

STAT 157/260: Forecasting

Calibration Group Exercises

1/21/2022

We'll work through this sheet in class on Friday, 1/21 in groups of 2-3 to estimate a collection of known quantities. Please make a copy of this Google doc, fill out your answers (it's ok to have the same answers as your group members; everyone should fill out their own worksheet), and submit it for participation points on Gradescope under the "Discussion 1: Calibration" assignment. Submit what you have at the end of the hour – it's ok if you didn't finish every question!

For students who have contacted us about absences this Friday, please spend an hour on this sheet and submit to the same Gradescope assignment. Try to get through at least 10 questions.

All estimates should be made as 80% confidence intervals. Please don't use the internet, you'll just get less out of the session.

Viruses

- 1) Number of lab biosecurity incidents (accidental infections, or containment failures) of the SARS, Ebola, or Smallpox viruses in the last 20 years according to Wikipedia.

Considerations, reasoning, intermediate estimates:

Confidence interval:

- 2) World wide death rate from Spanish Flu (percentage of those infected who died from the Spanish Flu). (Answer sourced from the most cited academic paper referenced in Our World in Data).

Considerations, reasoning, intermediate estimates:

Confidence interval:

- 3) A UCSF doctor tweeted on January 11 the fraction of people in their ICU admitted for Covid-19 complications that were unvaccinated. What was this fraction? (For context, the vaccination rate in SF is around 80%).

Considerations, reasoning, intermediate estimates:

Confidence interval:

- 4) Two perspectives on the economic impact of Covid-19 to date.
- a) Number of people pushed into extreme poverty, estimated by the World Bank.

Considerations, reasoning, intermediate estimates:

Confidence interval:

- b) The difference, as a percentage, between OECD projections for world GDP in 2021 and actual world GDP (attributed primarily to Covid-19).

Considerations, reasoning, intermediate estimates:

Confidence interval:

Berkeley

- 1) Number of times Berkeley won the big game in the last 10 years.

Considerations, reasoning, intermediate estimates:

Confidence interval:

- 2) Number of students enrolled at Berkeley. (Fall 2021 numbers)

Considerations, reasoning, intermediate estimates:

Confidence interval:

AI/CS/Statistics

- 1) The number of new submissions to arxiv.org under the category "CS" in 2020.

Considerations, reasoning, intermediate estimates:

Confidence interval:

- 2) Number of PhD graduates in math, statistics, and computer science in the US in 2019.

Considerations, reasoning, intermediate estimates:

Confidence interval:

- 3) Market cap of all cryptocurrencies (On Jan. 1, 2022). For context, Bitcoin launched in 2009.

Considerations, reasoning, intermediate estimates:

Confidence interval:

- 4) Given a constant amount of inflation adjusted dollars, how much more compute (instructions/second) do you get in 2000 than in 1900? (Give your answer as a multiplicative factor, e.g. "**10** times more compute") (source Ray Kurzweil)

Considerations, reasoning, intermediate estimates:

Confidence interval:

US policy/macroeconomics

- 1) Country GDP's

- a) US

Considerations, reasoning, intermediate estimates:

Confidence interval:

- b) China

Considerations, reasoning, intermediate estimates:

Confidence interval:

- c) World

Considerations, reasoning, intermediate estimates:

Confidence interval:

- 2) US government budget 2020

Considerations, reasoning, intermediate estimates:

Confidence interval:

3) Percentage of US GDP that went to US government spending on

a) healthcare in 2020.

Considerations, reasoning, intermediate estimates:

Confidence interval:

b) military spending in 2020.

Considerations, reasoning, intermediate estimates:

Confidence interval:

c) foreign aid in 2020

Considerations, reasoning, intermediate estimates:

Confidence interval:

4) Money spent lobbying in the US in 2018 (as reported by the nonprofit Open Secrets)

Considerations, reasoning, intermediate estimates:

Confidence interval:

Relationships

1) What is the percentage of US adults 18-29 yrs old who are single – that is, not married, living with a partner or in a committed romantic relationship?

Considerations, reasoning, intermediate estimates:

Confidence interval:

2) What is the fertility rate (births per woman) in these countries?

a) US

Considerations, reasoning, intermediate estimates:

Confidence interval:

b) India

Considerations, reasoning, intermediate estimates:

Confidence interval:

Social Science

- 1) What percentage of federal criminal defendants go to trial?

Considerations, reasoning, intermediate estimates:

Confidence interval:

Misc

- 1) In tons, how heavy are the blocks of stone making up the Great Pyramid?

Considerations, reasoning, intermediate estimates:

Confidence interval:

- 2) How many cases of human spontaneous combustion appeared in medical journals between the years 1600 and 1900.

Considerations, reasoning, intermediate estimates:

Confidence interval: