



Advanced Statistics (STA 327 AB)

Final Project Version A

What Determines the Demand for Chicken?

Due on April 29, 2020

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Spring 2020

Use Excel to Run All the Regressions and Show All Your Work:

What determines the demand for chicken? The law of demand says that as the price of any good increases, we tend to buy less of it and vice versa. In addition to the price of chicken, other variables such as income and the price of a substitute or a complement affect the demand for chicken. Using the “D70 for Chicken Data” file posted on Campus Web, write a 3-to-5-page project addressing this question. Make sure to include the following:

1. Run a regression of the per capita consumption of chicken on the price of chicken and answer the following questions:
 - a. Write down your estimated equation.
 - b. Are your estimated coefficients significant? Explain.
 - c. According to your estimate, what is the predicted per capita chicken consumption if the price of chicken is zero?
 - d. According to your estimate, what is the predicted change in the per capital chicken consumption if the price of chicken increases by 10 cents?
 - e. According to your estimate, what is the predicted per capital chicken consumption if the price of chicken is 10 cents per pound?
 - f. Does the price of chicken account for a large fraction of the variation in the per capita consumption of chicken?

2. Run a regression of the per capita consumption of chicken on the price of chicken and the price of beef and answer the following questions:
 - a. Write down your estimated equation.
 - b. Are your estimated coefficients significant? Explain.
 - c. According to your estimate, what is the predicted per capital chicken consumption if the price of chicken is 10 cents per pound and the price of beef is 60 cents per pound?
 - d. According to your estimate, what is the predicted per capital chicken consumption if the price of chicken is 15 cents per pound and the price of beef is 70 cents per pound?
 - e. What is the value of R^2 in your model? What does it mean?
3. Run a regression of the per capita consumption of chicken on the price of chicken, the price of beef, and the per capita disposable income, and then answer the following questions:
 - a. Write down the estimated equation.
 - b. What does each estimated coefficient mean?
 - c. What is the value of R^2 in your model? What does it mean?
 - d. Compare R^2 of this model to R^2 you obtained in the previous two regressions and explain why they are different.
 - e. What is the value of adjusted R^2 in your model?
 - f. Using the F-test, test the significance of the model: Are all your explanatory variables significant?
 - g. Using the t-test, test the hypothesis that each of your individual variable is significant.

General Comments:

Make sure while you are writing your final project to include the following:

- Start with a short introduction to explain the purpose of the project. Explain to a general reader what this project is all about.
- Mention the data and the variables used, specifically binary (dummy) variables. Make sure to include the units of measurements used for each variable.
- Explain the methodology used in your analysis and the software used to run the regressions.
- Report the estimated equations the proper way.
- Make sure you interpret the coefficients of each regression.
- Make sure the final project is smoothly read, i.e. don't simply answer the questions. Answer the questions in a smooth way so that the project is a short paper.
- In the end, include a short conclusion in which you compare all the models.