



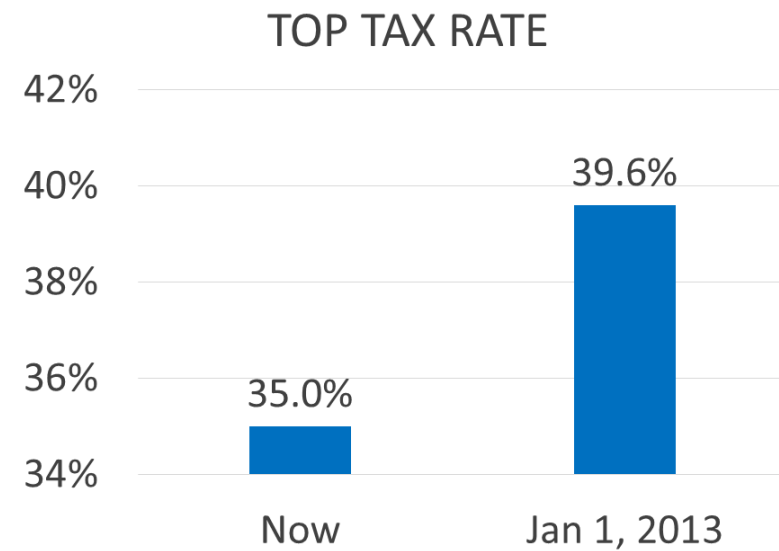
# Essential Design Principles for Tableau

*Practicing Good Ethics in Data Visualization*

Bar charts are easy  
to interpret

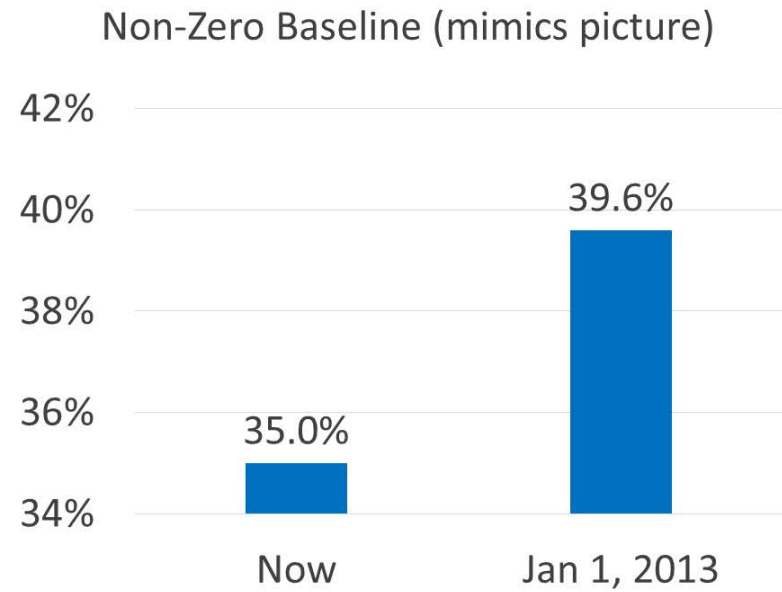
Our eyes compare  
the endpoints of the bar

