

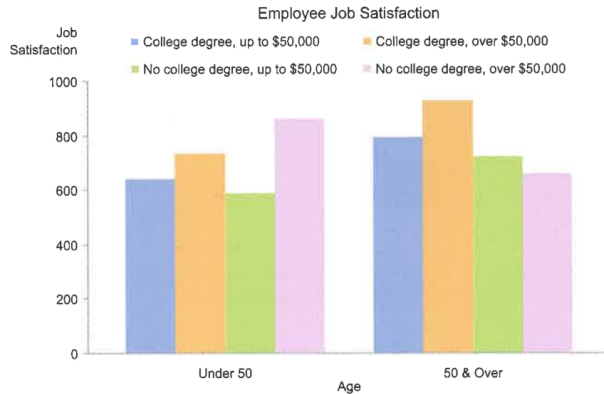
Starting with the Table

Job Satisfaction By Income, Education, and Age

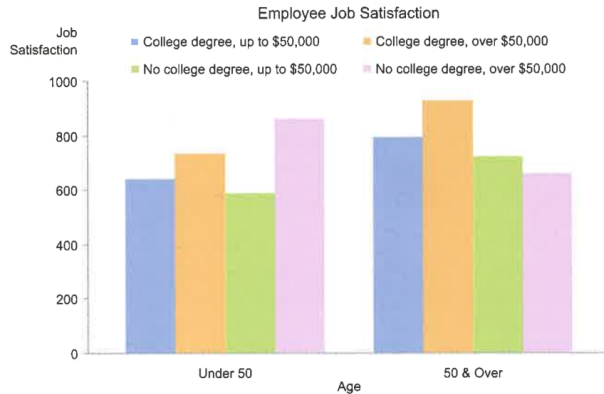
Income	College Degrees		No College Degrees	
	Under 50	50 & over	Under 50	50 & over
Up to \$50,000	643	793	590	724
Over \$50,000	735	928	863	662

