

BUS 735: Business Decision Making and Research

Instructor: Dr. James Murray

In-class Exercise: Regression Analysis

Tuesday, September 18, 2012

Learning Objectives:

- LO2: Be able to construct and use multiple regression models (including some limited dependent variable models) to construct and test hypotheses considering complex relationships among multiple variables.
- LO6: Be able to use standard computer packages such as SPSS and Excel to conduct the quantitative analyses described in the learning objectives above.
- LO7: Have a sound familiarity of various statistical and quantitative methods in order to be able to approach a business decision problem and be able to select appropriate methods to answer the question.

Directions: Work in groups of up to four people and answer the following questions. All papers will be collected, but only one member's paper will be randomly selected and graded and all members of the group will receive the same grade.

By signing below, you agree that the following work represents the efforts of everyone in the group, and you are willing to accept as your own grade for the group project the grade earned from this representation of your group's work. Every member must agree to these terms to earn a non-zero grade for this assignment.

_____ Signature Group Member 1	_____ Print Name	_____ Date
_____ Signature Group Member 2	_____ Print Name	_____ Date
_____ Signature Group Member 3	_____ Print Name	_____ Date
_____ Signature Group Member 4	_____ Print Name	_____ Date

The dataset *house.sav* data on 239 recently sold houses including the selling price (in thousands of dollars), the size of the house (in square feet), the number of bedrooms, whether or not the house is on a corner lot (1=corner lot, 0=otherwise) and the age of the house in years. Develop a regression model that can help potential home sellers figure out how much they might get for their house based on the other variables in the dataset.

1. Estimate the regression equation and write down the estimated equation.
2. What is your prediction for the average selling price of a house that is on a corner lot, has 3 bedrooms, is 2412 square feet, and is 18 years old?
3. What percentage of the variability in selling price is explained by your explanatory variables?

4. Suppose your real estate agent said the age of the house has no bearing on the selling price of a house, it is only the other factors that are important along with preparing your house so that it looks visually attractive to buyers. Test the real estate agent's claim. What is your conclusion?

5. Test the hypothesis that at least one of your explanatory variables in your regression model helps explain housing prices.

6. Think about this example. Is there any reason why any of the explanatory variables might be correlated? Which ones? For these variables, compute the Pearson Correlation Coefficient and test whether the correlation is different from zero.