## IF BUSH TAX CUTS EXPIRE



**NOSY**  
NEWS CENTER

Bar graphs traditionally have zero as the baseline



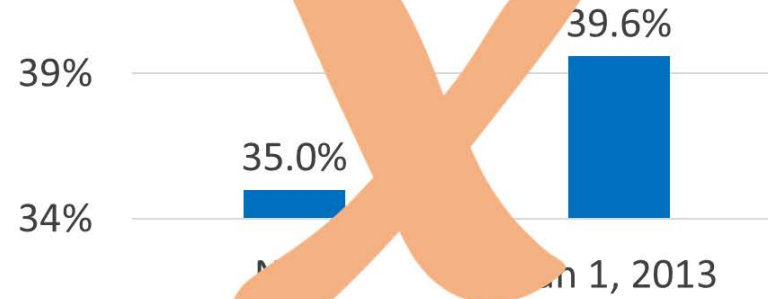
**Standard practice for bar graphs:**

Start your baseline at zero

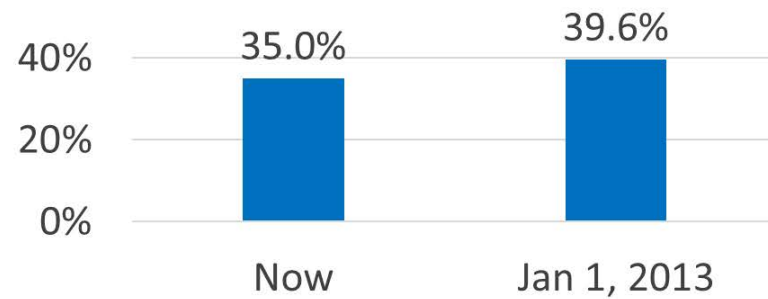
Do not confuse or annoy the data consumer



Non-Zero Baseline (mimics picture)



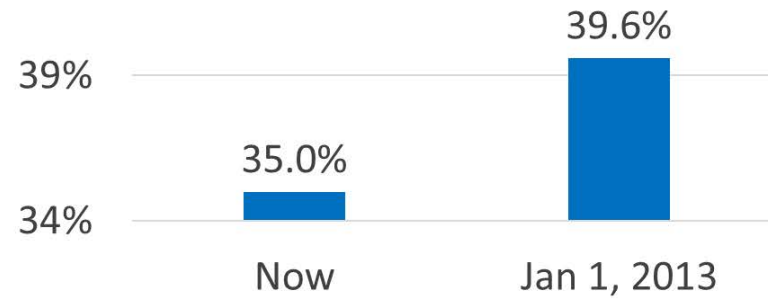
Zero Baseline (correct way)



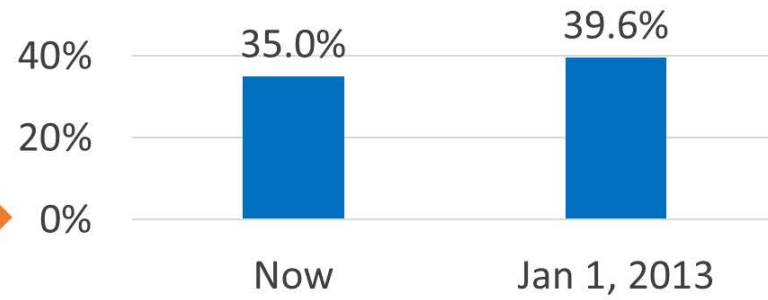
Same data

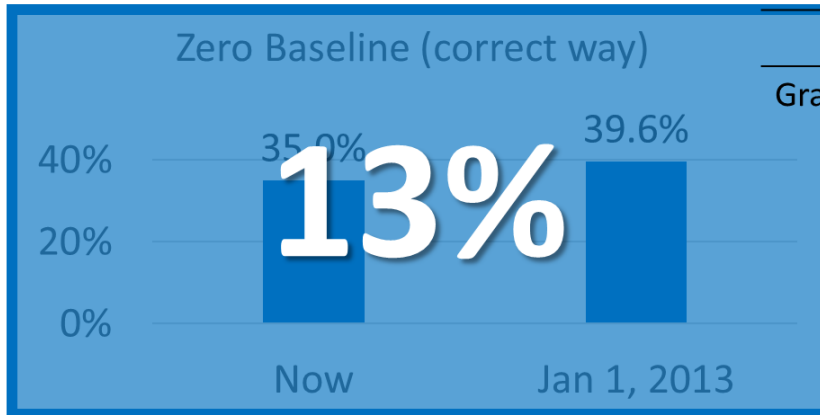
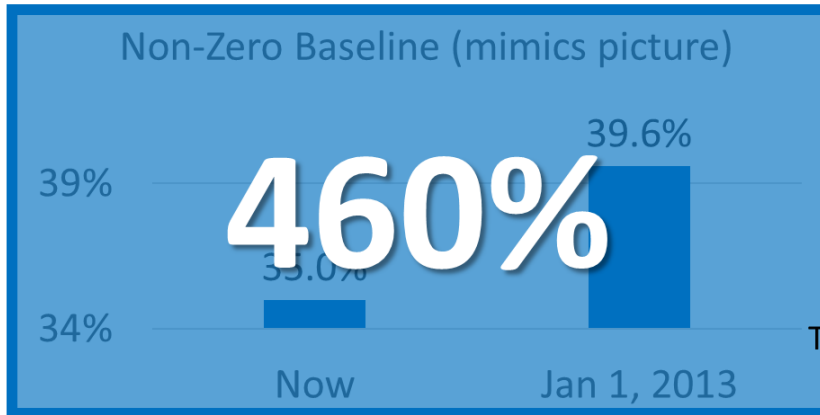
Different baseline