Few, Chapter 3, Figure 3.13

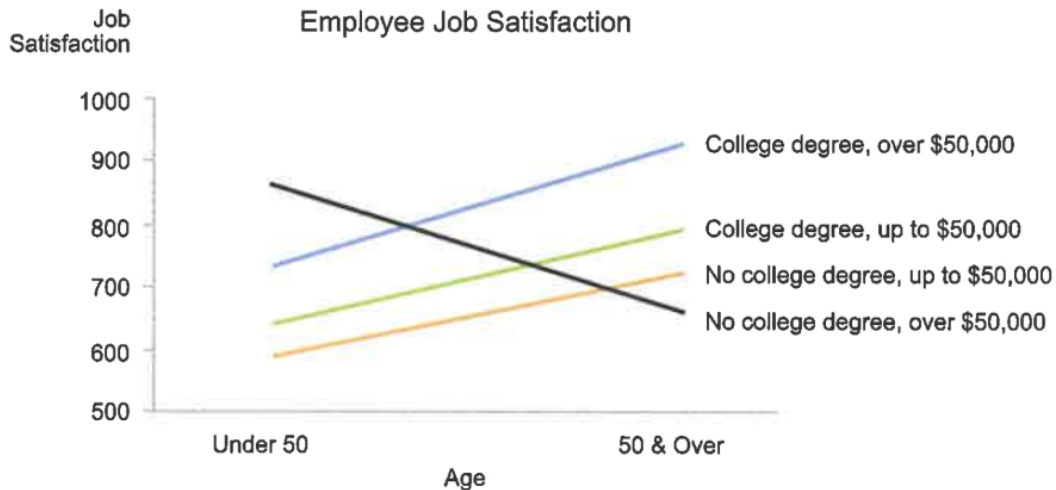
Version One of a Set of Numbers



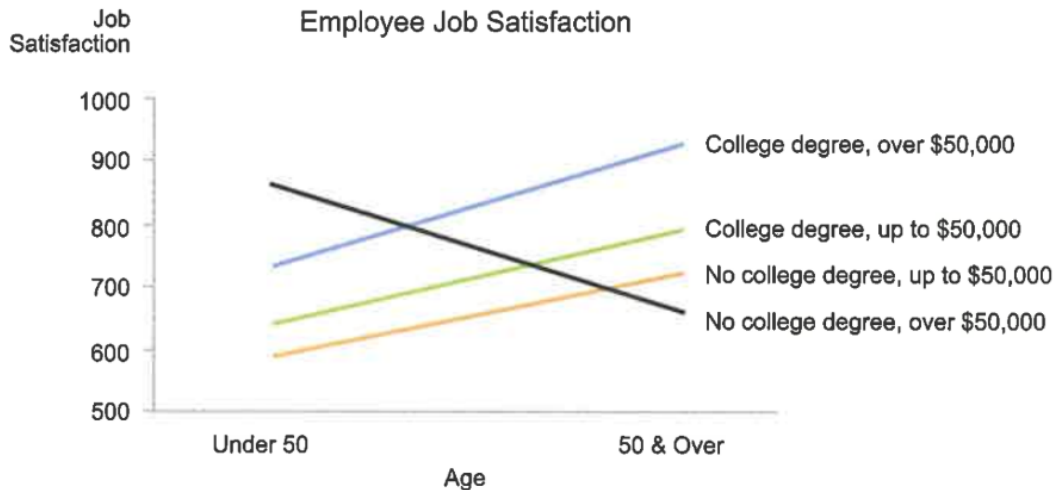
Version One of a Set of Numbers



Version Two of the Same Set of Numbers



Version Two of the Same Set of Numbers



Choose the Graph that Leads the Reader to Your Answer

GRAPH CHOICE CHART

Does your question ask you...

about the **variability** of a group of data points? (i.e. the range of the data, the shape of the distribution, or what the center of the data is)

1. Do all high tides rise to the same height?
2. How variable are wind speeds in Denmark?
3. What is the range and distribution of incomes in Sudan?

to compare **two or more groups** to decide if the groups are the same or different?

if **two numeric factors are correlated?**

1. Is the temperature inside the house correlated with the temperature outside?
2. How did electricity used by the kitchen circuit fluctuate during the past week?

how a **total is proportioned** into sub-groups? (Or what proportion a sub-group is of a total?)

1. What were Brazil's most significant exports in 2015?
2. What proportion of global electricity production comes from wind?
3. How do Parisians typically commute to work?

VO.1 updated 5.29.16

Do you want to compare the **variability of all data points** in each group to decide if any difference between the groups is meaningful?

1. Which of the two solar cars consistently goes the farthest?
2. Is there a meaningful difference in the heights of fertilized and unfertilized bean plants?

Are you comparing **single numbers** that summarize a group? (such as mean, median, or total...)

1. Was the total snowfall greater this winter than last winter?
2. Do cats and dogs have the same average body temperature?
3. How do the median incomes for the US and India compare?

Does it ask about how something changes through **linear TIME**?

N

1. Is the fuel efficiency of a car related to its weight?
2. Are smoking rates correlated with median income?
3. Given a fixed volume, how are temperature and pressure related?

T

1. Is sea level rising?
2. How did my weight change over the last 3 months?

Frequency Plot

MAKE EITHER

FOR EACH GROUP MAKE A

Histogram

Box Plots

Dot Plot

Bar Graph

Scatter Plot

Line Graph

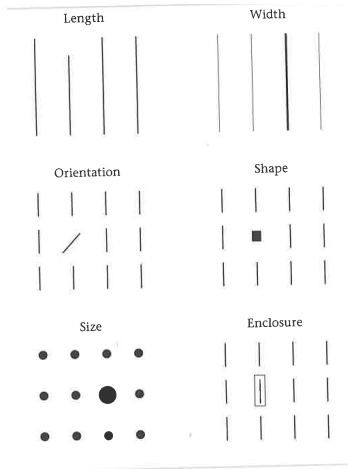
Pie Chart

Stacked Bar Chart

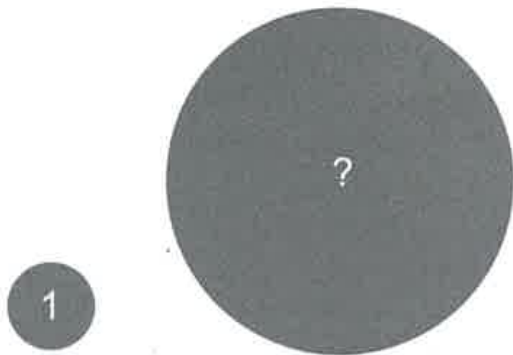


The Graph Choice Chart by The Maine Data Literacy Project*, based on a work at participatoryscience.org
* Licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

