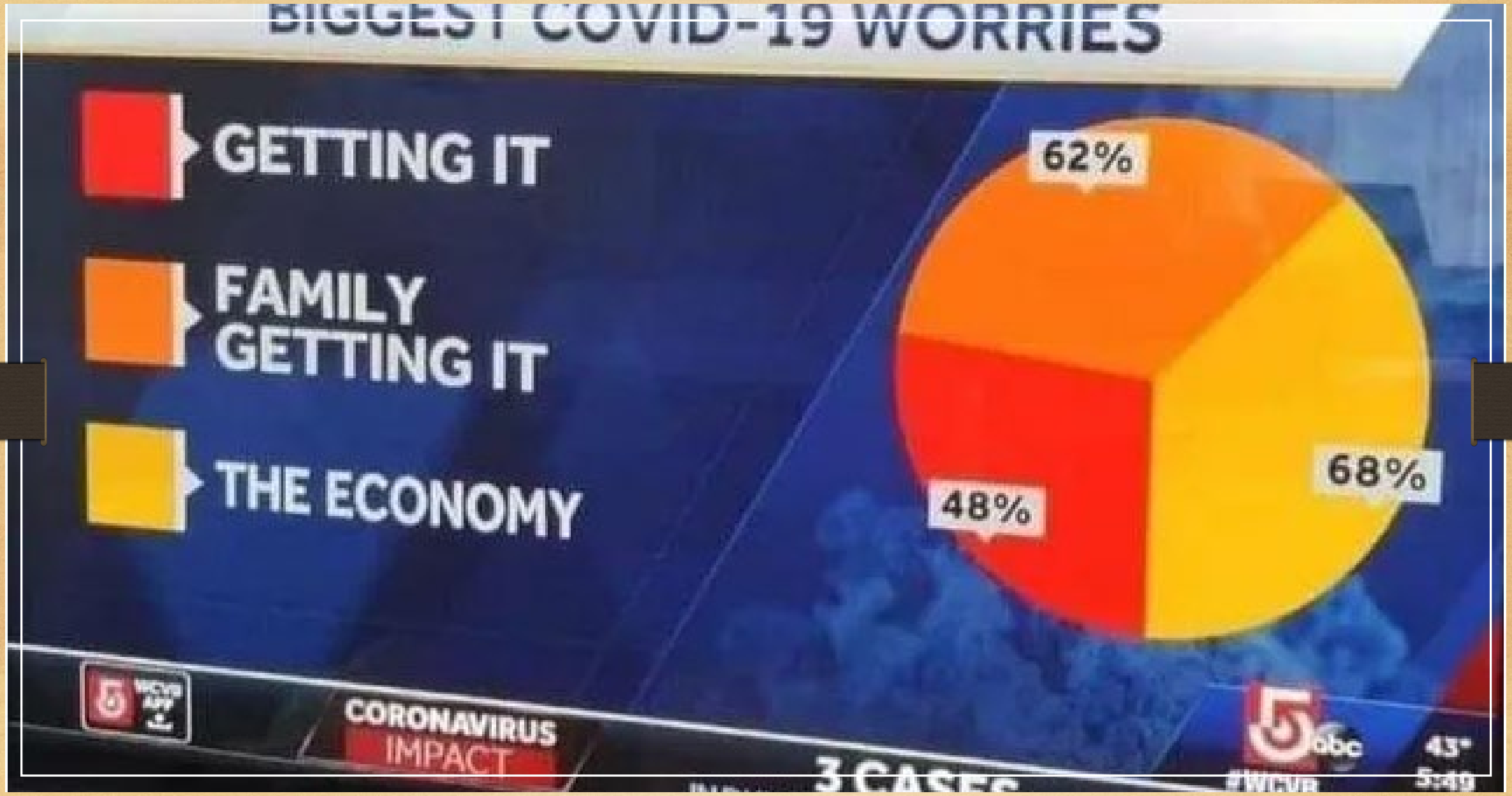
Ja



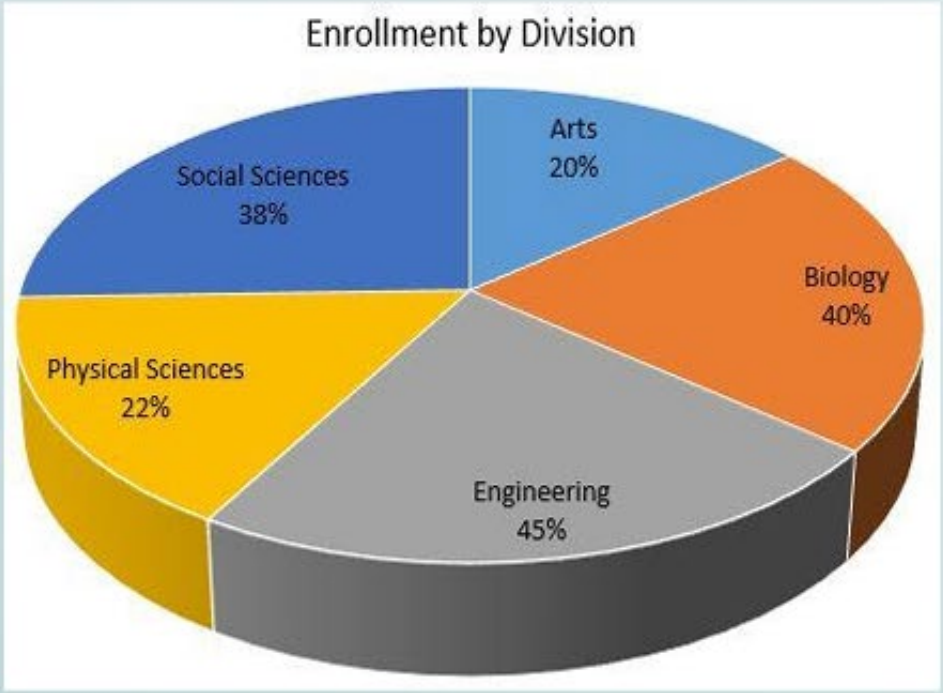
Nein

Scatter plot with missing categories

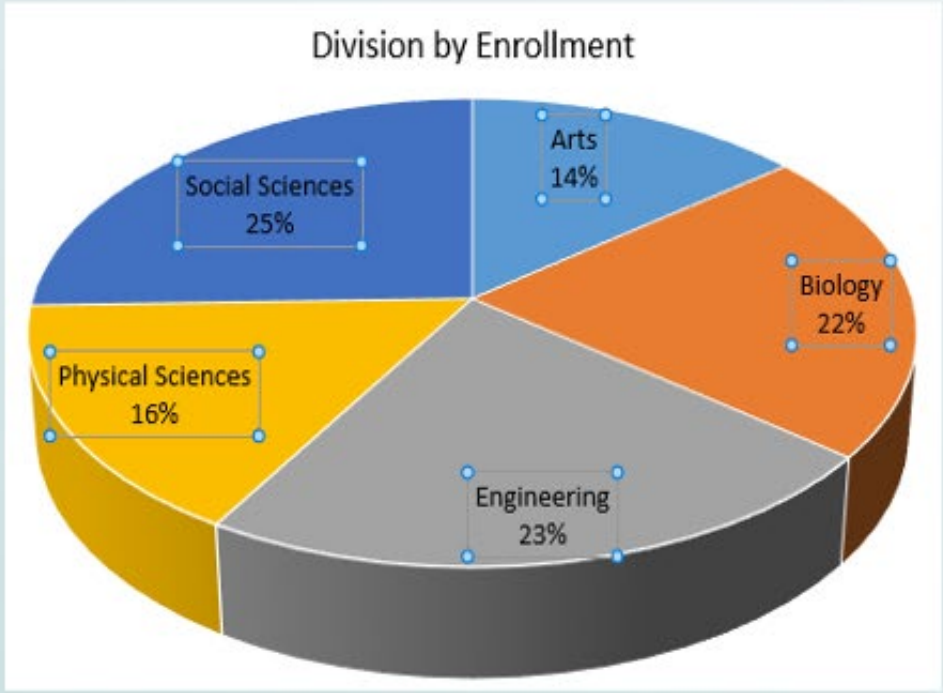



BIGGEST COVID-19 WORRIES
GETTING IT
FAMILY GETTING IT
THE ECONOMY
62%
48%
68%
CORONAVIRUS IMPACT
5 abc
43°
5:49

Bad


Enrollment by Division
Arts
20%
Biology
40%
Engineering
45%
Physical Sciences
22%
Social Sciences
38%