Non-Zero Baseline (mimics picture)



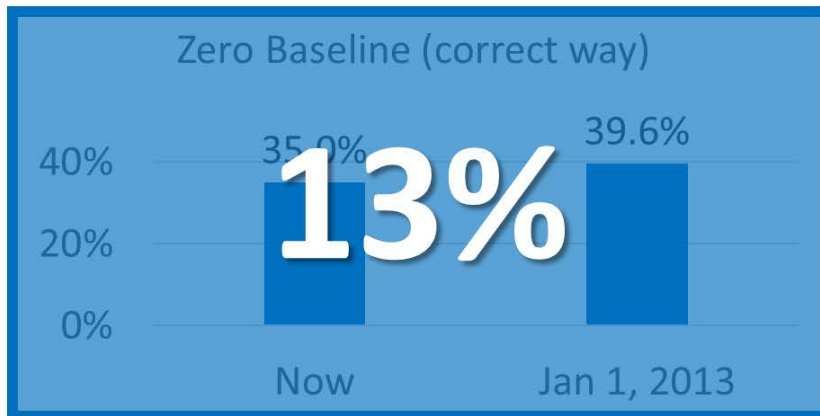
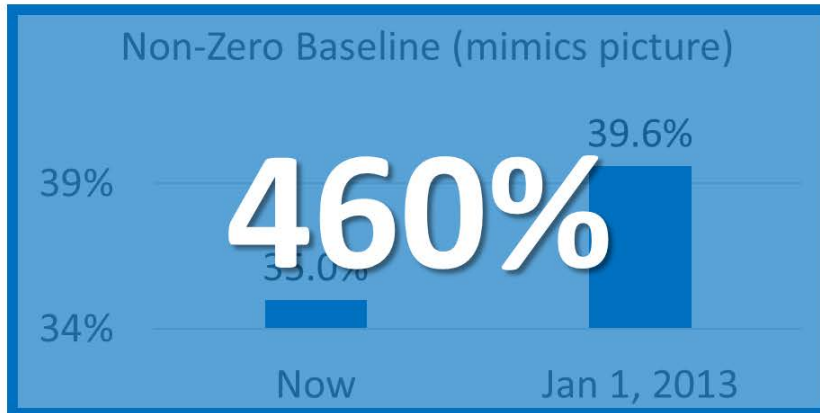
Zero Baseline (correct way)





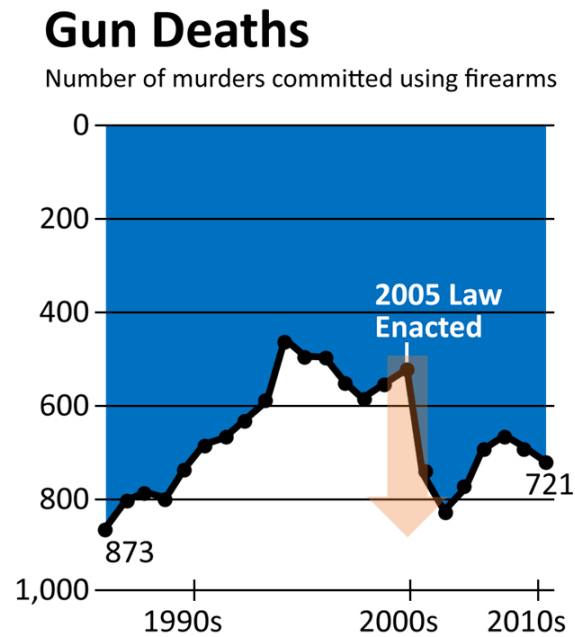
Taxes (Graph Percentage)  
Baseline  
Difference  
Graph Visual %

Non-Zero Baseline Nosy News		Zero Baseline The Correct Way	
Now	Jan, 1 2013	Now	Jan, 1 2013
35%	39.6%	35%	39.6%
34	34	0	0
1	5.6	35	39.6
460% $(5.6-1) \times 100=460$		13%	