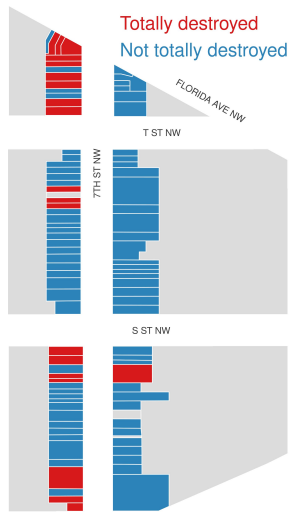
Form



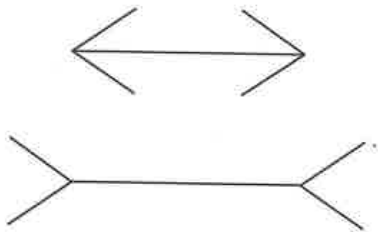
But Beware of 2-D Size



Using Color and Enclosure to Distinguish



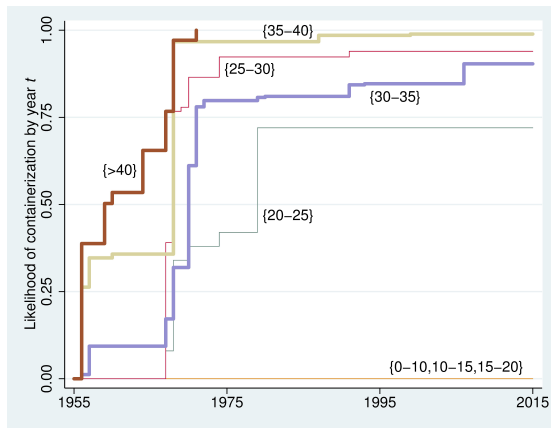
Context Matters



Context Matters



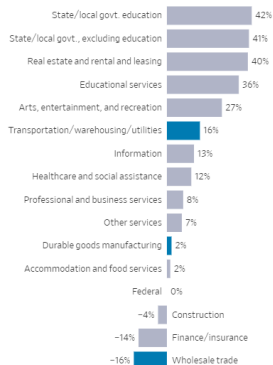
Calling Attention



Which principle do I use here?

Similarity and Continuity

Change, 1/2018 to 11/2019

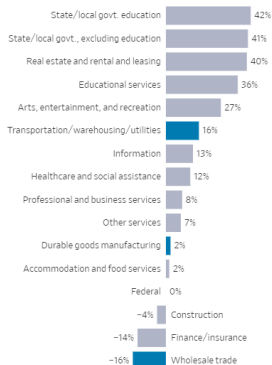


Job openings in blue-collar industries saw some of the weakest growth before the pandemic.



Similarity and Continuity

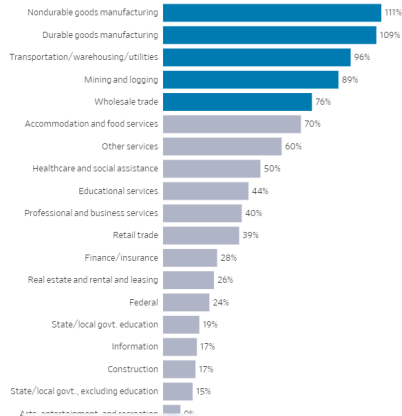
Change, 1/2018 to 11/2019



Job openings in blue-collar industries saw some of the weakest growth before the pandemic.

