Comp Econ Homework Set 1

Date 5th Feb 2016

Due Date: 11th Feb 2016

Formal Homework (for Submission)

Use C and GSL (the GNU Scientific Library) to carry out the next coding exercise.

Exercise 1. Consider the AR(1) model

$$X_{t+1} = \alpha X_t + \beta + \sigma W_{t+1}, \quad \{W_t\} \sim N(0,1), \quad \alpha \in (0,1).$$

It is well known that the standard OLS estimate of α is biased downwards. Use simulation to provide evidence of this phenomenon. Your program should print out this evidence when run.

Be sure to add comments throughout your code (e.g., meanings of variables) and indent code blocks in a manner similar to the examples given in the lecture. Also, your code should compile with, after the obvious modification,

```
gcc -Wall my_file_name.c -lgsl -lgslcblas -lm -o my_file_name
```

After you've tested your code, fork

https://github.com/jstac/quantecon_nyu_2016_homework

and add your solution as a file to the directory `hw_set_1` via a pull request. The name of your file should be `firstname_lastname.c`.

At the top of the file add comments similar to

```
/*
 * Homework set 1
 *
 * Your Name, UniID XXYY
 *
 * Shows downward bias in the OLS estimate of the
 * correlation coefficient in an AR(1) regression.
 *
 * Any additional comments here.
 */
```

Other Homework (not for Submission)

This homework is not for submission but is also important.

Exercise 2. Read and work through

- http://quant-econ.net/py/getting_started.html