

# Lecture 8: Line Charts

March 27, 2023

# Course Administration

1. Next week (9): guest lecture
  - Kate Rabinowitz, Wash Po, via Zoom
  - Please ask questions!
2. Next week (9): in-class workshop
  - Workshop instructions online under Lecture 6
  - Post your work by April 2 at 3 pm
3. Sign up for consultations
  - in lieu of class meeting April 17
  - sign up for new slots on April 13
  - see link in Lecture 11
  - if you need more spots, please let me know
4. Ask for help!
  - Use Piazza
  - Shikha is here for coding advice
5. No Brooks office hours week of April 17
6. Presentations and final brief
  - see handout posted under today's lecture
7. Anything else?

## Next Week

Post this week by Wednesday noon. Look for a line chart.

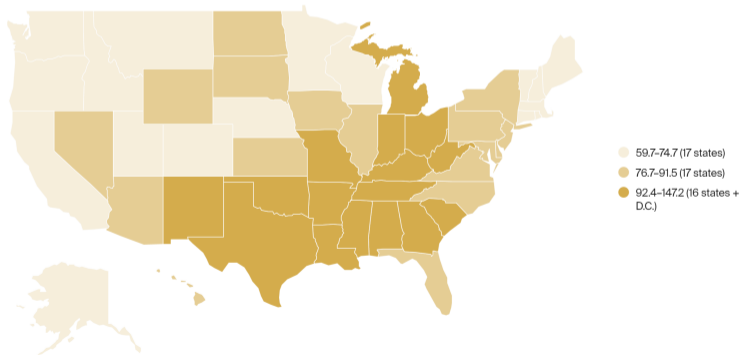
Presenters go after guest speaker and before in-class workshop.

Finder	Commenter
Caitlin M.	Josh M.
Gio L.	Matthew D.

## Claire's Example, Comments by Caitlin

With people postponing routine health services because of COVID-19, deaths from treatable conditions like heart disease and diabetes rose. These deaths were particularly high in the South and parts of the Midwest.

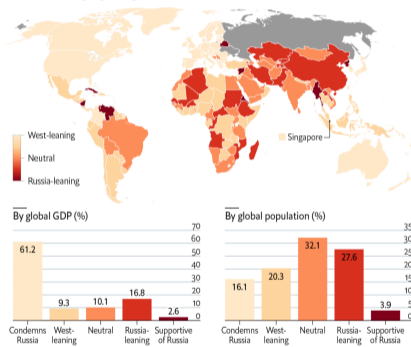
Deaths from health care treatable conditions before age 75, per 100,000 people





## Matthew's Example, Comments by Megan

Two-thirds of the world's population live in countries that are neutral or Russia-leaning regarding the war in Ukraine



Economist Intelligence Unit, "Russia Can Count on Support from Many Developing Countries," March 30, 2022. [\[link\]](#)

# Today

1. Line chart overview
2. Few on stories
3. Annotations, the power thereof

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Line charts in R

# Line Charts

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  - **Always** have consistent time units

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  - Pro: When data are sparse, readers assume full line is data



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- Slope has meaning:

## Line Charts

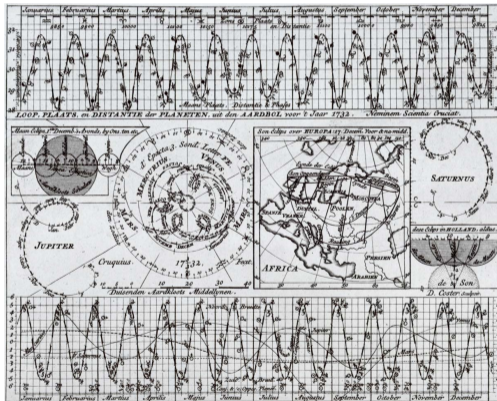
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- Should you put dots for points?
  - Con: Noisy, may add little info
  - Pro: When data are sparse, readers assume full line is data
- Slope has meaning: rate of change
- More than a few lines is too much

## Look at the Values on the Vertical Axis



# Line Chart, c. 1732

Nicolaas Kruik (1678-1754) "land surveyor, cartographer, astronomer and weatherman" who "liked to measure things"



Thanks to [Wikipedia](#).