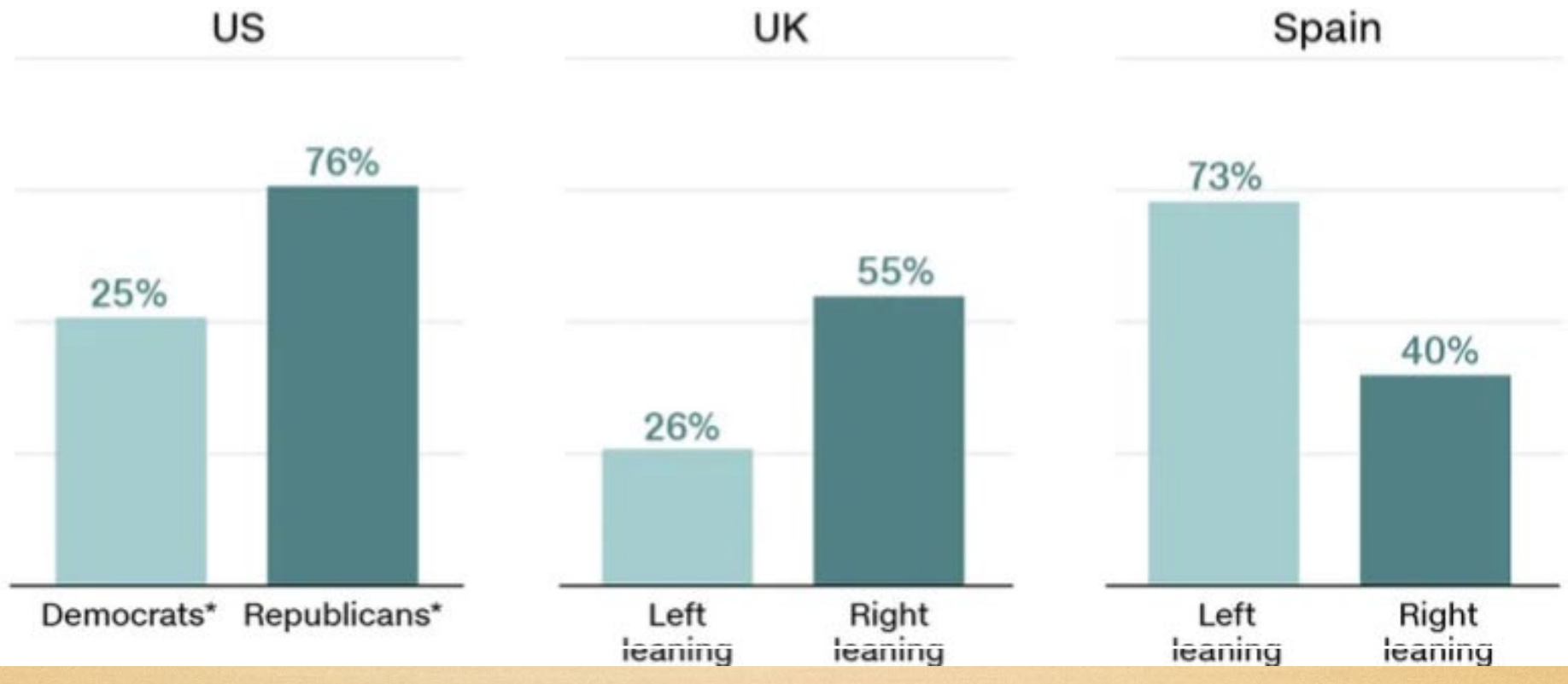
Good

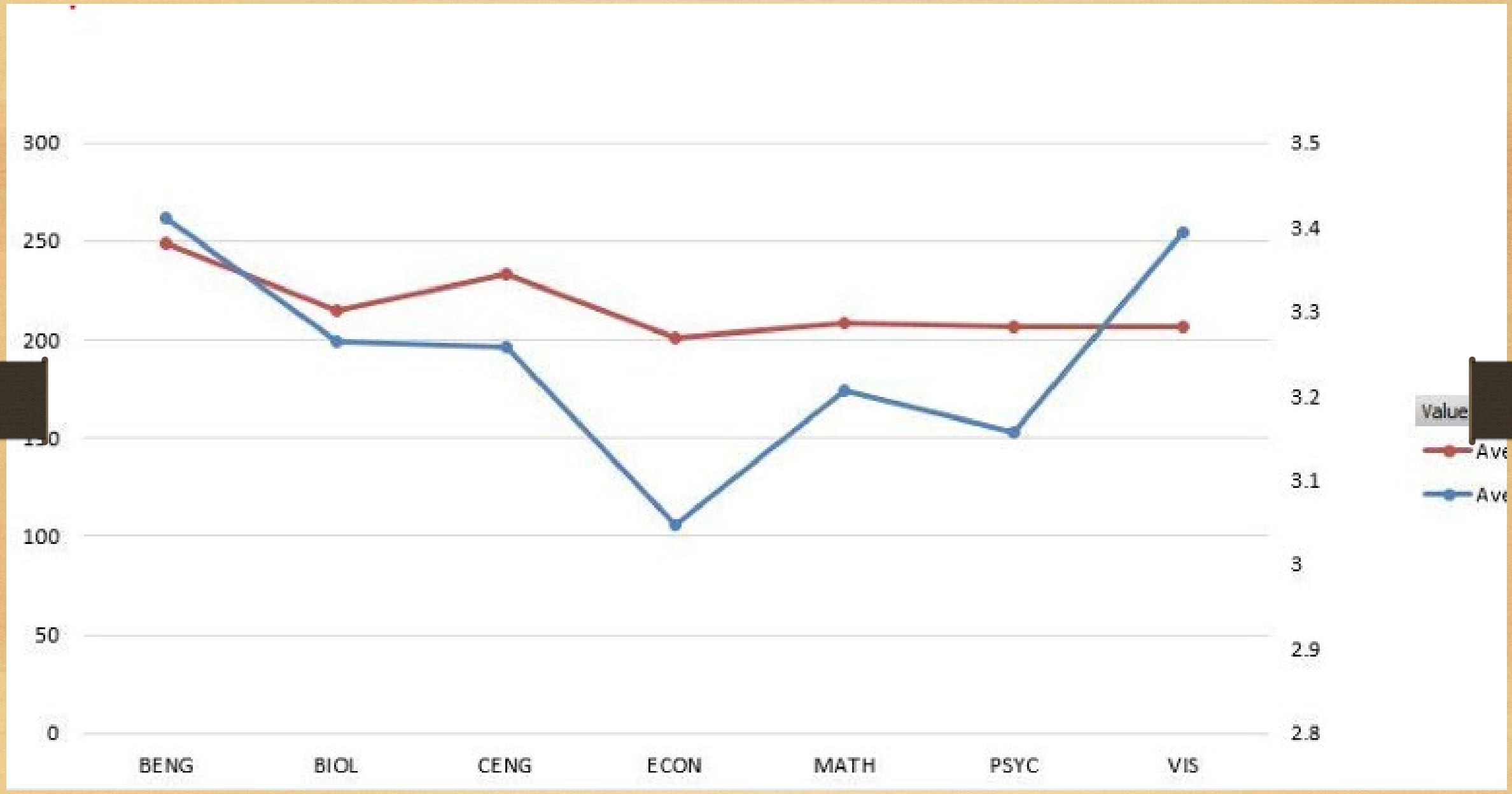

Division by Enrollment
Arts
14%
Biology
22%
Engineering
23%
Physical Sciences
16%
Social Sciences
25%

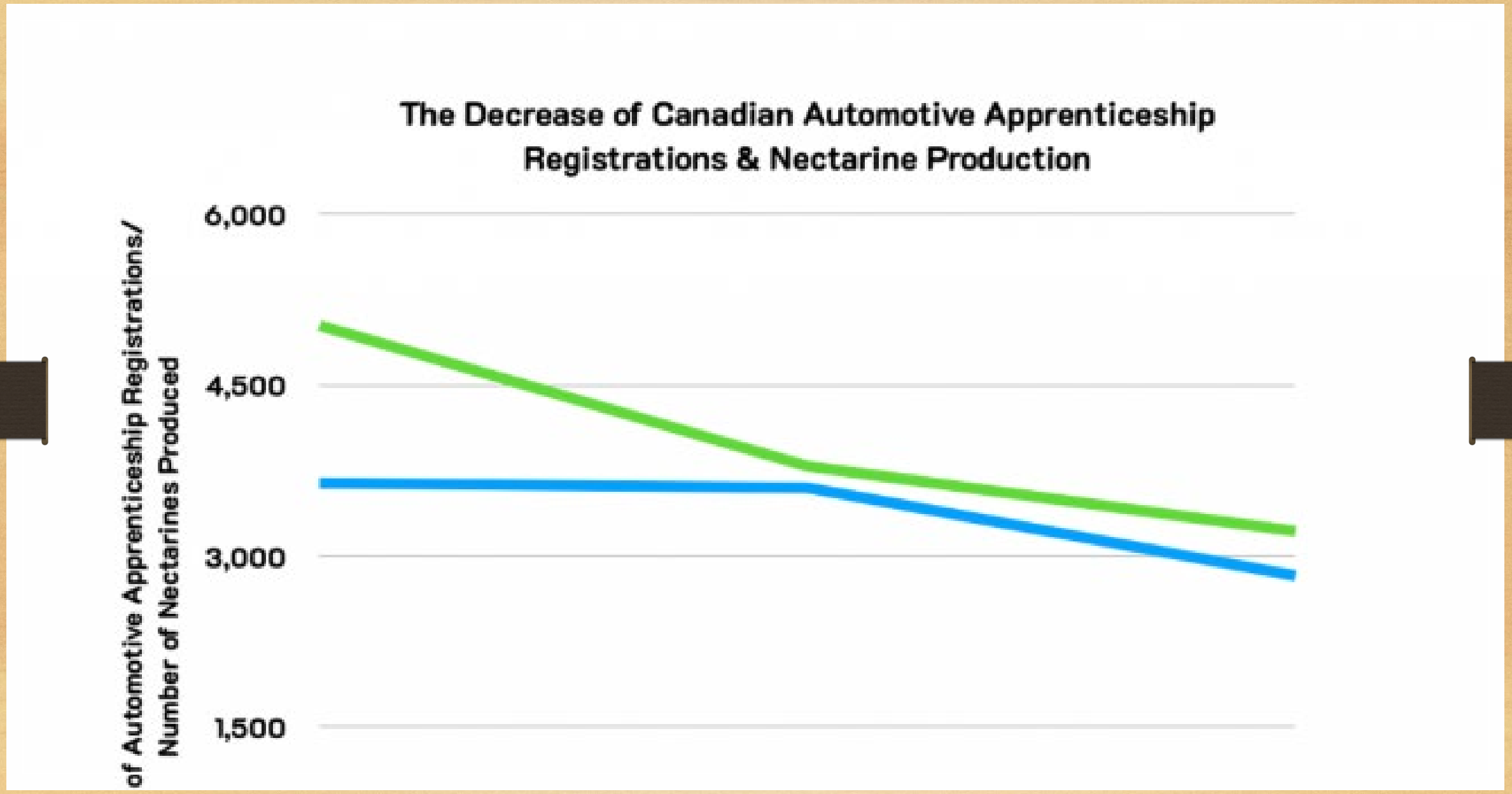
CNN World Africa Americas Asia Australia China Europe India Middle East United Kingdom

Politics predict position

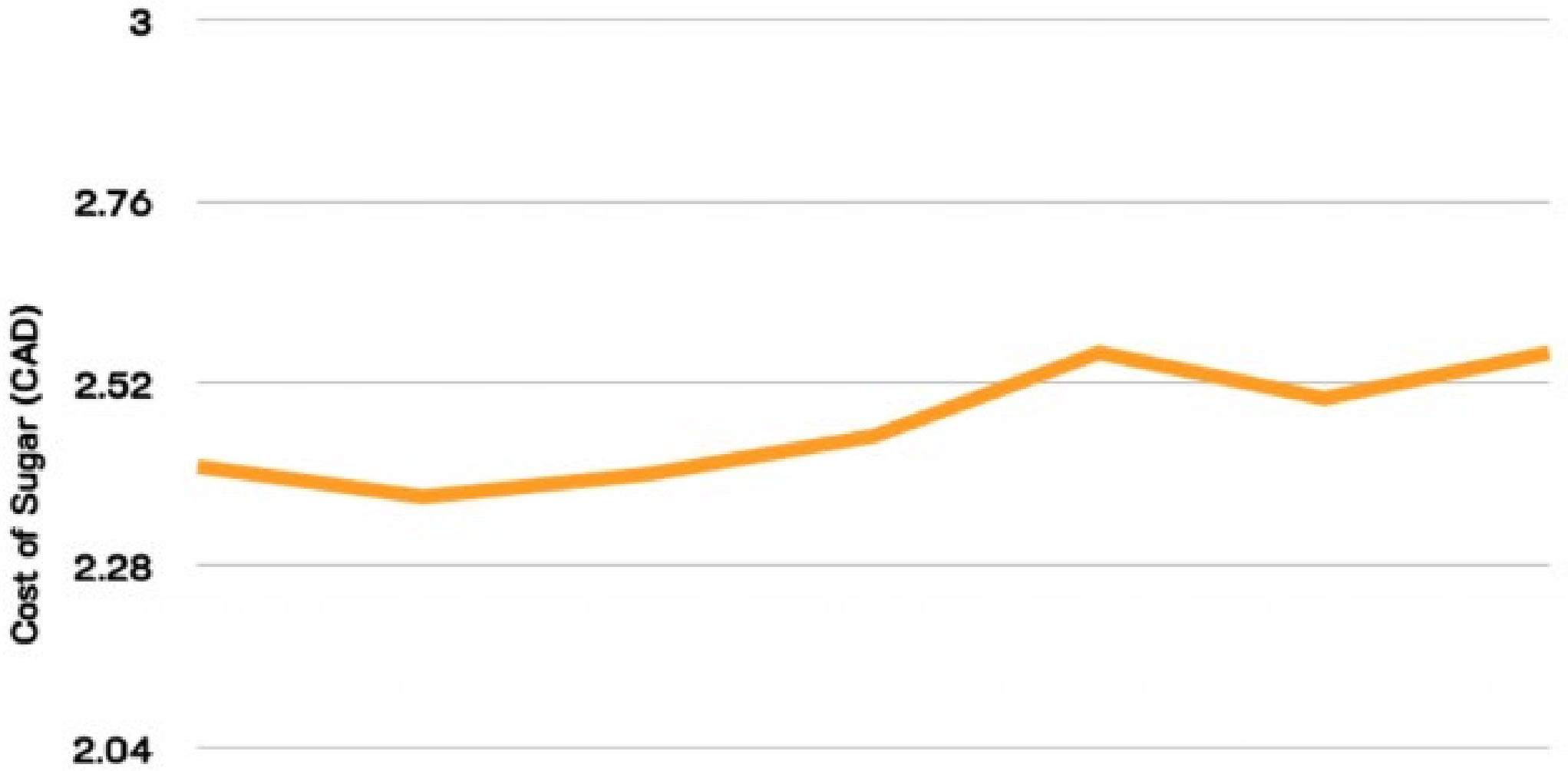
People are more likely to say their government has done well if they are on the government's side of the political spectrum.

