

In this project I am asking you to analyze when it is actually profitable to travel out of your way to purchase gas at a cheaper price.

First off, we had a discussion in class on Tuesday and decided upon the variables which were important and we had some sort of control over. They were: normal price of gas, discounted price of gas, distance detoured, amount of gas purchased, and the average gas mileage of your car.

Lets define these variables as follows:

P_n := normal price of gas

P_d := discounted price of gas

D_d := distance detoured

G_p := amount of gas purchased (in gallons)

A_{vg} := average gas mileage of your car

1. Using the above variables how would you represent the cost of gas per mile driven if you purchased your gasoline at the normal price of gas?

2. How would you represent the cost of gas per mile driven if you purchased your gasoline at the discounted price? How do you take into account the fact that you had to drive some distance which you would not have normally traveled in order to purchase this gas.

3. How would you represent the difference between the cost per mile using normal gas and the cost per mile using discounted gas?

3.b. Assume that $P_n = \$3.00$, $P_d = \$2.95$, $D_d = 5$, $G_p = 10$ and $A_{vg} = 25$ what is the difference in cost per mile? Is it worth detouring to purchase this cheaper gas?

4. Generate a table displaying the amount which you calculated in part 3 for detour distances from 0 to 10 miles, and discounted gas from \$0.00 cheaper to \$0.30 cheaper. I strongly encourage you to use a spreadsheet program to generate this.

5. Given your table from part 4. factor in that the average number of miles driven by the average person is 12,000. What is the yearly cost difference for each entry from part 4.