This graph misleads the user

Reduces the credibility of the news outlet

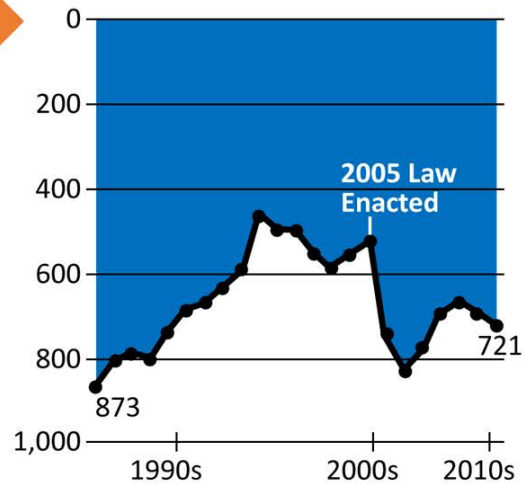


Did you assume that there was a sharp decrease in gun deaths after 2005?



## Gun Deaths

Number of murders committed using firearms

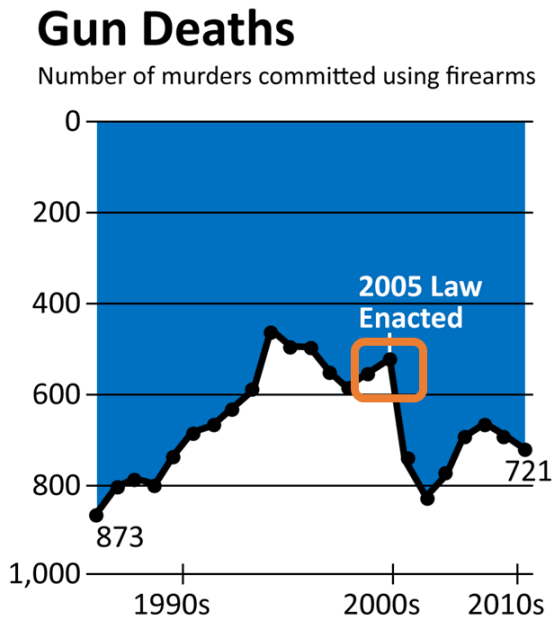


Note where the 0 is on the Y-axis

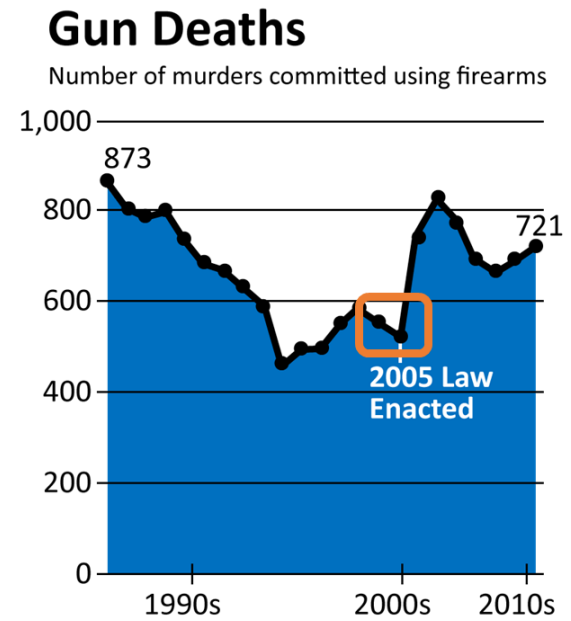
This is opposite to how graphs are typically drawn