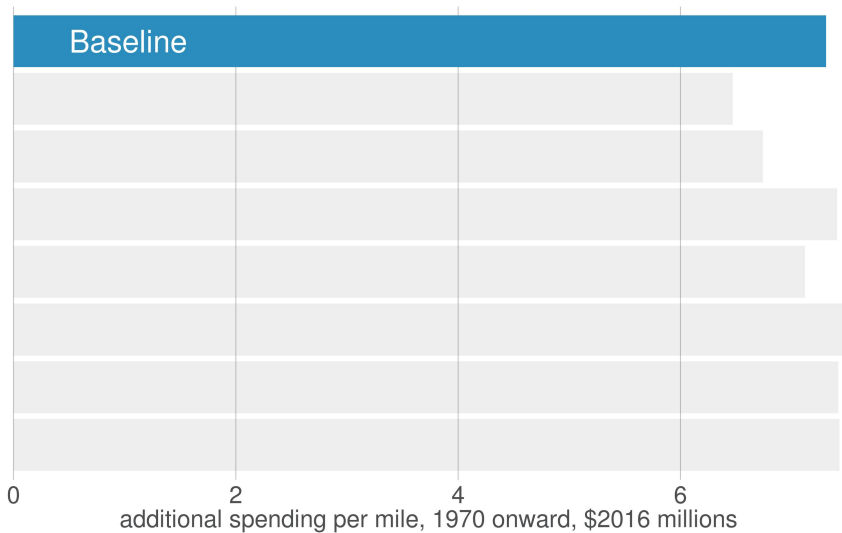


Change, 1/2020 to 11/2021

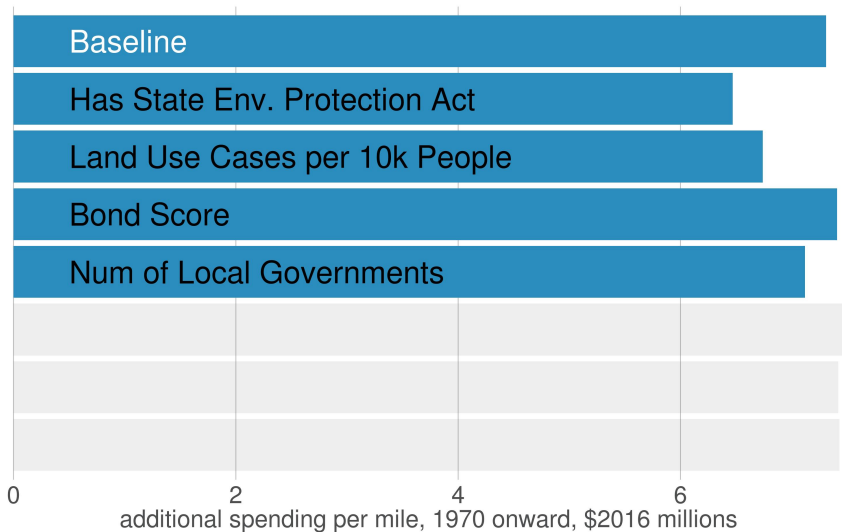


Now, blue-collar job openings are logging the biggest gains.

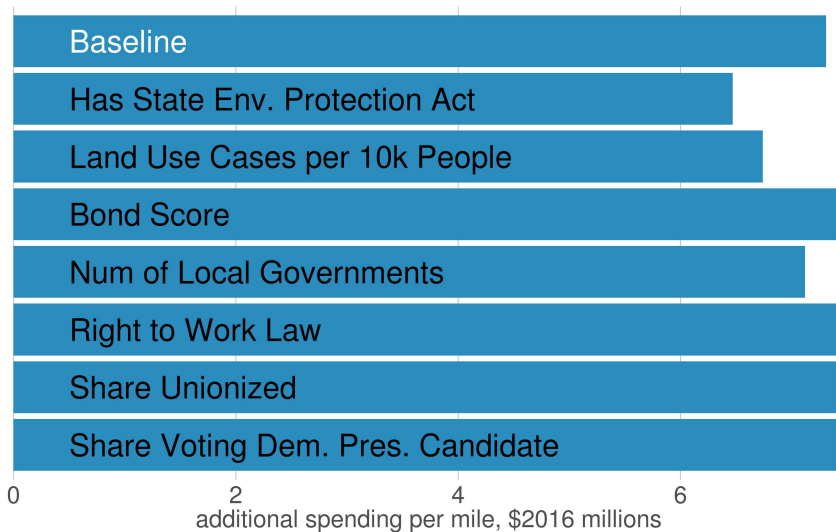
Baseline Increase of \$7.3 Million per Mile



