

PROBLEM SET 1

Due 1.29.01 in class

Question 1.

What is statistics?

Question 2.

Explain the difference between descriptive and inferential statistics.

Question 3.

Explain how populations and variables differ, and give three examples for each.

Question 4.

Explain how populations and samples differ.

Question 5.

What is a representative sample? What is its value?

Question 6.

The Cutter Consortium recently surveyed 154 US companies to determine the extent of their involvement in e-commerce. Four of the questions they asked are listed below. For each question, determine the variable of interest and classify it as qualitative or quantitative. (Internet Week, Sept. 1999).

- (a) Do you have an overall e-commerce strategy?
- (b) If you do not already have an e-commerce plan, when will you implement one:
never; later than 2000; by the second half of 2000; by the first half of 2000; by the end of 1999?
- (c) Are you delivering products over the Internet?
- (d) What was your company's total revenue in the last fiscal year?

Question 7.

Pollsters regularly conduct opinion polls to determine the popularity rating of the current President. Suppose a poll is to be conducted tomorrow in which 2,000 individuals will be asked whether you expect the new President to do a good or bad job. The 2,000 individuals will be selected by random-digit telephone dialing and asked the question over the phone.

- (a) What is the relevant population?
- (b) What is the variable of interest? Is it qualitative or quantitative?
- (c) What is the sample?
- (d) What is the inference of interest to the pollster?
- (e) What method of data collection is employed?
- (f) How likely is the sample to be representative?

Question 8.

For the past 15 years, U.S. companies have strived to downsize and cut costs through outsourcing and the use of temporary employees. In fact, the number of temp workers has increased by more than 250% in the 1990's. The Institute of Management and Office Angels – U.K.'s secretarial recruitment agency – conducted a survey to study the temporary employment market. They mailed a questionnaire to a random sample of 4,000 Institute of Management members and received 684 replies. One question asked: "Do you expect an increase, no change, or decrease in the number of temporary employees in your organization by 2002?" 43% indicated that the number of temporary employees would increase.

- (a) Identify the data collection method used by the researcher.
- (b) Identify the population sampled by the researcher.
- (c) Based on the question asked, what is the variable of interest?
- (d) Is the variable qualitative or quantitative?
- (e) Is the sample of respondents likely to be representative?
- (f) What inference can be made from the result of the study?