Gun deaths actually increased

## Inverting the axis misleads the reader



Note the increase in gun deaths after the law was enacted

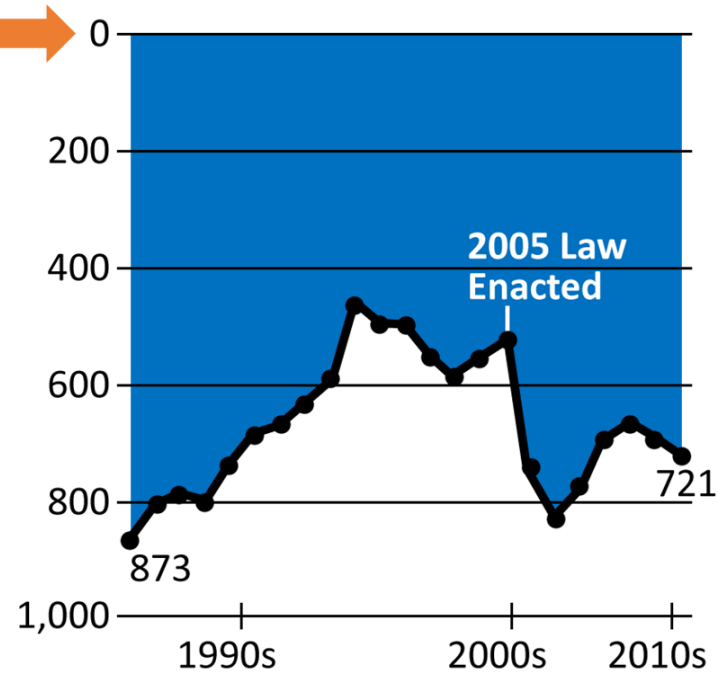


Users should not have to deviate from standard ways of presenting graphs

Clearly state any deviations

## Gun Deaths

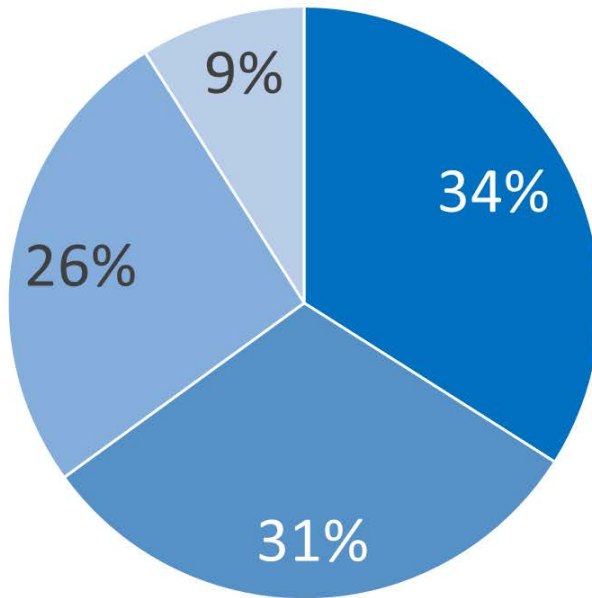
Number of murders committed using firearms





## The pie chart controversy

## Pie Chart With Labels



■ Person A

■ Person B

■ Person C

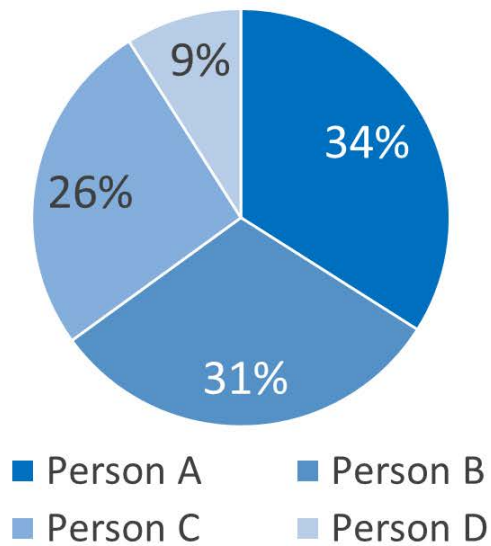
■ Person D

One of the most widely used visualizations

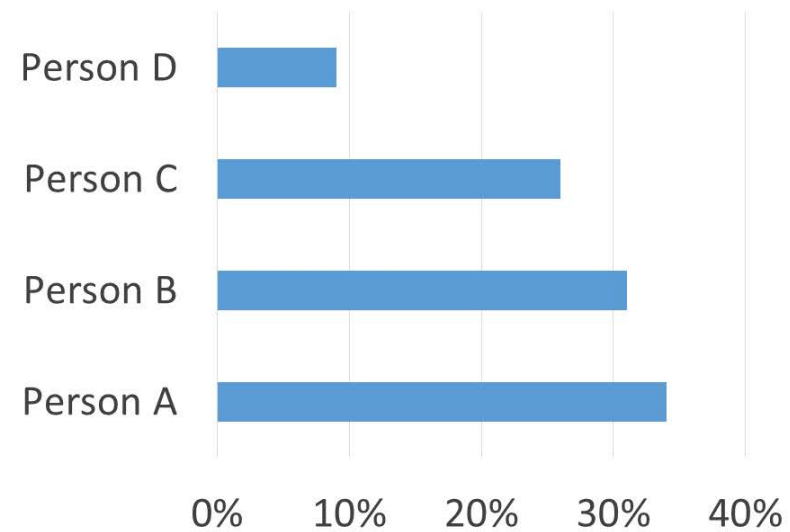
Seems to be an ideal way to show percentages