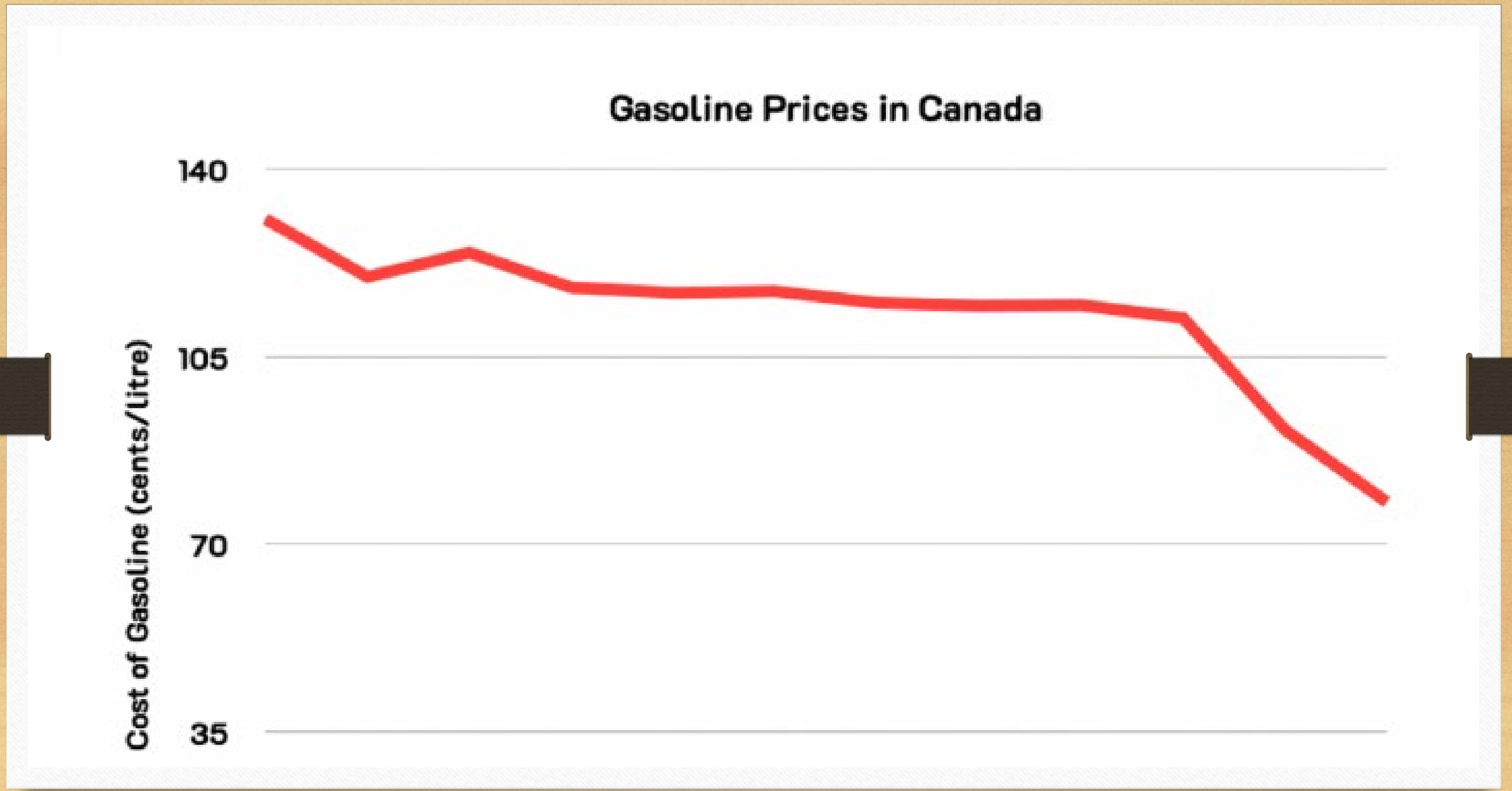


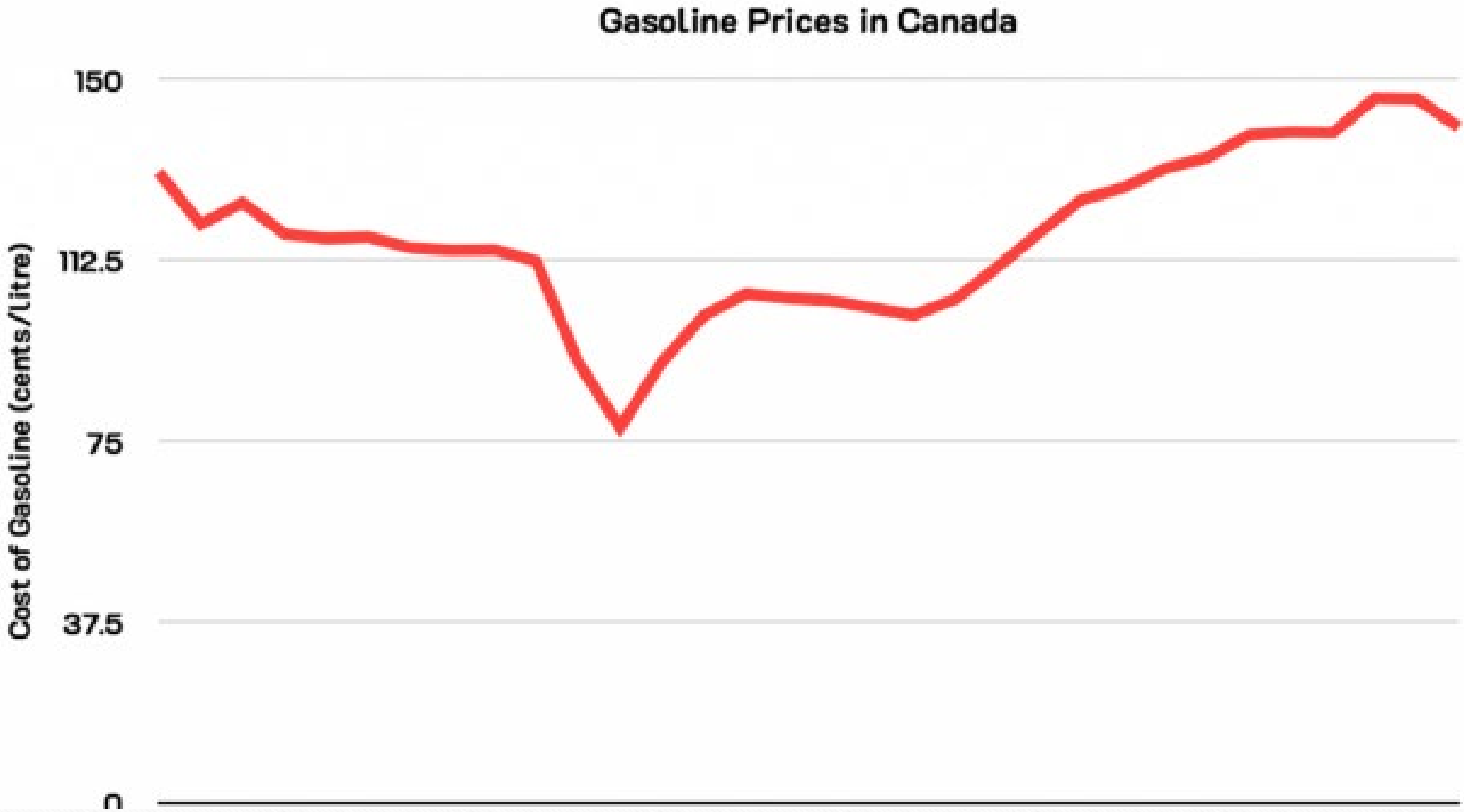

300
250
200
100
50
0
3.5
3.4
3.3
3.2
3.1
3
2.9
2.8
BENG
BIOL
CENG
ECON
MATH
PSYC
VIS
Value

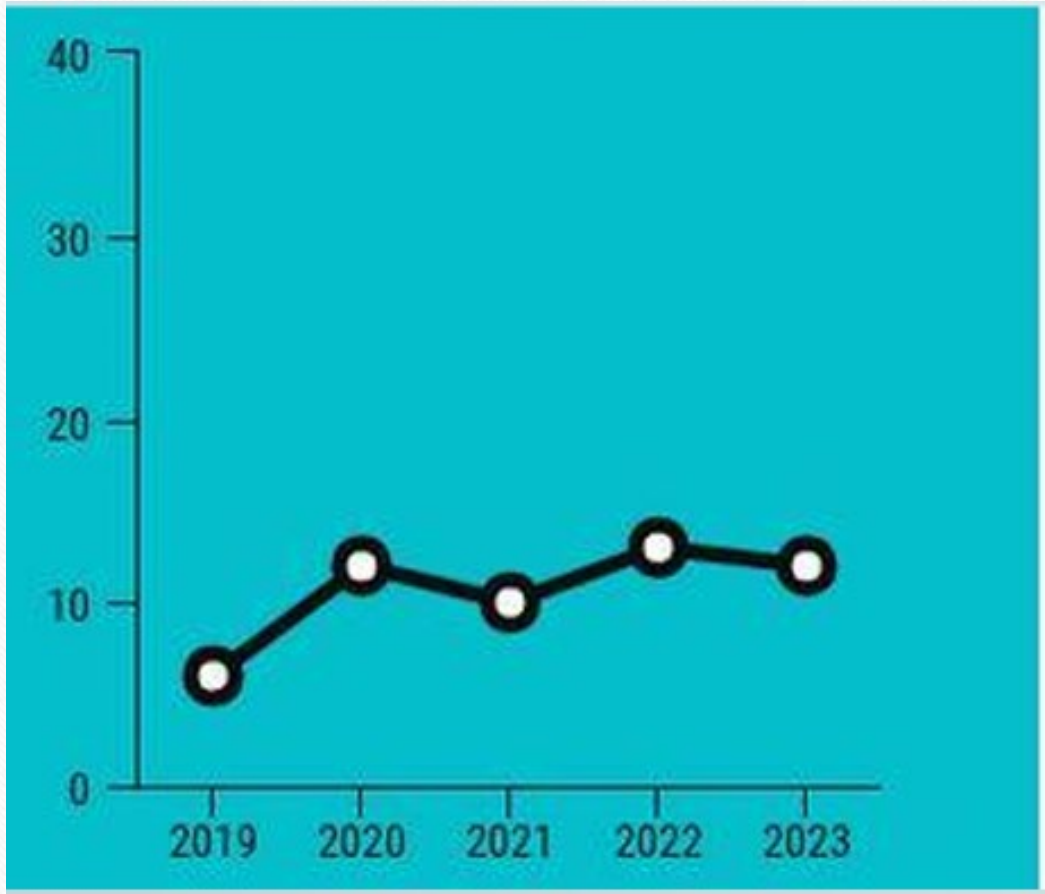

The Decrease of Canadian Automotive Apprenticeship Registrations & Nectarine Production
6,000
4,500
3,000
1,500
of Automotive Apprenticeship Registrations/
Number of Nectarines Produced

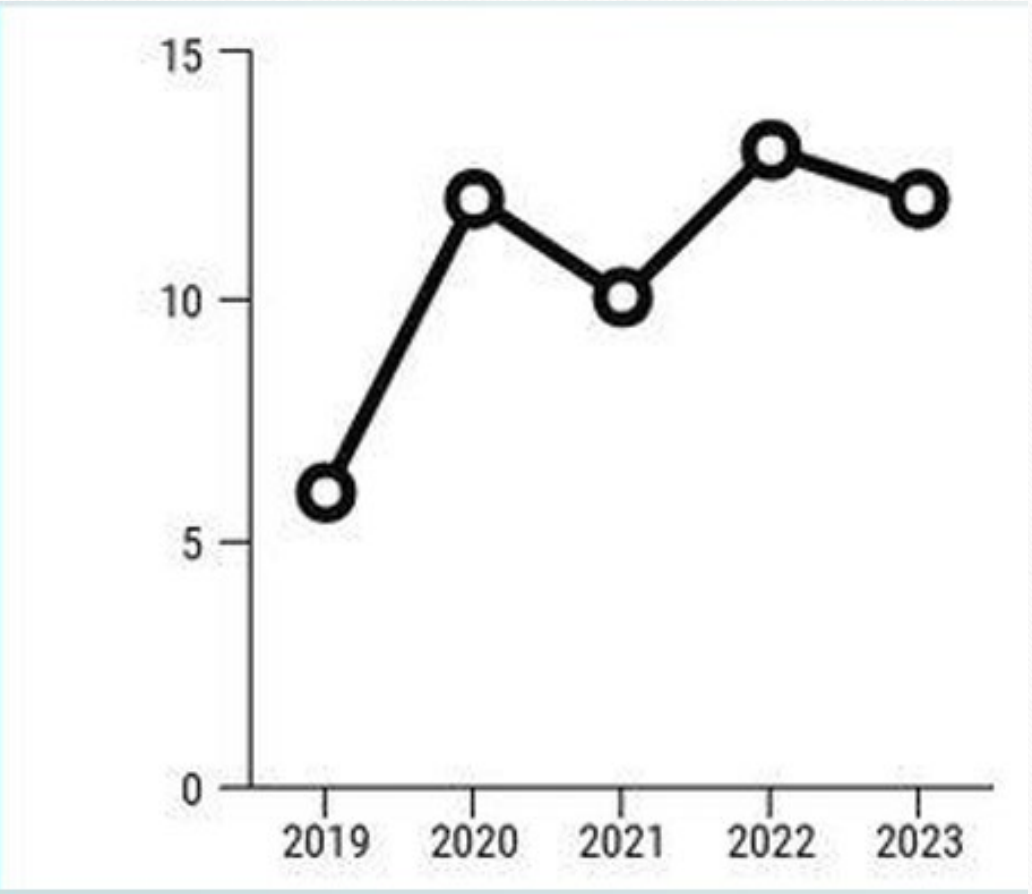
Cost of Sugar (CAD)
8
6
4
2


3
2.76
2.52
2.28
2.04
Cost of Sugar (CAD)

