

# HW1

BR

24/01/2020

a) What is the effect of adding an additional room on the house price, holding NOx concentrations and student-teacher ratio constant?

An extra room will increase the house price by \$6419.07

b) What is the estimated effect on house values of reducing NOx concentrations by 2.5 parts per 100 million?

Reducing the NOx concentrations by 2.5 parts per 100 million will increase the value of the house by \$3827.06

c) What percent of the variation in house values is explained by NOx concentrations, number of rooms, and student-teacher ratio?

57.08 %

d) What is the predicted value of a house with NOx concentrations of 6, with 7 rooms, and a student-teacher ratio of 20? The actual price for that house was \$20,000. Did the buyer overpay for this house?

The predicted value of the house is  $\$2.443329 \times 10^4$ . The buyer got a great deal on the house!

(e) Test the null hypothesis that

Rejection Null. test-statistic is 47.82. We can reject the null hypothesis at the 5% interval that the coefficient is not zero.

(f) Test the null hypothesis that jointly equal zero.

F-statistic for this joint hypothesis test is about 295.09 and the corresponding p-value is NA,  $8.3526007 \times 10^{-65}$ . Thus, we can reject the null hypothesis that both coefficients are zero

(g) Test the null hypothesis that

F-statistic for this joint hypothesis test is about 1.56 and the corresponding p-value is NA, 0.2122318. Thus, we cannot reject the null hypothesis that both coefficients are equal.