Quant Assignment 4: Pricing

Please complete this assignment using the excel spreadsheet data with prices and quantities. It is due at the beginning of week 6. Please submit type-written answers (in word or pdf) as well as your scatterplot and regression results.

The data is the output of a pricing experiment (i.e. the prices are randomly set in an effort to find the price elasticity) done by a retailer of a new product that is a monopolist in its category. The fields are prices and quantities in 200 distinct markets. The development cost of the product was $8 million. The marginal cost of production of the product is $5.

1. What does it mean for there to be "good" variation in prices? Is there good variation in these prices? Why or why not?
2. What is the formula for optimal pricing of the firm?
3. What parameter of the optimal pricing formula do you want to use the data to find?
4. Do a scatterplot of your prices and quantities. Does anything stand out?
5. What regression would you run to find that parameter?
6. Run the regression you suggest and find the parameter.
7. Compute the optimal price.
8. Suppose you are able to lower your production cost to $4 per unit. How would that change the optimal price?
9. Suppose you are fined $8 million for having misleading packaging. How would that change the optimal price?
10. Suppose a competing firm entered the market with a similar product. What would that change in the pricing formula? Would you want to make your price higher or lower as a result?