Basic Data Analysis

Stephen Turnbull

Business Administration and Public Policy

Homework 1: Due April 28, 2011

Requirements

Homework assignment on types of variables.

Homework 1: due April 28, 11:45am

Submit homework by **email** to `data-hw@turnbull.sk.tsukuba.ac.jp`. Note
the due date is April 28, **11:45am**. Submission time is time of receipt by
the server.

For this homework, please submit as *plain text* (no wordprocessor or PDF
attachments). In other words, "just type" your answer in the email. In
the *first line*, include your name, your student ID number, and the words
"Homework 1".

You may answer in English or Japanese. In answering, you *must* explain
why the answer you give is correct to receive credit.

If you wish to ask me questions and get an answer, *write a separate email* to
`data-help@turnbull.sk.tsukuba.ac.jp`.

Problems

1. In student evaluations of a course, one question that might be asked is
   "was the pace of lectures (1) too slow; (2) about right; (3) too fast?"
   The students' answers might be collected as data for a variable named
   pace. Is **pace** a qualitative, ordinal, or cardinal variable? If cardinal,
   is it discrete or continuous?

2. In Problem **??**, suppose that 50% of the students say the lectures were
   "too slow", and 50% say that it was "too fast". Does it make sense to
   take the average, and say that pace was "about right"?

3. In the mass media (*e.g.*, newpapers or their Internet home pages, but not a statistical textbook or the Wikipedia), find an example of each type of variable:

   (a) qualitative

   (b) ordinal

   (c) discrete cardinal

   (d) continuous cardinal

   Also give the URL or bibliographic information about where you found the variable. You may use one source for all the types, or different sources, as convenient.

4. In the mass media, find an example of statistics derived from each of

   (a) a controlled experiment

   (b) an observational study

   Also give the URL or bibliographic information about where you found the example. You may use one source for both examples, or different sources, as convenient.

5. In the *controlled experiment* you gave as an example in your answer to Problem **??**, was the treatment chosen randomly?

6. For the *observational study* you gave as an example in your answer to Problem **??**, give an example of a possible *confounding variable*.