

ECON 3040 – Assignment #3 – The value of an extra fireplace

Due: Mar. 12th

- This assignment is worth 3% of your final grade.
- Submit your assignment in the “Assignment 3” drop box on UM Learn. Include your name and student number.
- You must complete your assignment individually.
- Submit relevant R code for each question.
- Format your results nicely.

Load the house price data. You can see how to do this from the lecture slides or from the textbook near the beginning of Chapter 6, or use the following R code:

```
houses <- read.csv("http://home.cc.umanitoba.ca/~godwinrt/3040/data/houseprice.csv")
```

1.) Convert the *Price* variable so that it is measured in thousands of dollars (see Chapter 6 lecture notes).

2.) Estimate the population model:

$$Price = \beta_0 + \beta_1 Fireplaces + \epsilon$$

Report relevant results according to section 5.4 of the textbook.

3.) Estimate the population model:

$$Price = \beta_0 + \beta_1 Fireplaces + \beta_2 Living.Area + \epsilon$$

Report relevant results according to section 5.4 of the textbook.

4.) Carefully explain why there is such a big difference between the effects for *Fireplaces* in questions (2) and (3).

5.) What does the model predict for the price of a house, when it has 2 fireplaces and is 2000 square feet?

6.) Estimate a model which includes all variables that you think are important for the determination of house price, and that may be related (correlated) to *Fireplaces*. Include a table with all estimated β s and standard errors. See Table 6.2 on page 88 of the textbook for example of what the table should look like.

You may leave the Fuel/Heat/Sewer categorical variables out of the assignment, for simplicity.

7.) Using your estimated model from question (6), test the hypothesis that the number of *Fireplaces* has no effect on *Price*.