

STAT 215: WHAT IS A MODEL?

The main focus of this course is statistical models. The word “model” can mean many different things. Do the kinds of models we talk about in casual conversation have important similarities to statistical models? Is there insight to be had about statistical models by thinking about non-statistical models?

- (1) Come up with three (or more) examples of things that we call “models” (not from statistics!). Are there things they all have in common?

- (2) Based on the common properties you have identified, come up with a working definition of what a “model” is in general. (You don’t necessarily need to shoe-horn every possible thing called a “model” into this definition — words can have different senses, after all!)

- (3) Based on your working definition, is there anything that you would consider to be a “model” that does not have the word in its name?

- (4) A real estate agent uses data from homes sold in a region in northern New York State to come up with the following model to relate sale price of a home to its size in square feet. (The linear model is superimposed on the data in Fig. 1 as well)

$$\text{Price (\$ Thousands)} \approx 17.06 + 0.064 \times \text{Size (square feet)}$$

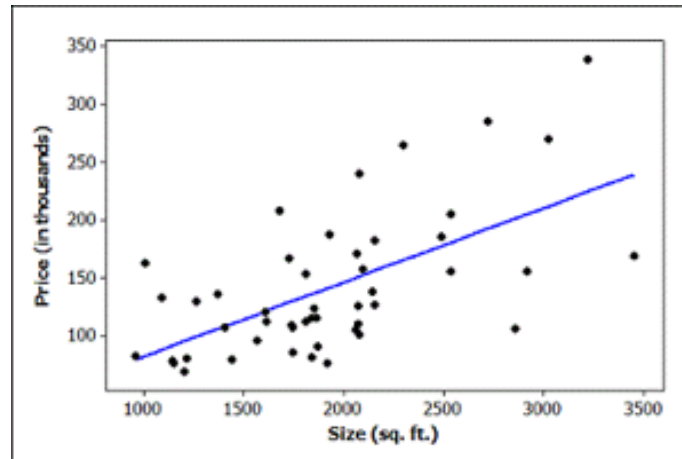


FIGURE 1. Linear model relating sale price of homes to their size

To what extent does this model fit your working definition? How? In what ways might this model be wrong? What other kinds of models might a person construct to predict home prices?