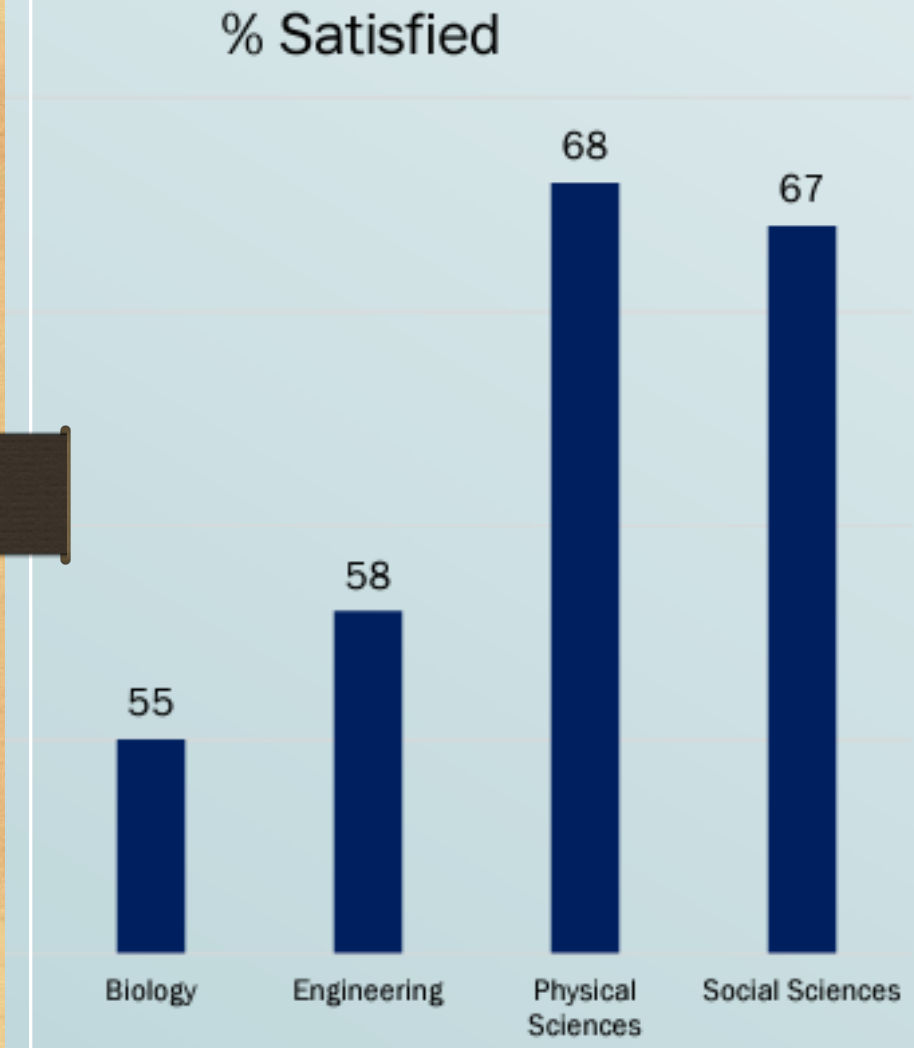

Gasoline Prices in Canada
140
105
70
35
Cost of Gasoline (cents/Litre)