# How to Call Things out in a Line Chart

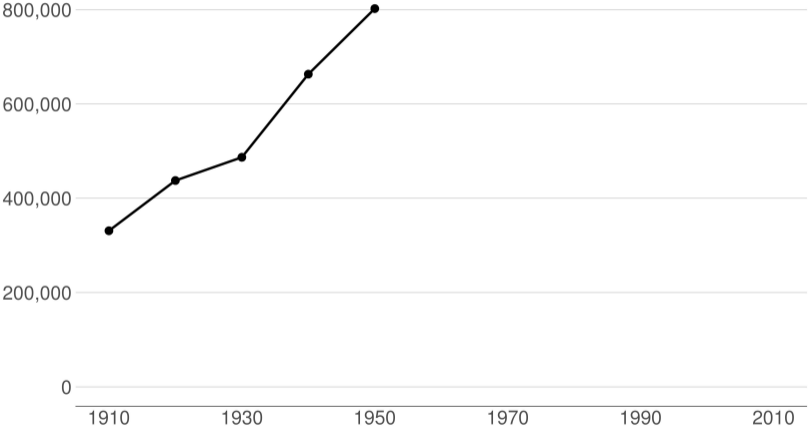
## How to Call Things out in a Line Chart

Think back to preattentive processing

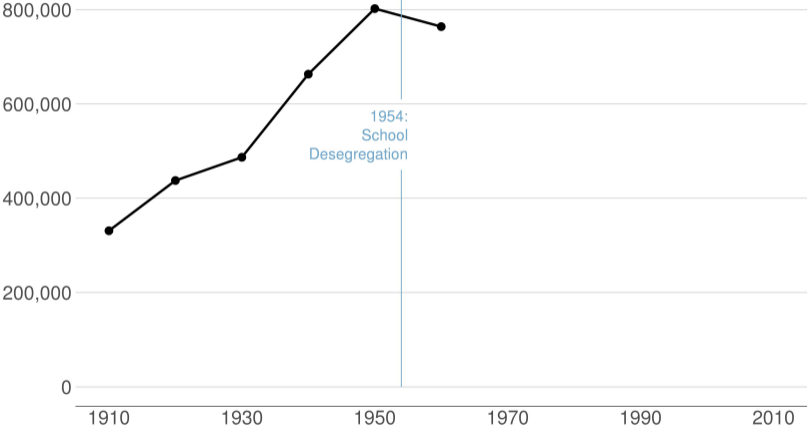
- color
- size
- timing

My example with this; think how to re-do for a report.

