



Statistics for Social Sciences

Exercises 1

PROBLEM 1. Indicate which variables are qualitative and which are quantitative:

- a) Eye colour.
- b) Number of siblings.
- c) Public Madrid University attended.
- d) The height of a baby at birth.
- e) The newspaper you read most frequently.
- f) Telephone number of a student.
- g) The favourite food of students in the class.
- h) Who went to the party?
- i) How many people were at the party?
- j) Number of rooms in a hotel.

PROBLEM 2. Of the qualitative variables in the previous question, which are ordinal and which are nominal?

PROBLEM 3. Of the quantitative variables, which are discrete and which are continuous?

PROBLEM 4. It is wished to study the opinions of Madrileños on the possible Independence of Cataluña (strongly against, against, neither in favour nor against, in favour, strongly in favour). With this objective, it is decided to take a simple of 20 UC3M students. Define:

- a) The population of interest.
- b) The variable.
- c) What type of variable it is.
- d) The sample.
- e) The datum which corresponds with your opinion.

PROBLEM 5. In the previous question, does the way of choosing the sample seem reasonable? Comment your answer.

PROBLEM 6. The following table gives the union memberships of 100 different workers:

UGT	CCOO	Otro	CNT	UGT	CCOO	None	CNT	UGT	None
CCOO	CCOO	Otro	CNT	CCOO	CNT	CNT	Otro	Otro	CNT
None	Otro	None	None	CNT	Otro	None	None	Otro	CCOO
UGT	None	None	CCOO	Otro	None	CCOO	CCOO	None	CNT
UGT	None	None	UGT	UGT	None	Otro	Otro	CNT	Otro
CNT	CNT	CCOO	UGT	CNT	None	UGT	UGT	None	UGT
Otro	CNT	CCOO	UGT	Otro	CNT	None	UGT	CNT	Otro
Otro	None	UGT	None						
None	CCOO	UGT	CNT	None	Otro	CNT	None	CCOO	UGT
CCOO	UGT	None	CCOO	UGT	CNT	UGT	CCOO	CNT	UGT

- a) For each worker, the common characteristic, "Union of which they are a member", is defined to be a random variable. **Why is it a variable? Why is it random?**
- b) Is this a quantitative or qualitative variable?
- c) Count how many workers there are in the different categories and display the results in a table.

Note that you can use the `countif(range;criterion)` option to do this. If the criterion is non-numeric as here, you can put this between quotes, for example `countif(A1:A5;"UGT")`.

Open an Excel worksheet and enter the data in cells A1:J10.

PROBLEM 8. The following questions were asked in a Daily Record survey of Scottish opinions in June 2014:

- Should Scotland be an independent country?
- On a scale of 1 to 10, how likely is it that you would vote in a referendum on Scottish independence? (1 means absolutely certain would not and 10 absolutely certain would).

The technical information associated with the survey was as follows.

Technical note:

- This presents the topline results from Scotland
- Results are based on a survey of 1,003 respondents (adults aged 16+) conducted by [telephone](#)
- Fieldwork dates: 26th May 2014 – 1st June 2014
- Data are weighted by: age, sex and working status using census data; tenure using Scottish Household Survey data; and public-private sector employment using Scottish Government Quarterly Public Sector Employment series data
- Where results do not sum to 100%, this may be due to computer rounding, multiple responses, or the exclusion of “don’t know” categories
- Results are based on all respondents (1,003) unless otherwise stated

In each case, what are the population, the variable and the sample size? Are there any factors that you think could bias the survey results?