Gasoline Prices in Canada
Cost of Gasoline (cents/Litre)
150
112.5
75
37.5
0


40
30
20
10
0
2019
2020
2021
2022
2023

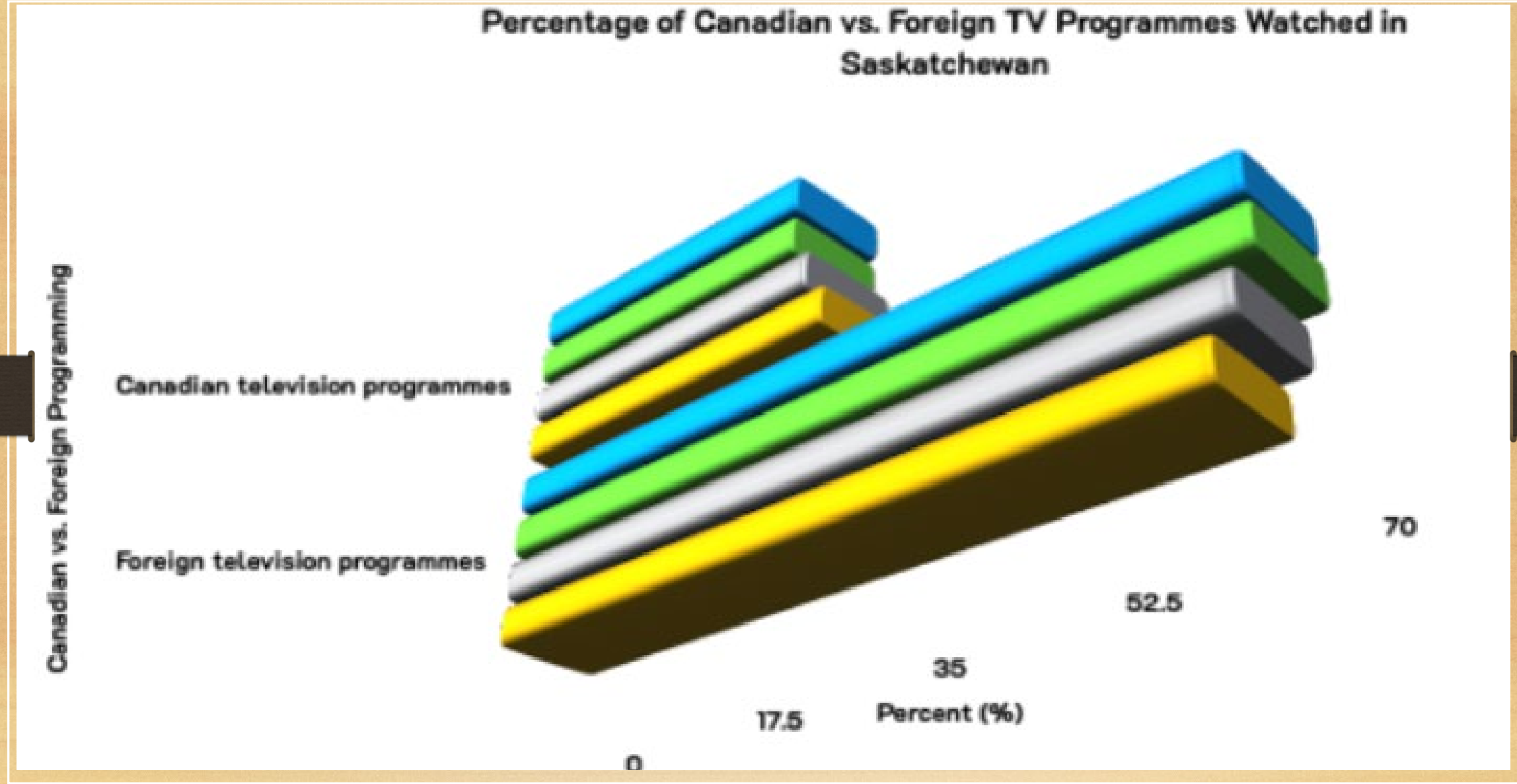

15
10
5
0
2019
2020
2021
2022
2023

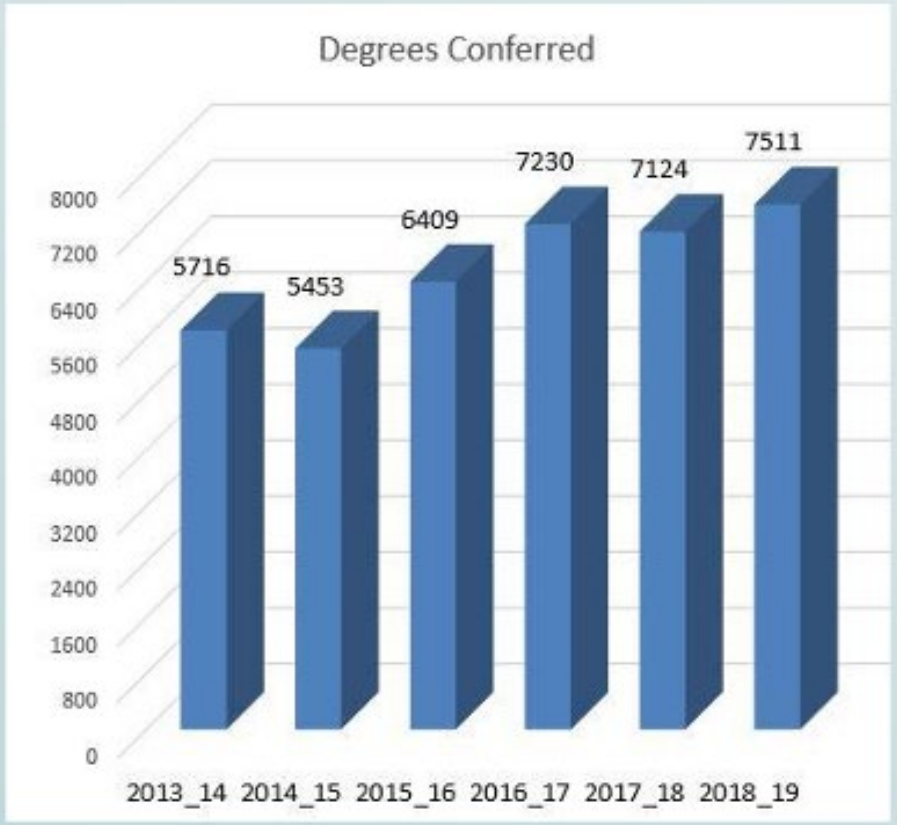
Bad

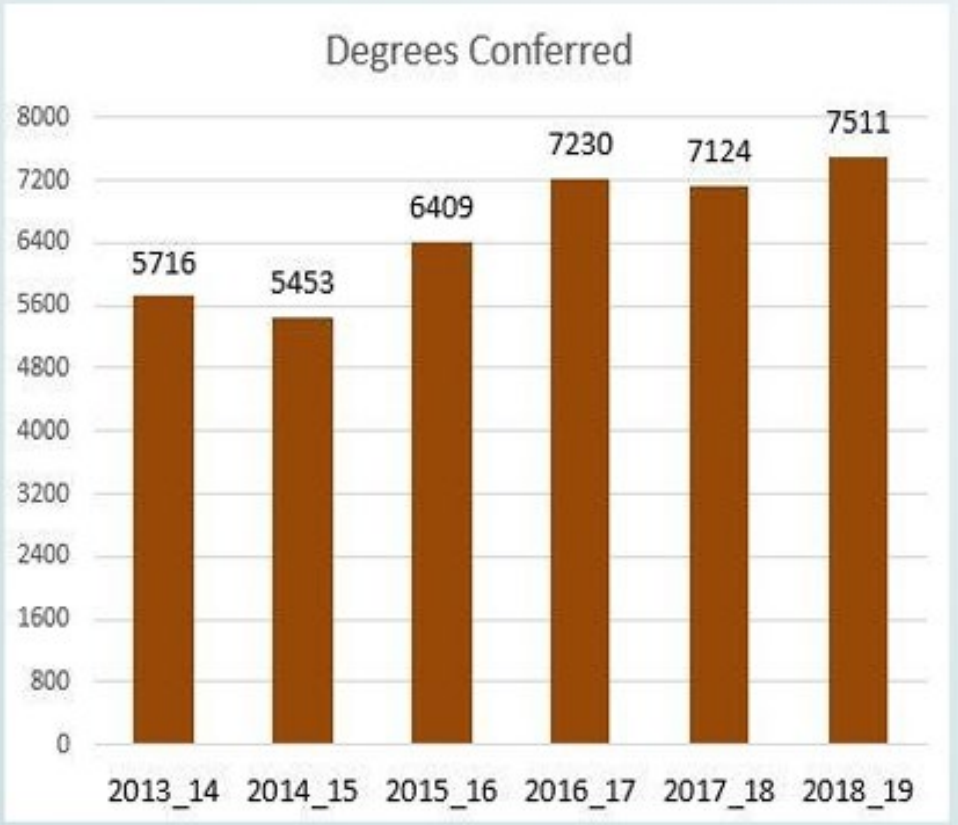

% Satisfied
55
58
68
67
Biology
Engineering
Physical Sciences
Social Sciences

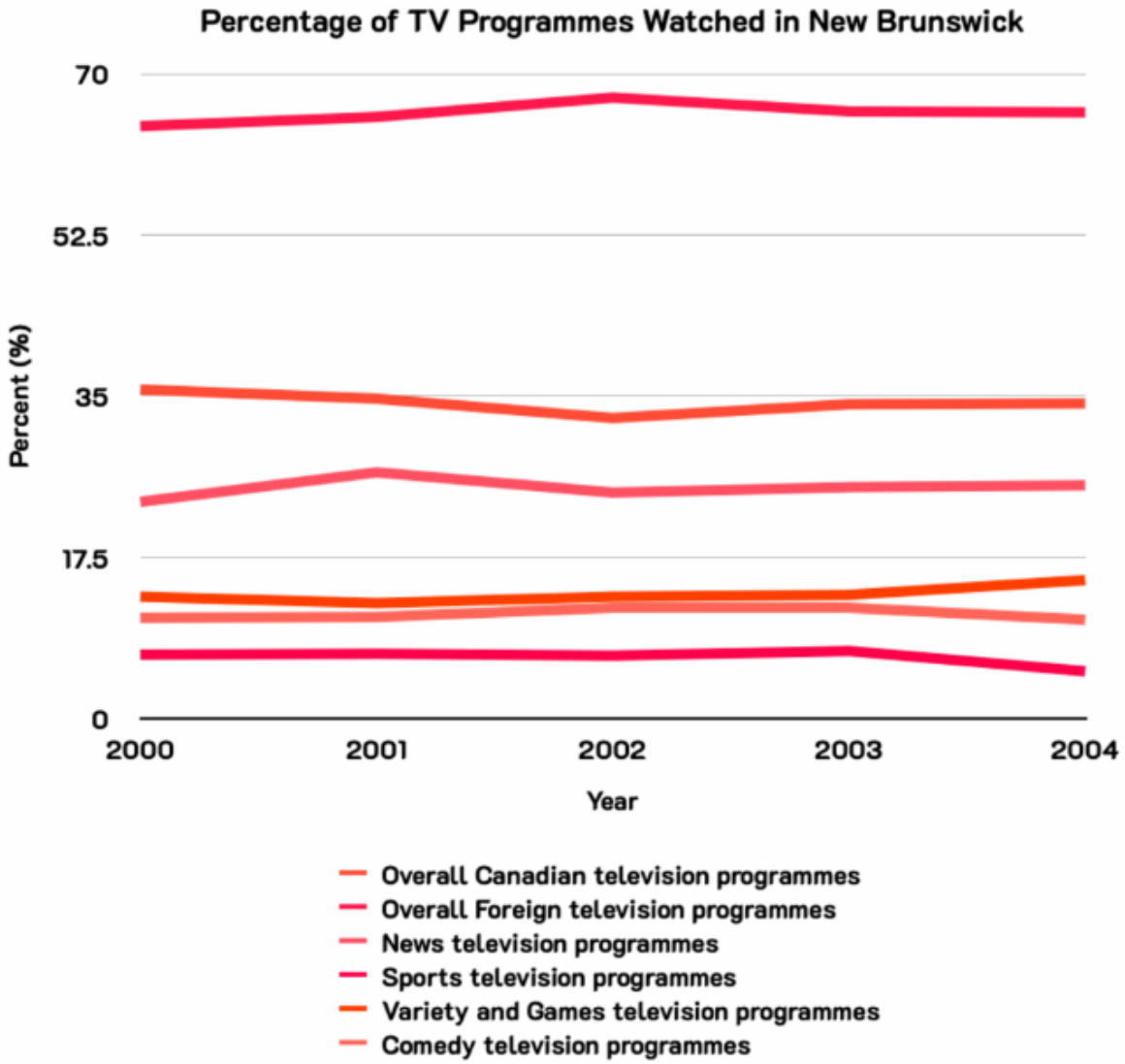
Good

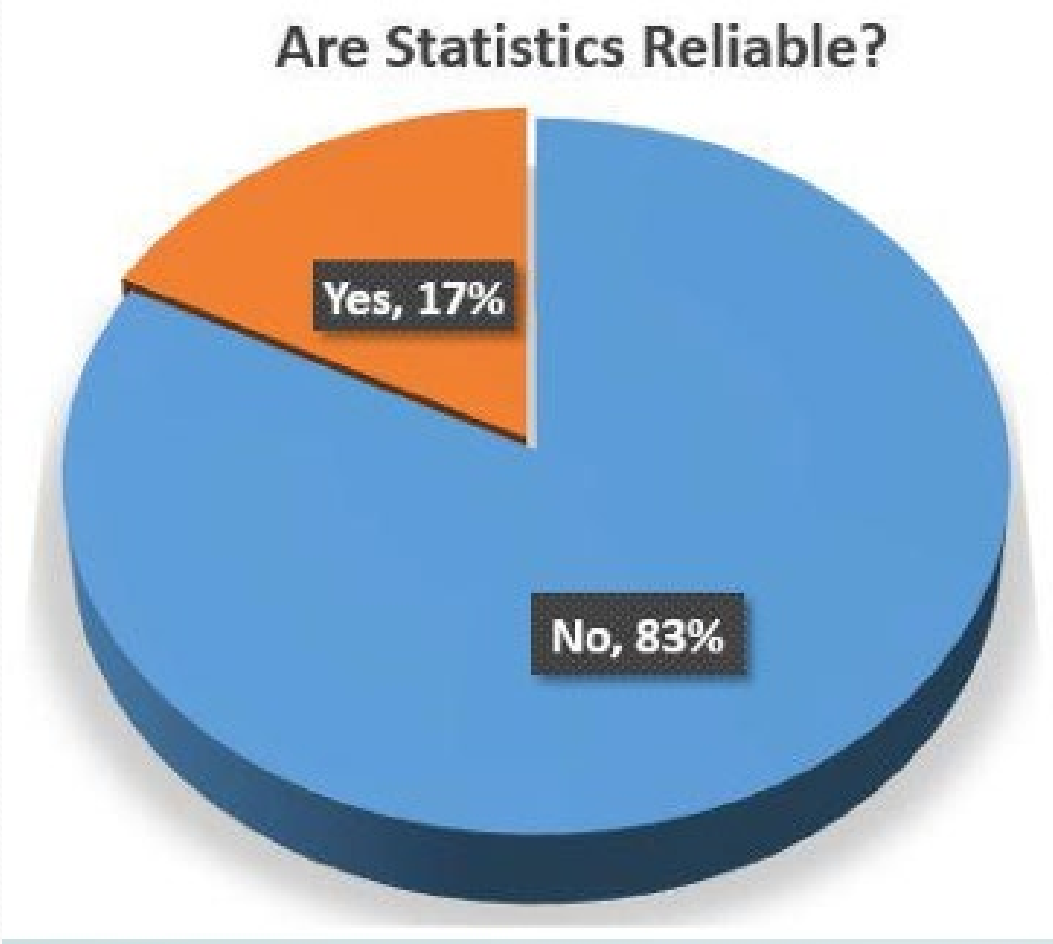
% Satisfied
80
70
60
50
40
30
20
10
0
58
55
58
68
67
Arts
Biology
Engineering
Physical Sciences
Social Sciences


Percentage of Canadian vs. Foreign TV Programmes Watched in Saskatchewan
Canadian vs. Foreign Programming
Canadian television programmes
Foreign television programmes
0
17.5
35
52.5
70
Percent (%)


Degrees Conferred
8000
7200
6400
5600
4800
4000
3200
2400
1600
800
0
5716
5453
6409
7230
7124
7511
2013_14
2014_15
2015_16
2016_17
2017_18
2018_19


Degrees Conferred
8000
7200
6400
5600
4800
4000
3200
2400
1600
800
0
5716
5453
6409
7230
7124
7511
2013_14
2014_15
2015_16
2016_17
2017_18
2018_19

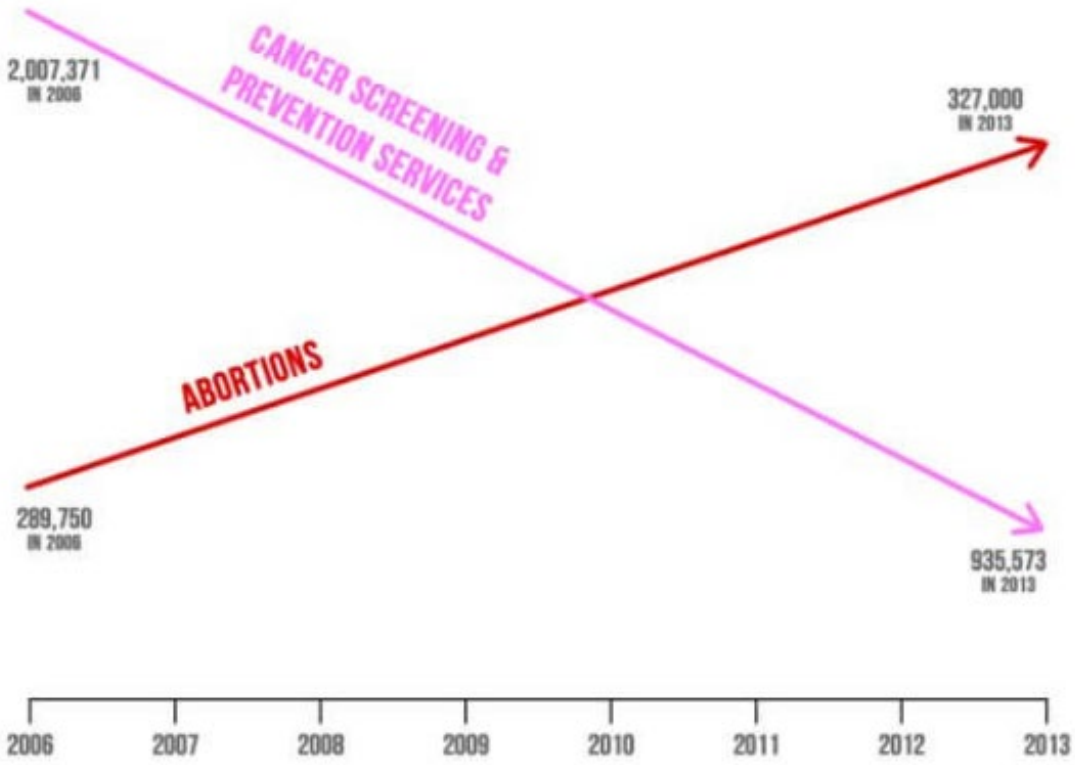

Percentage of TV Programmes Watched in New Brunswick
70
52.5
35
17.5
0
Percent (%)
2000
2001
2002
2003
2004
Year
Overall Canadian television programmes
Overall Foreign television programmes
News television programmes
Sports television programmes
Variety and Games television programmes
Comedy television programmes