# DC Gains Population Through 1950

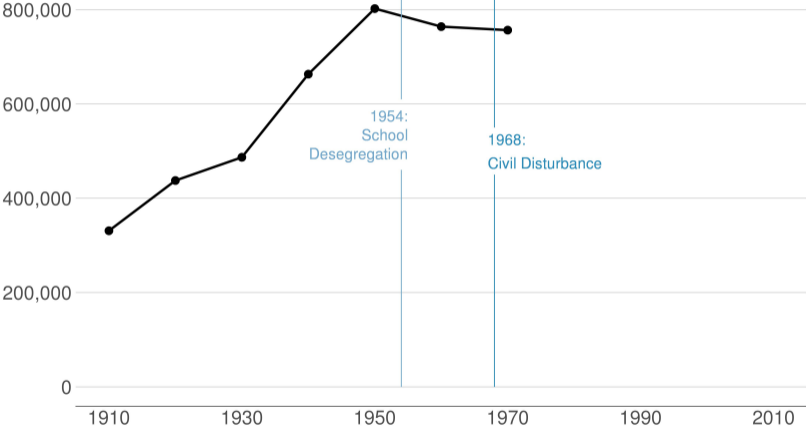


# Population Loses Start with Desegregation

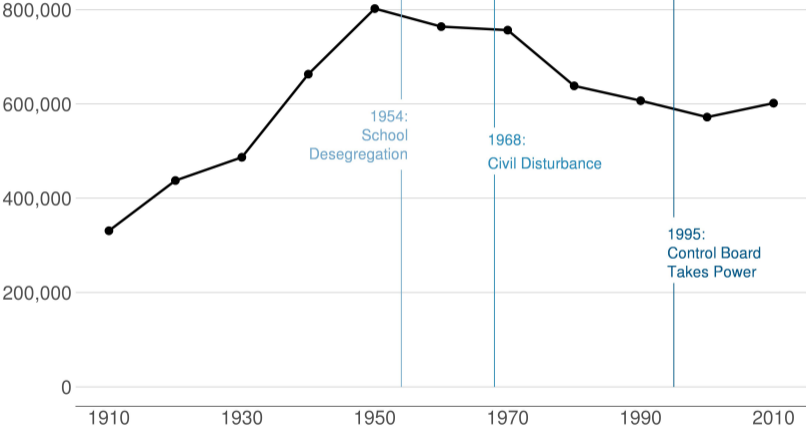




# Continue After Civil Disturbance



# Population Turns Up After 2000



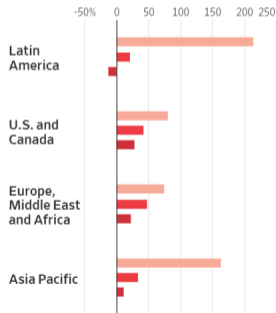
# Something That Should be a Line Chart

## Slower Ride

Uber's growth in Latin America has slowed in recent years.

### Change in revenue from previous year

■ 2017 ■ 2018 ■ 2019\*



\*first nine months

Source: Uber's SEC filings

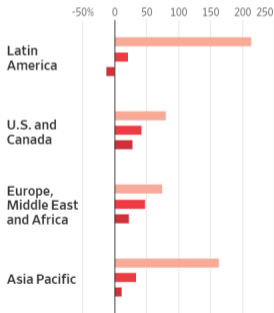
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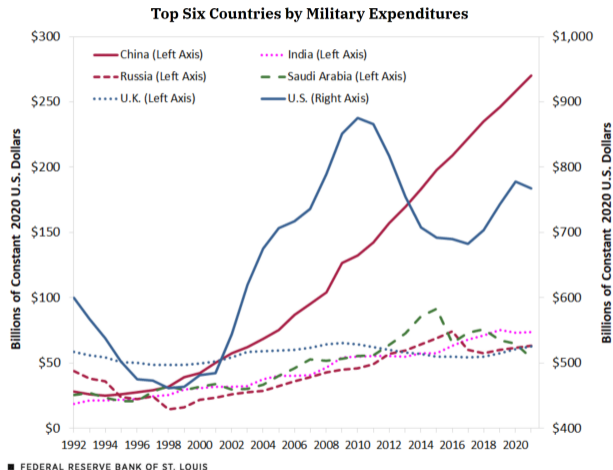
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- We use lines to show change over time
- Lines make pace of change obvious
- These bars have to point out years
- Vertical alignment of lines would show that they are the same year

From this very interesting [WSJ article](#) about Soft Bank's funding of Uber and its competitors

# Look Carefully! What is Misleading?

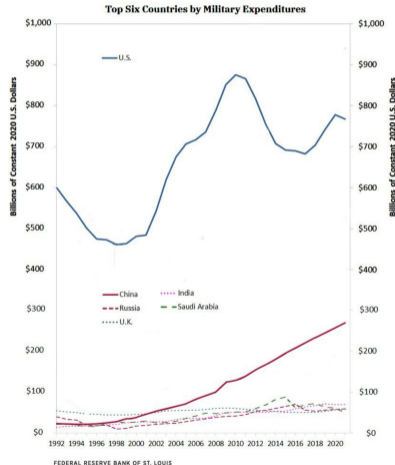
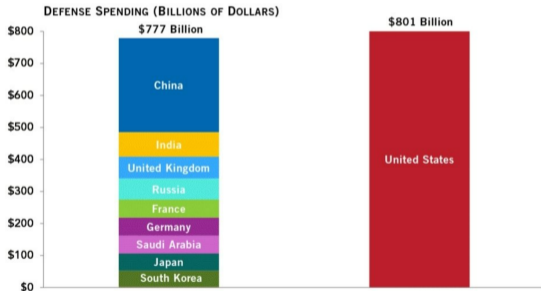


