

# ECON7350: Applied Econometrics for Macroeconomics and Finance

## Tutorial 1: R and Basic Operations

At the end of this tutorial you should be able to:

- use R to read, manipulate and save data and workfiles;
- use R to compute descriptive statistics;
- use R to conduct hypothesis tests concerning a population mean.

### Problems

1. The text file `consumption.txt` contains observations on the weekly family consumption expenditure (`CONS`) and income (`INC`) for a sample of 10 families.

(a) Read the data into R.

(b) Draw a scatter diagram of `CONS` against `INC`.

(c) On checking the data, you find that your assistant has recorded the weekly consumption expenditure for Family 8 as \$900 instead of \$90. Correct this error and redraw the scatter diagram.

(d) Compute the mean, median, maximum and minimum values of `INC` and `CONS`.

(e) Compute the correlation coefficient between `CONS` and `INC`. Comment on the result.

(f) Create the following new variables:

$$DCONS = 0.5CONS,$$

$$LCONS = \log(CONS),$$

$$INC2 = INC^2,$$

$$SQRTINC = \sqrt{INC}.$$

(g) Delete the variables `DCONS` and `SQRTINC`.

(h) Delete everything.

2. At the Famous Fulton Fish Market in New York city, sales of whiting (a type of fish) vary from day to day. Over a period of several months, daily quantities sold (in pounds) were observed. These data are in the file `fultonfish.dat`. Description of the data is in the file `fultonfish.def`. Describe the first four columns.
- (a) Use R to open the data file and name the series in the first four columns as `date`, `lprice`, `quan` and `lquan`.
  - (b) Compute the sample mean and standard deviation of the quantity sold (`quan`).
  - (c) Test the null hypothesis that the mean quantity sold is equal to 7,200 pounds a day at the 5% level of significance.
  - (d) Construct the 95% confidence interval for part (c).
  - (e) Plot `lprice` against `lquan` and label the variable `lprice` as “log(Price) of whiting per pound” and `lquan` as “log(Quantity)”. Then, comment on the nature of the relationship between these two variables.
  - (f) Save this workfile to any folder on any drive.

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