

STA247-HW1

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Problem 1

(a)

The first suggestion is that this question should give some choices because most people don't really have a sense of how many potatoes they will eat for a whole year.

The second suggestion is that I think question needs to explain more on potatoes. Whether smashed potato and fries consider as potato? Or this question is just asking how many whole potatoes people eat.

The third suggestion I can give is that instead of asking this long time, asking the frequency of eating potatoes within a week maybe more reasonable. People have better memory on how many times they eat potatoes within a week than within a year. We can then estimate the number of potatoes they eat last year by roughly times the data 52 times

(b)

The first suggestion is changing the description because it implied only recovering 10% can serve 50 years. This is a leading question which people tend to support taking gas from shale because it just uses small percent.

The second suggestion is giving explanations for natural gas and shale. Telling people what is shale will help them answer the question. Many people don't know what is shale so they may just agree because they know natural gas can be used for family based on the description.

The third suggestion is making this question to be close question. Adding some choices like "strongly agree", "agree", "neutral", "disagree", "strongly disagree" maybe better than this open question. People may just write agree or disagree which is not specific.

(c)

One suggestion is that now this question seems like a double barreled question. Some people may just think the Patriots is a good football team and vice versa.

The second suggestion is to define "good" in question. Different people have different extends to say "good". For example, some people think getting into semi-final is already good but other may think being in the first place is good.

The third suggestion is adding some descriptions on each team. Like how many games they won last season and how many trophies they have in the history. People who are not familiar with these two teams are hard to make decisions unless there are some standards.

Problem 2

One source of measurement error maybe people sometimes do not answer honestly. It is hard to track whether participants actually wear pedometer all day. If they forget to wear it for someday, the step counts will be smaller than expected. Also, it is totally possible that after wearing this pedometer, participants actually do more exercise like running to manually increase the step counts. They want to show to investigator that they do exercise regularly or have a good health.

Problem 3

The first reason is that when only taking sample, we can do that much more quicker than taking a census. If the target population is really large, it is hard to have a complete census. We should balance the time on collecting data and the accuracy and trend that the data represents.

The second reason is that if we take the census, we may have overfitting problem. If there are some new variables add into target population, we may not really sussefully estimate future data. Taking the sample may have less accurate estimated population paramter then taking census, but it can better estimate future data.