With thanks to William Berry for bringing this to my attention. "Military Expenditures: How Do the Top-Spending Nations Compare?", January 3, 2023. [\[link\]](#)

# Two Revisions



The United States spends more on defense than the next 9 countries combined



See the Twitter thread [\[here\]](#).

# Few on Stories

## Chap 13: Telling Compelling Stories with Numbers

- Answer to “Is it a good chart?” depends on the story you’re trying to tell
- The graphic can tell you about the story
- But the story can also lead you to the graphic
- Make sure you know the point that the graphic should make



## Few's Components of a Compelling Story

- **Simple**
- Seamless
- Informative
- True
- **Contextual**
- Familiar
- Concrete
- Personal
- Emotional
- Actionable
- **Sequential**

# Simple

- Always present the simplest possible version of your analysis first
- Summary statistics preferred to regression coefficients

# Contextual

- Very important for magnitudes with which people are not familiar
- Helps us answer “so what” question
- Regression tables should have dependent variable means
- Visuals can put in context
  - dates
  - comparative categories
  - baseline mean
  - standard deviation

# Contextual

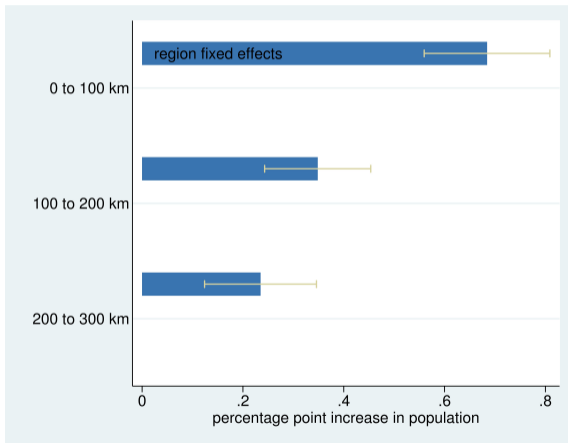
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What does this mean for your policy brief?

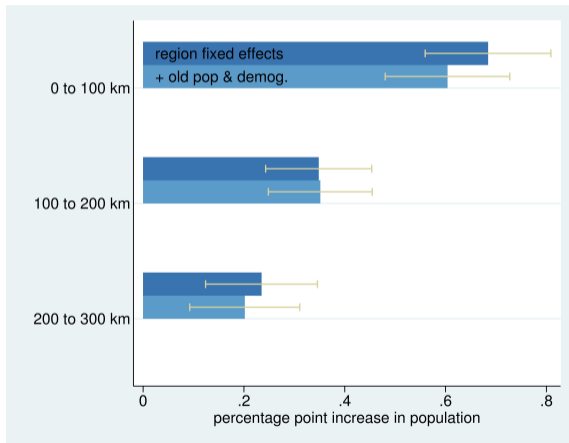
# Sequential

- It is possible to present relatively complex graphics
- With proper groundwork
- Can be easier in a presentation than in a paper
- Paper/screen visuals need to be sequential differently
  - dance on screen vs dance in person

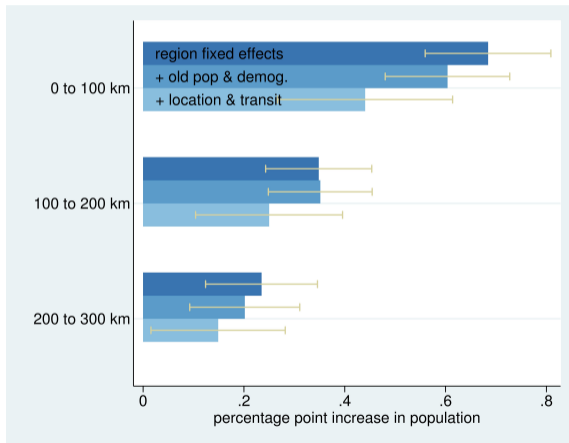
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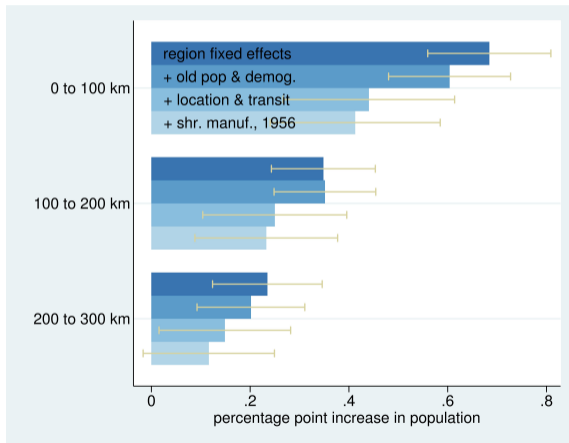


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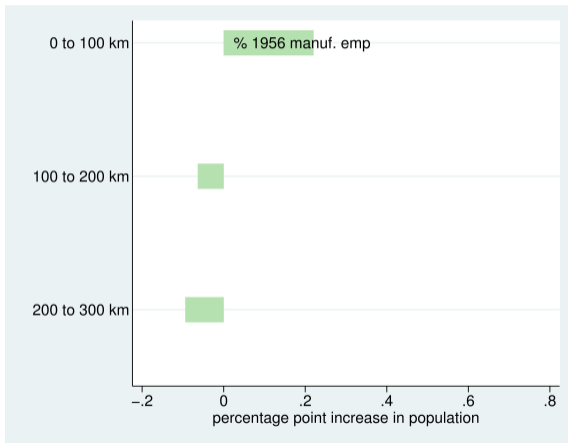




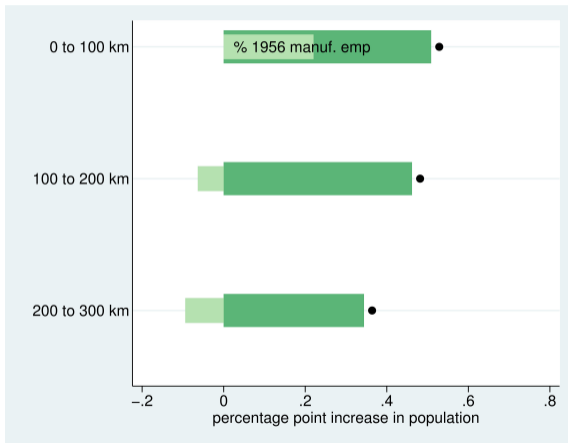
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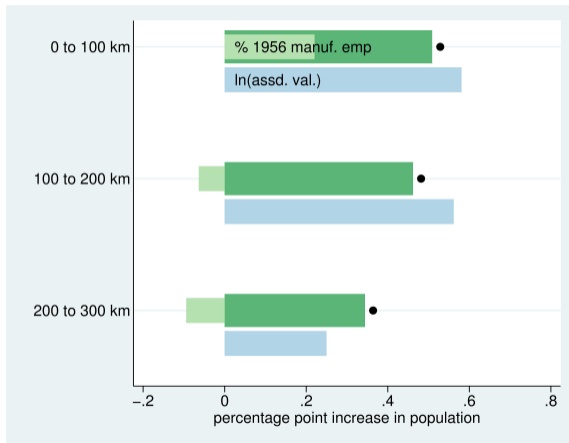
# Interaction Effects



