Homework 1 (Bias examples)

Nan Tang (1662478)

1. After reading the most dangerous hospitals, the kidney cancer rate difference between rural and urban medical facilities, and the failure of Gate’s foundation project to convert large high schools into smaller ones, I found all these real-life events reflect the consequence of ignoring sample size when people are trying to evaluate the probability of a certain result. As Tversky and Kahnemen’s speaking, bias to evaluation of uncertain probability is affected by “insensitivity to sample size”. Sample size does matter when we are trying to figure out population parameters, since the standard error among samples is negatively related to the square root of sample size which can be described in term of De Moivre’s equation. When we are collecting samples of different sizes from population and assume the event we are looking for has the same base-rate among all samples, it’s easy to find larger proportion of samples with small size among both two sides of the sample distribution. And this is one of the reason that kidney cancer rates are found to be lower in rural hospitals (smaller sample), meanwhile more small-scale hospital are found to have higher mortality rate than bigger ones. Also, Gate’s failure on promoting small-school project is due to neglect the considerable difference among sample sizes of small high school and big school.
2. I remember that when I was doing my ESRM final exam last quarter, I was stumped by a question which asked how many meters the sea level during glacial period are lower than the level of interglacial period. At that time, I had no idea about the scale of rising sea level, and the only information that I’m certain was the statement that one meter’s rise of sea level would lead to enormous effects on world’s environmental condition. I anchored on this data, one meter, to guess the answer to the exam question, and finally chose the closest data, five meters. Undoubtedly, my guess was far away from the correct answer, which is fifty meters.

My personal example represents heuristics of anchoring and adjustment. More specifically, incorrect initial point and insufficient adjustment led to my bias on estimation.