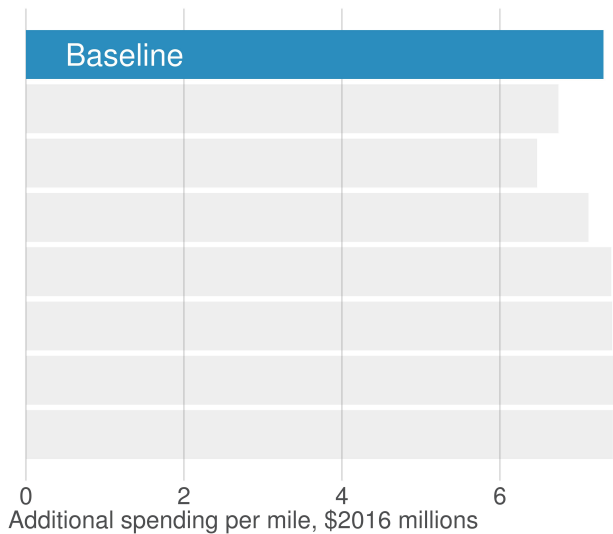
Measures of Government Quality Unrelated to Spending Increase



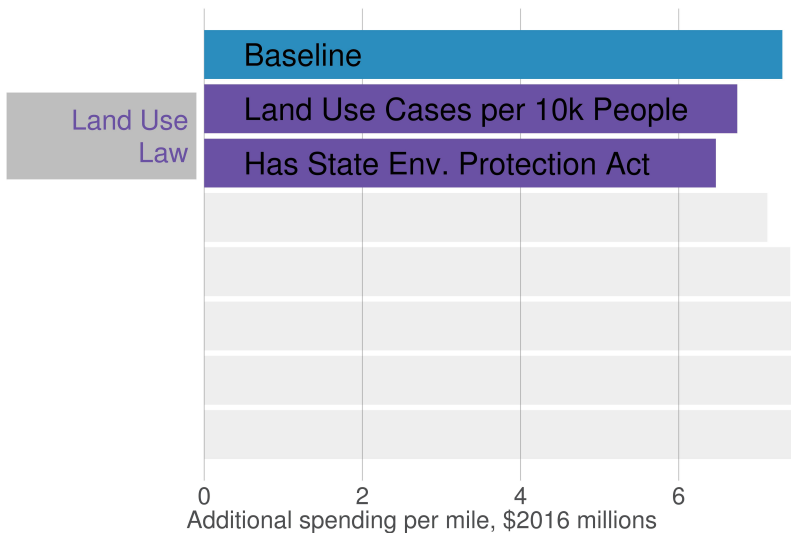
Measures of Labor Strength Unrelated to Spending Increase



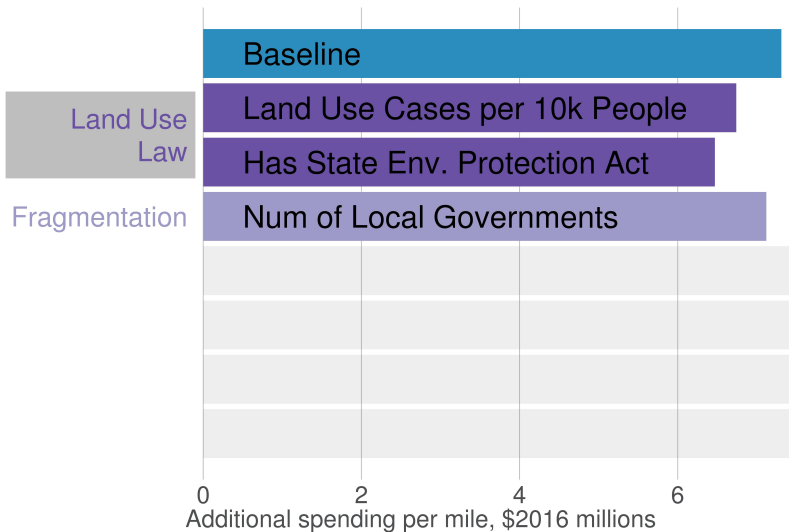
Using the Principles of Proximity and Similarity