Are Statistics Reliable?
Yes, 17%
No, 83%

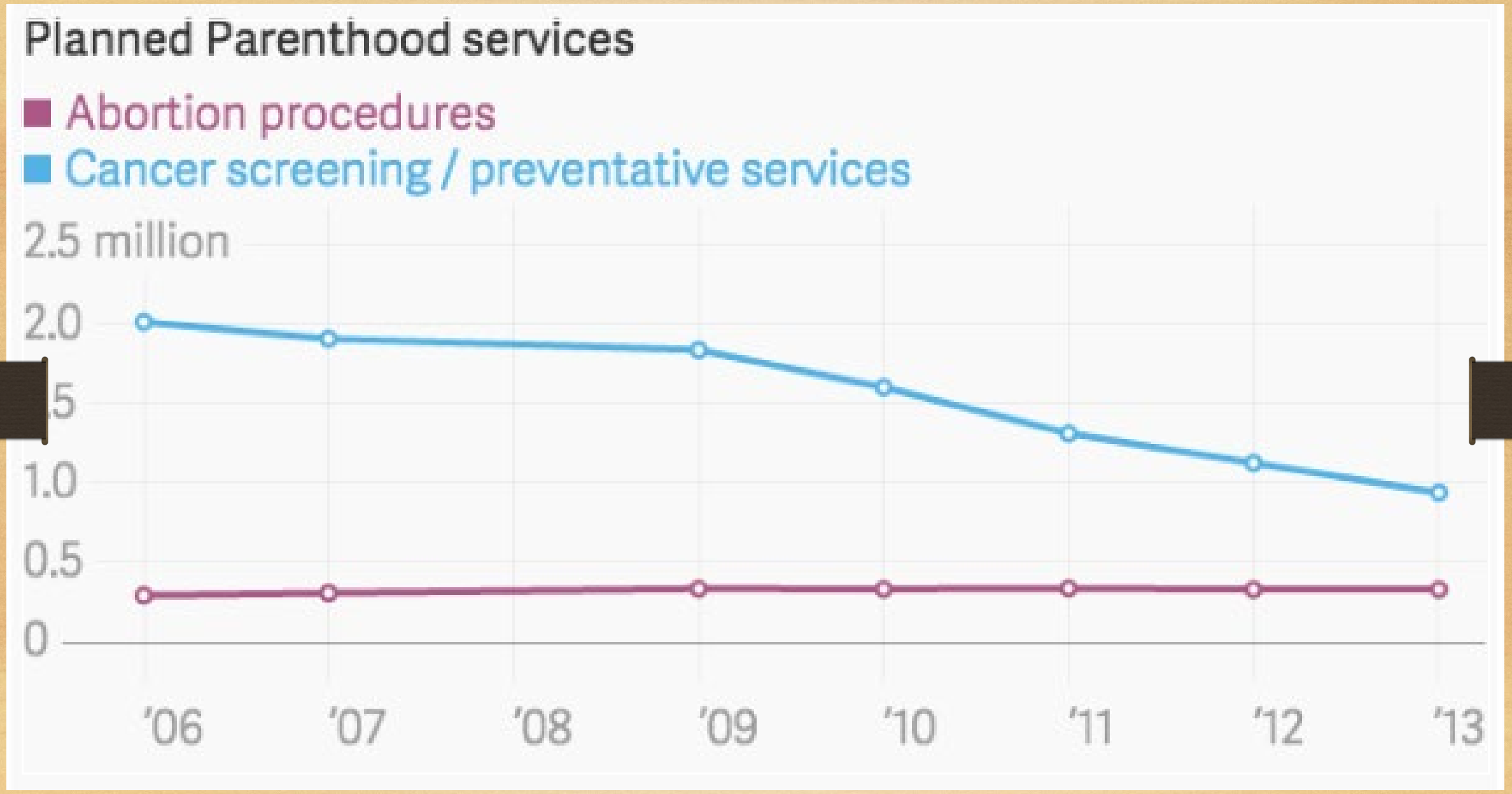
On Sept. 29, 2015, Republicans from the U.S. Congress questioned Cecile Richards, the president of Planned Parenthood, regarding the misappropriation of $500 million in annual federal funding. The above graph/chart was presented as a point of emphasis.

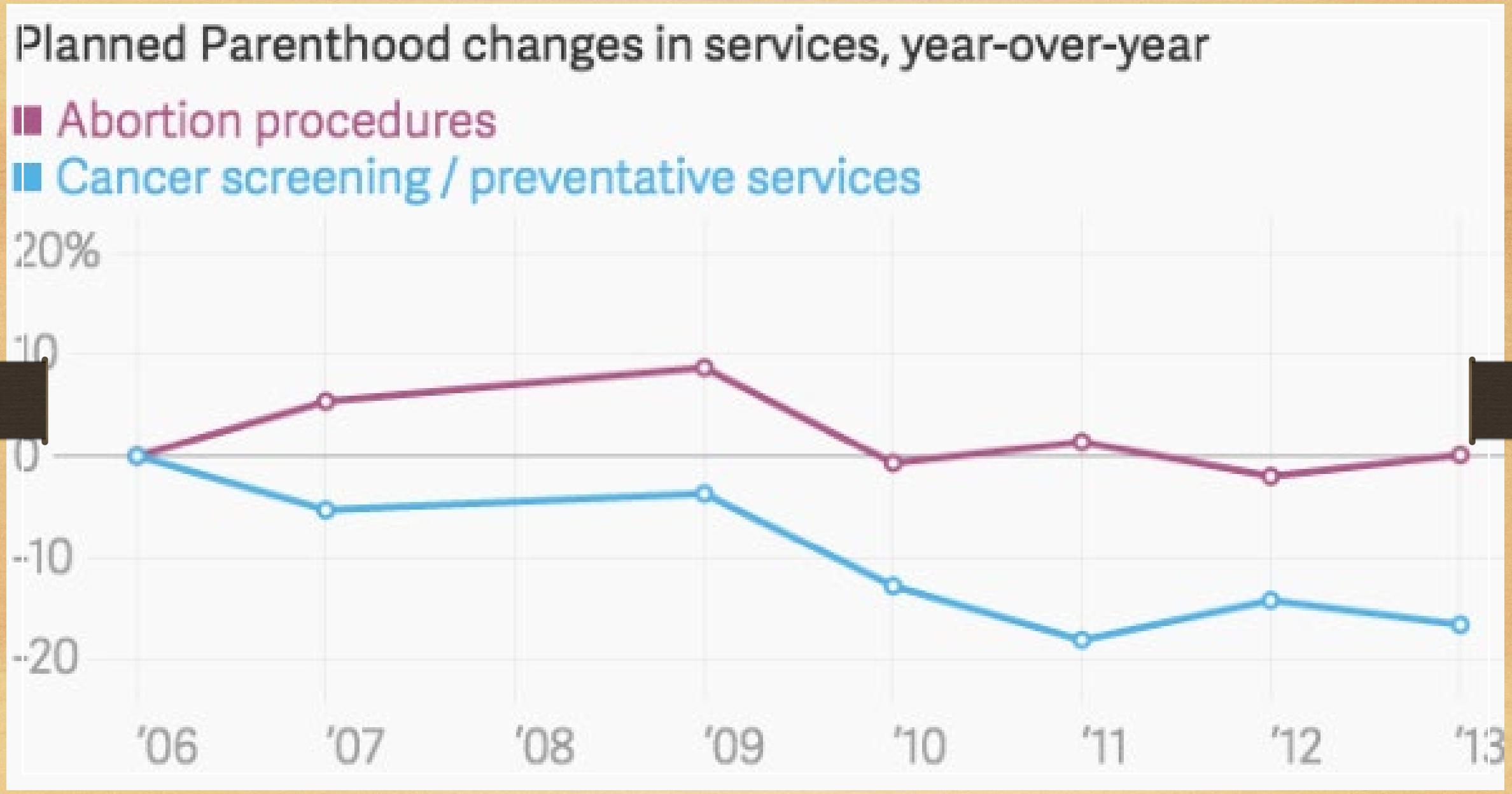
PLANNED PARENTHOOD FEDERATION OF AMERICA:

ABORTIONS UP – LIFE-SAVING PROCEDURES DOWN



SOURCE: AMERICANS UNITED FOR LIFE


Planned Parenthood services
Abortion procedures
Cancer screening / preventative services
2.5 million
2.0
1.5
1.0
0.5
0
'06
'07
'08
'09
'10
'11
'12
'13


Planned Parenthood changes in services, year-over-year
Abortion procedures
Cancer screening / preventative services
20%
10
0
-10
-20
'06
'07
'08
'09
'10
'11
'12
'13

The case started when the giant pharmaceutical company, Purdue Pharma, launched its new product OxyContin, which they advertised as a safe, non-addictive opioid that was highly effective for pain relief.

A very interesting graph was used to prove to doctors that the drug was non-addictive because it stayed on the patient's blood over time avoiding symptoms of withdrawal.