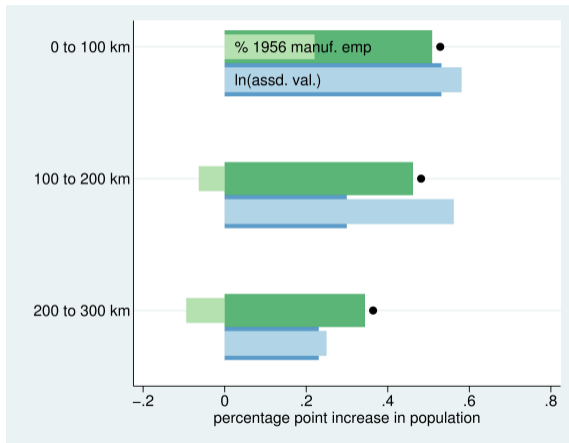
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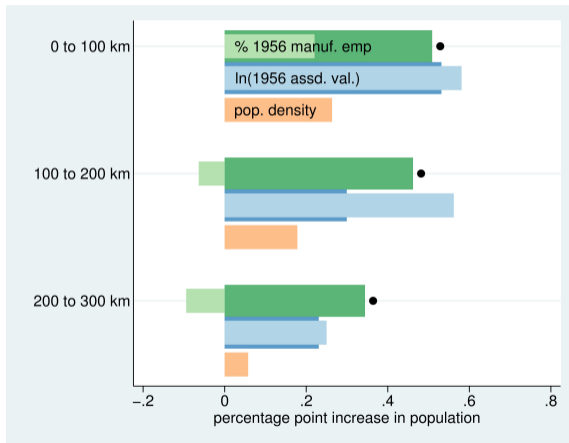
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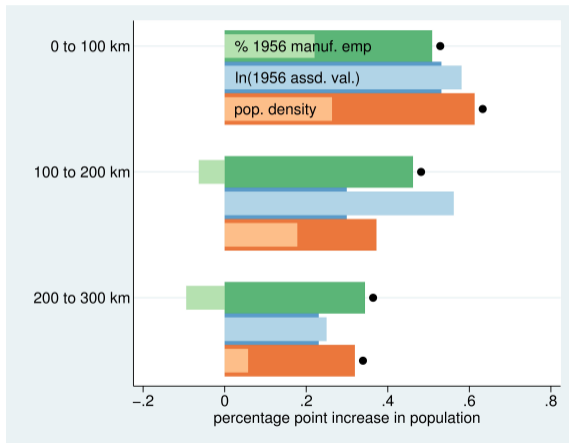
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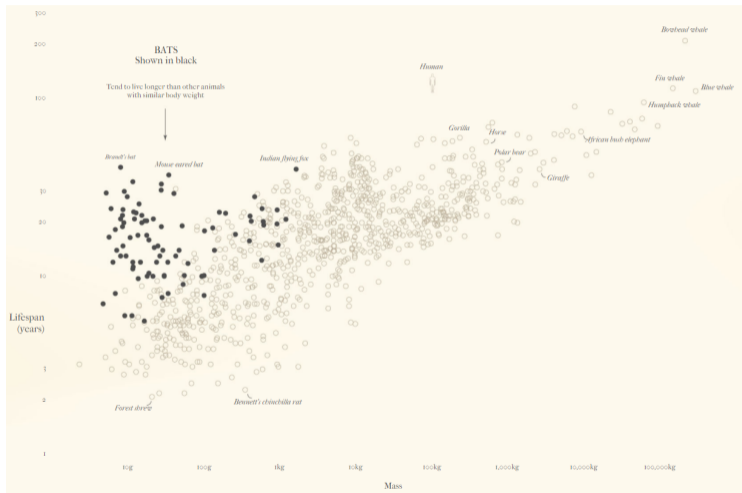
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# Annotations



# A Great Use of Annotations



# Today in R

## Next Lecture

- Next week
  - Guest speaker
  - In-class workshop
  - We are likely to end at 5:20
- Post on time!
- I will be around to answer questions