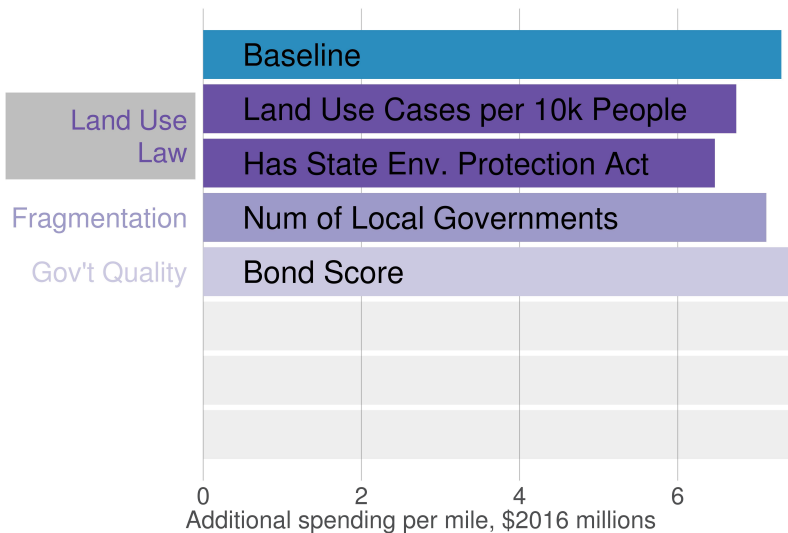
Using the Principles of Proximity and Similarity



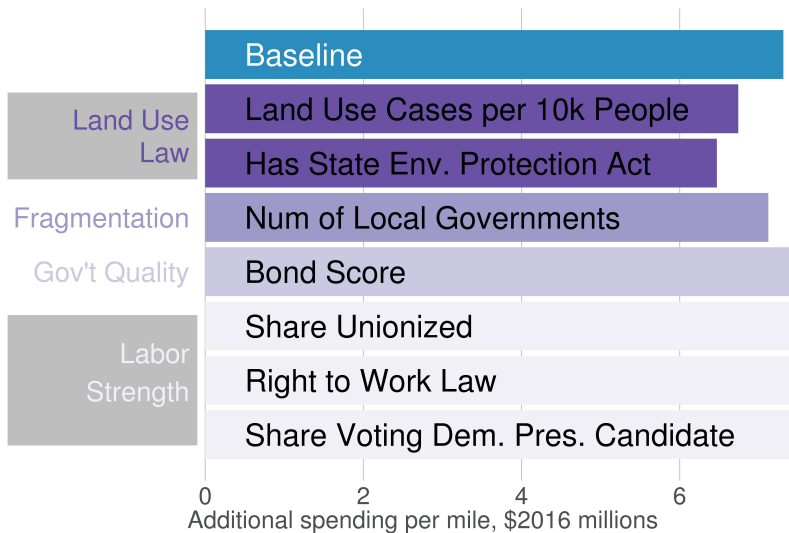
Using the Principles of Proximity and Similarity



Using the Principles of Proximity and Similarity



Using the Principles of Proximity and Similarity



R: Merging

What is a Merge?

You want to put together

Dataset A – One obs/ID

ID	Income
A	50
B	100

Dataset B – One obs/ID

ID	Pool
A	TRUE
B	FALSE

What is a Merge?

You want to put together

Dataset A – One obs/ID

ID	Income
A	50
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Dataset B – One obs/ID

ID	Pool
A	TRUE
B	FALSE

Into

ID	Income	Pool
A	50	TRUE
B	100	FALSE

This is a 1 to 1 merge.

What is a Many to 1 Merge?

You want to put together

Dataset A – One obs/ID

ID	Income
A	50
B	100

Dataset B – many obs/ID

ID	Pool	Year
A	TRUE	2020
B	FALSE	2020
A	TRUE	2021
B	TRUE	2021