OxyContin PI Figure, Log y-axis

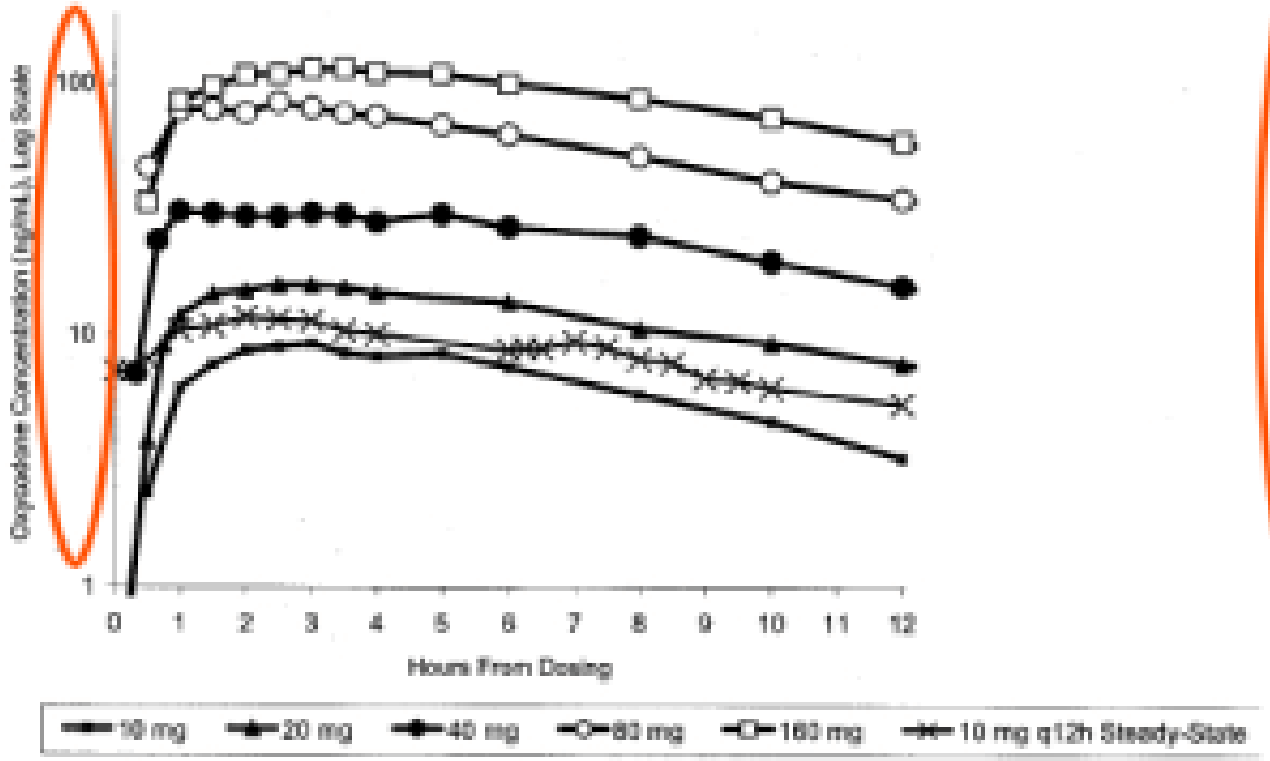


Figure 2

OxyContin PI Figure, Linear

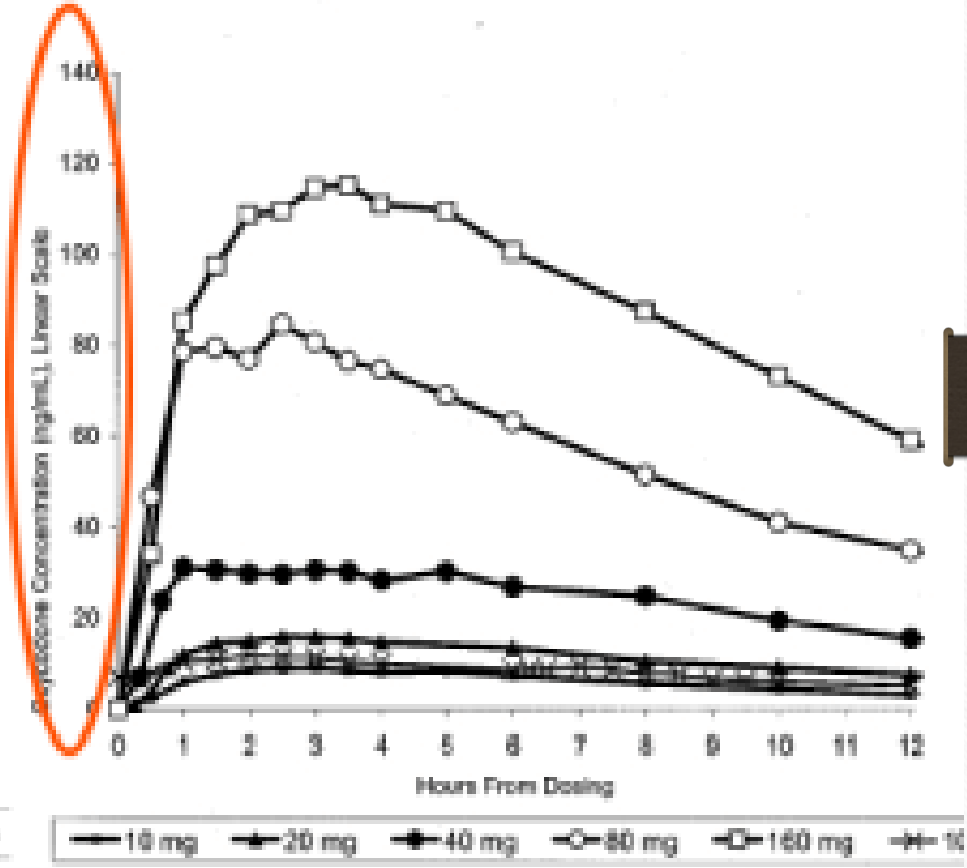


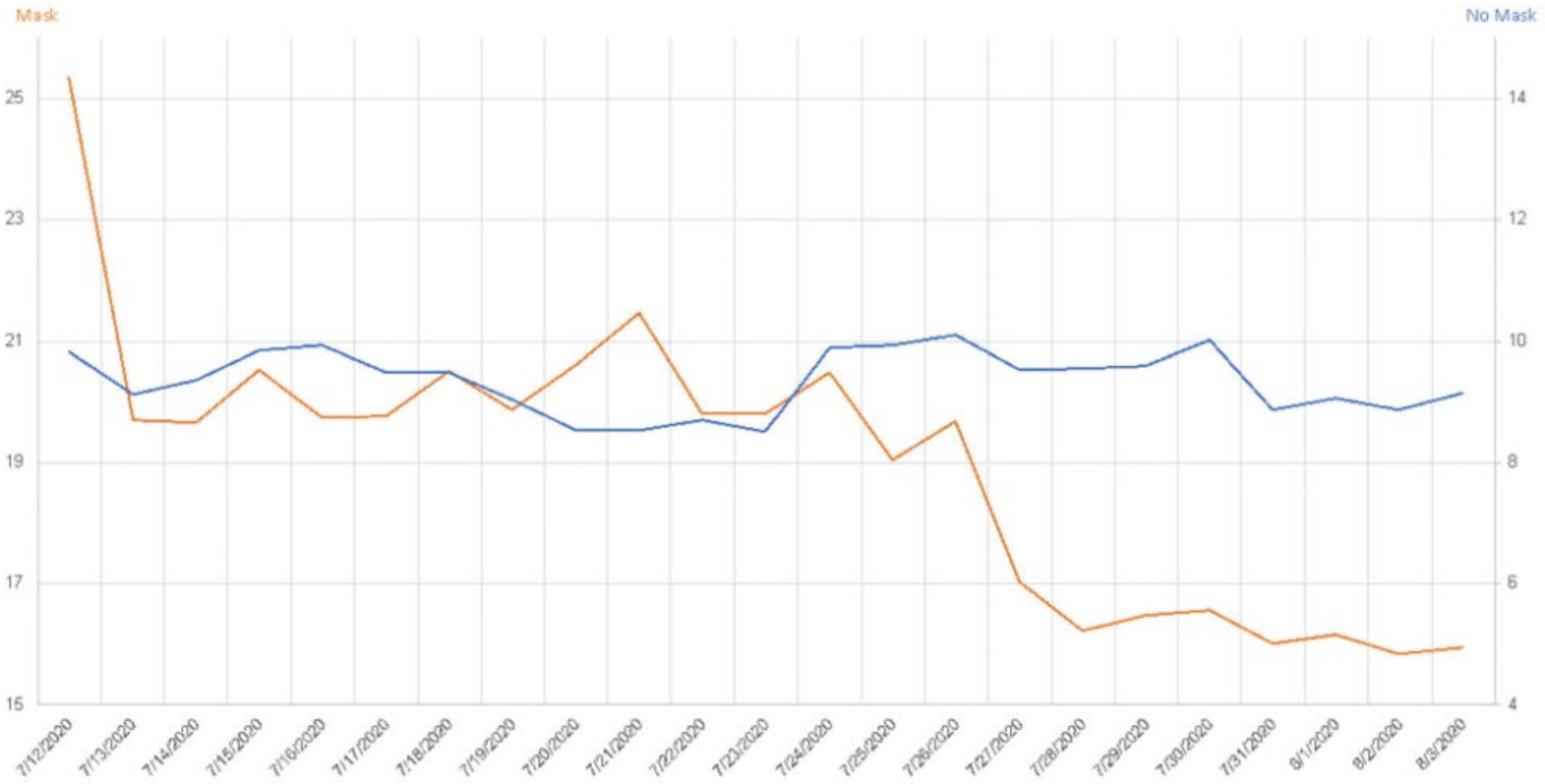
Figure 1

On August 6, 2020, Rachel Maddow of MSNBC tweeted “Chart: Kansas mask counties versus no-mask mandate counties” (Maddow Citation2020, August 6) along with a link to a plot created by the Kansas Department of Health and Environment—which was also shared live on *The Rachel Maddow Show* that same day.

The plot compared the number of COVID-19 cases over time for counties in Kansas that had mask mandates versus those that did not.

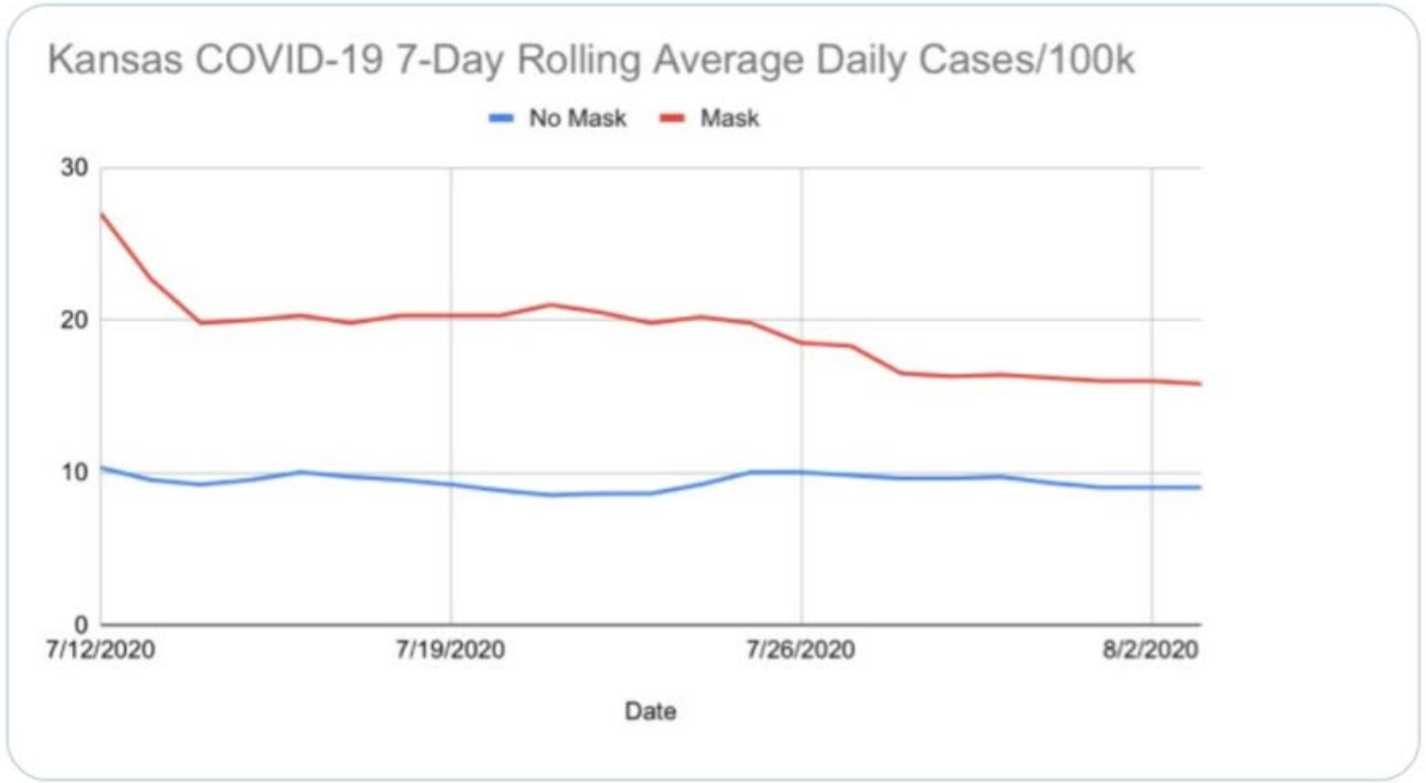
Kansas COVID-19 7-Day Rolling Average of Daily Cases/Per 100K Population

Mask Counties Vs. No-Mask Mandate Counties



Steven Strogatz @stevenstrogatz · Aug 6

Here's what the graph looks like when plotted the usual way, i.e., on a single vertical scale that includes the origin (courtesy of @quantKid):



9 8 62

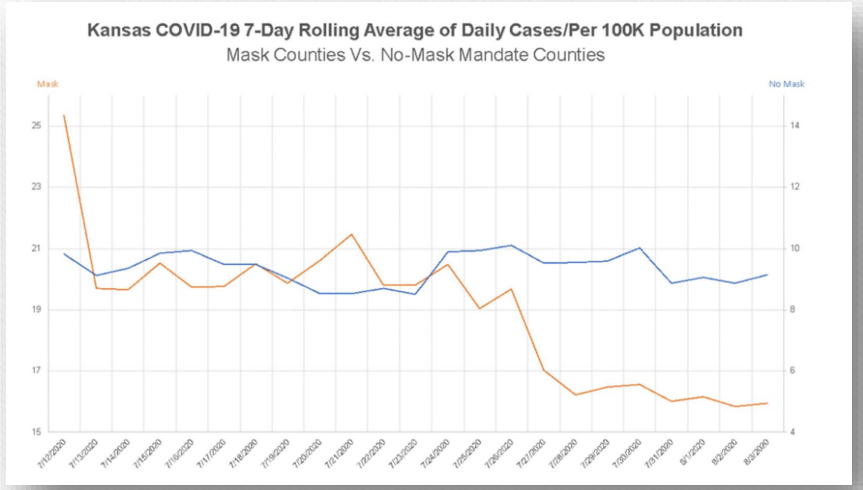
“

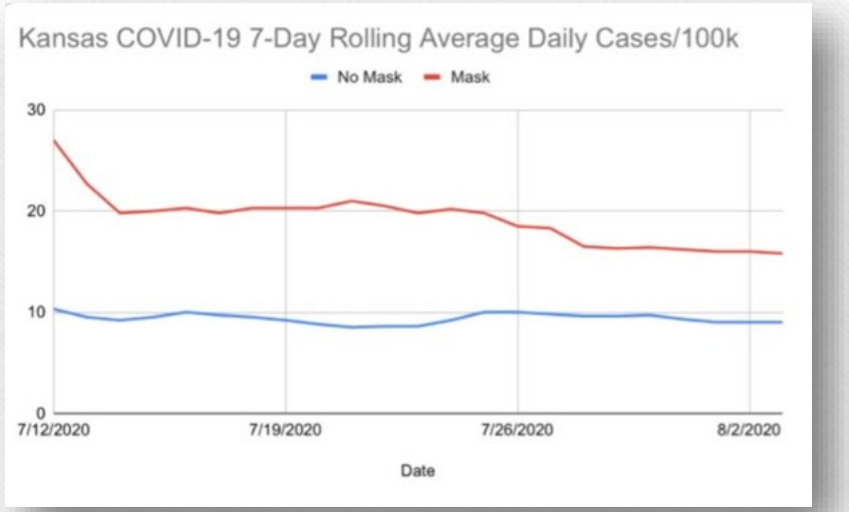
There are two take-aways when comparing the two plots.

First, although there was an obvious decline, the word “rapid” is not as justifiable—it is certainly less pronounced.