## Use a bar graph instead

### Pie Chart With Labels



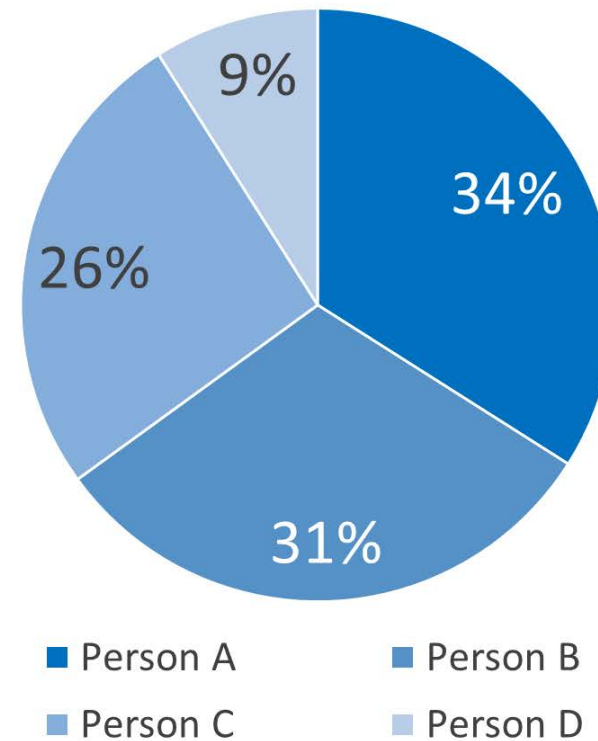
### Bar Graph

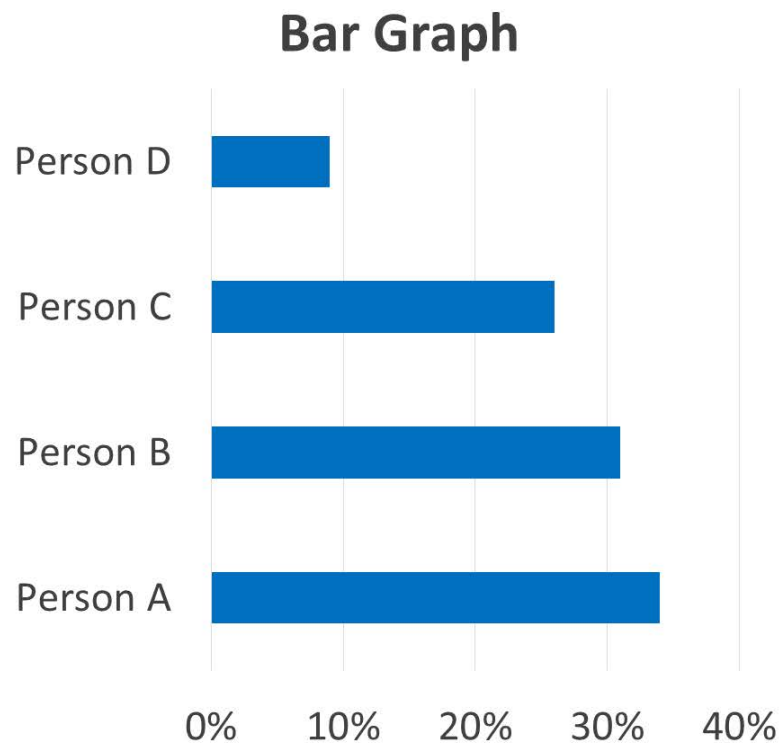


The pie wedges look roughly the same

The percentage labels are necessary to be absolutely sure

Pie Chart With Labels





The bar graph more clearly distinguishes the percentages





Move beyond conceptual best practices to effective practices