Second, without paying very close attention to the scales of the two vertical axes in the original plot, it would be easy to conclude that counties with mask mandates had dropped below that of those with no mask mandate—an incorrect conclusion.

”

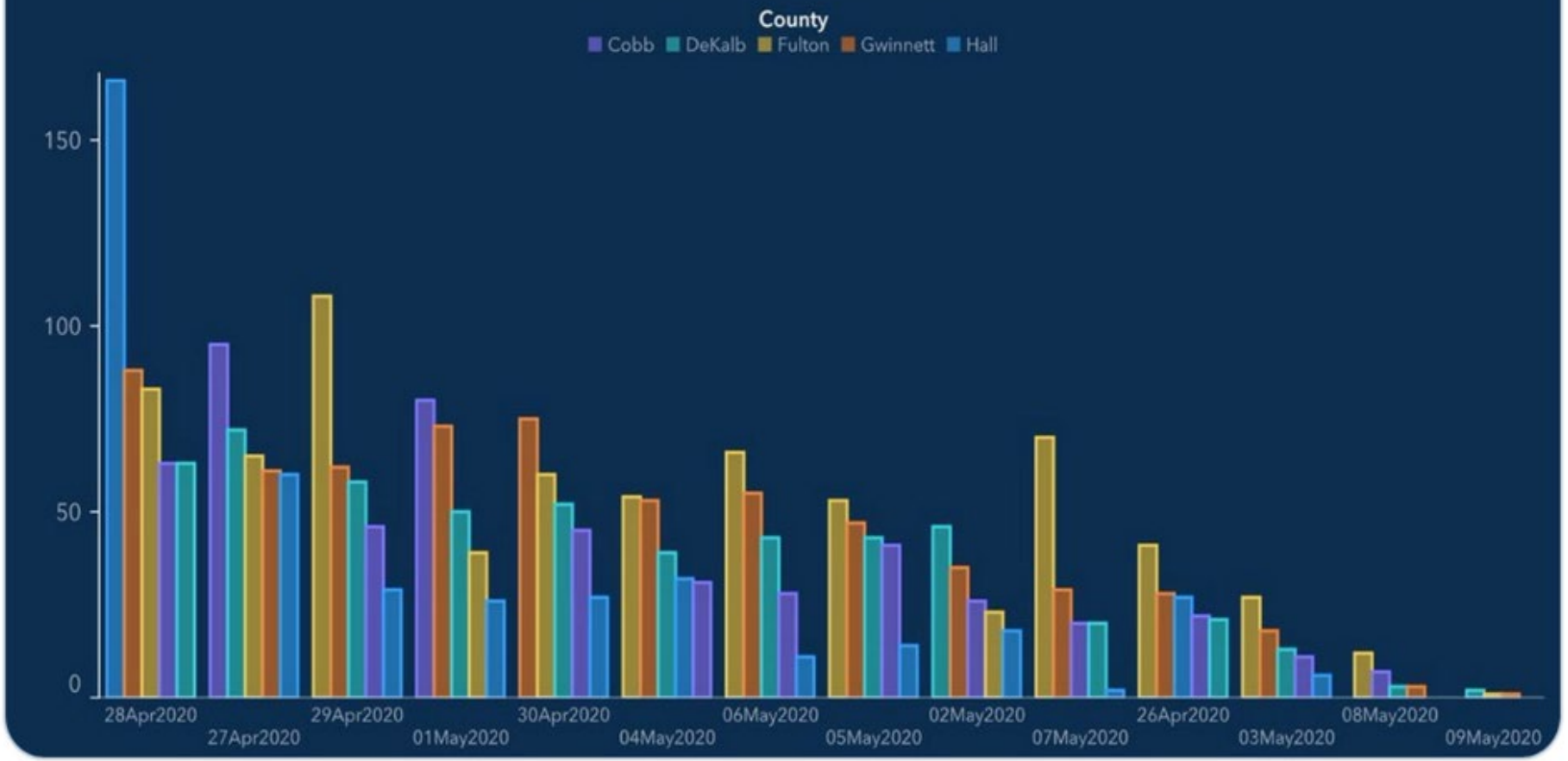




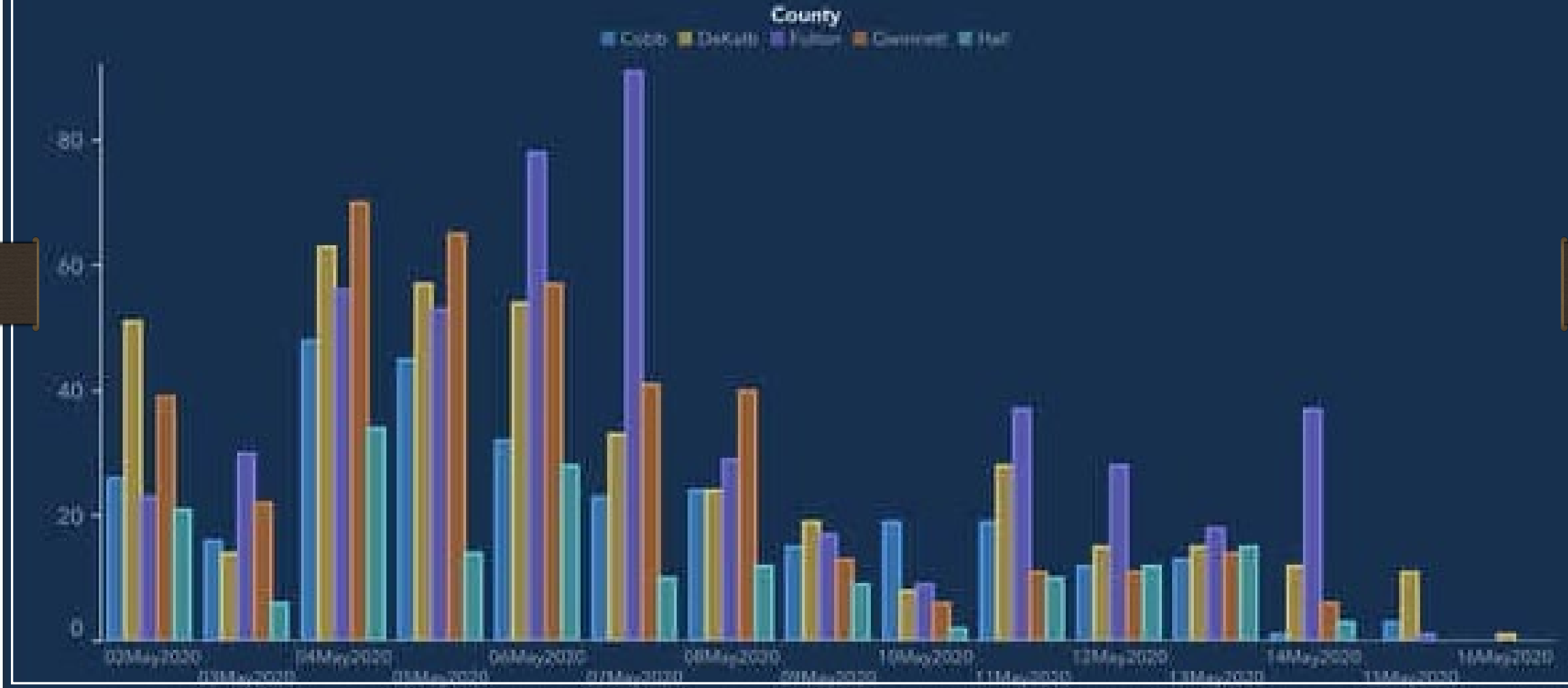
When the Georgia Department of Public Health posted this plot (see Figure 3), it went viral because of what may have been intentional data manipulation.

Top 5 Counties with the Greatest Number of Confirmed COVID-19 Cases

The chart below represents the most impacted counties over the past 15 days and the number of cases over time. The table below also represents the number of deaths and hospitalizations in each of those impacted counties.

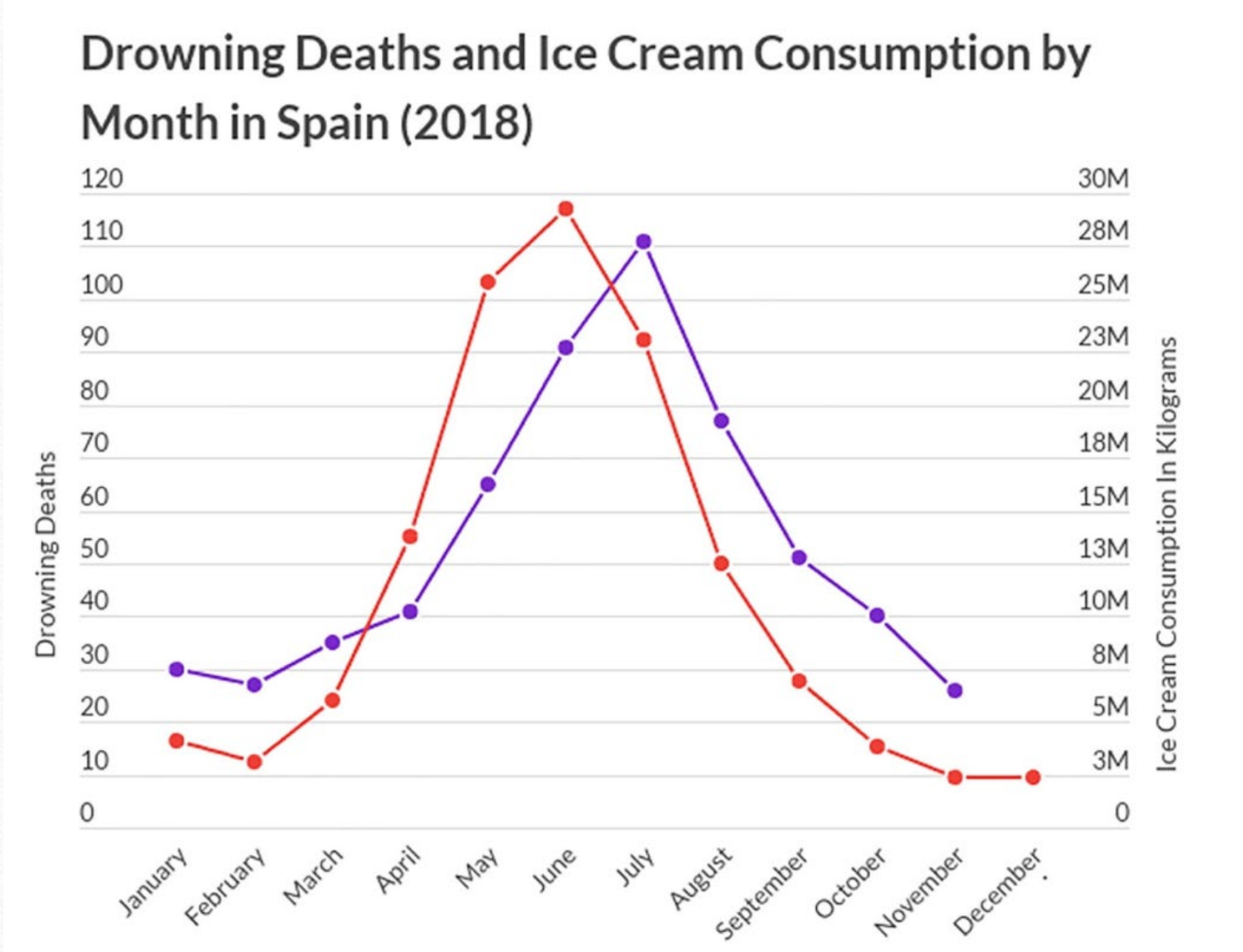


time. The table below also represents the number of deaths and hospitalizations in each of those impacted counties.



Misleading Visualizations
Scale Distortion
Incorrect or Missing Labels
Arbitrary Two Y-Axes
Omitted Data
Numbers Don't Add Up
3D Distorted Graphs

YOUR TURN


Drowning Deaths and Ice Cream Consumption by Month in Spain (2018)
Drowning Deaths
120
110
100
90
80
70
60
50
40
30
20
10
0
Ice Cream Consumption In Kilograms
30M
28M
25M
23M
20M
18M
15M
13M
10M
8M
5M
3M
0
January
February
March
April
May
June
July
August
September
October
November
December

Questions

- What does this plot show?
- What is a conclusion you could draw from this plot that would not make much sense?
- What is a conclusion you could draw from this plot that would be more accurate?