

Gasoline prices



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The Weather's Effect on the Price of Gasoline It is a basic principle of economics that if the demand increases, the price will rise. In the gasoline market this is seen during the summer months, when families plan vacations and the demand for fuel rises (Gasoline Prices). It is again seen in the winter as the demand for home heating fuel creates another increase in price (Gasoline Prices). However, there may also be shorter term influences that the weather has on the price of gas. It is natural to believe that when the weather is clear and sunny that people may want to travel, even for a short distance for the day. This would create a temporary increase in demand that should be reflected in a rise in price. I hypothesize that bright sunny weather causes gas prices to increase.

To conduct this study, data was gathered from the Seattle Queen Ann weather station available from the Weather Underground. The solar data that was used was the peak amount of solar energy during the day, which was used as an indicator of whether the day was sunny or cloudy. Gasoline prices were taken from Seattle Gas Prices, a web site that monitors and records the daily price of gas in Seattle. For this study, a two-month period from November 15, 2008 to January 15, 2009 was used. The two variables were plotted using Microsoft Excel and is presented in a graph as Figure 1. A logarithmic trend line was used on the solar energy variable to average out the swings in the data. If the hypothesis is true, the trend line for gas prices should follow the trend line for solar energy.

As can be seen in Figure 1, the relative gas price generally follows the logarithmic daily solar energy line from mid November to January 1, 2009. During the first week of January, there is some divergence, and the hypothesis does not hold true during this period. However, during the second

week of January both the solar energy and the gas prices level out and again begin to prove the hypothesis true. The study additionally plotted gas prices in Seattle against the price of crude oil, which should have a more direct effect. Here we would expect to see a significant correlation. However, as can be seen in Figure 2, there is almost no relationship between the price of crude oil and the price of gasoline. The cost of gasoline is more significantly correlated to the amount of solar energy than to the price of crude oil.

The study was problematic in the measuring of solar data. While gas prices were an average for the Seattle area, sunshine can be local and sporadic. Using the logarithmic trend line lessened that effect, but also diminished the immediacy of price changes when the sun came out. However, the study did indicate that as November and December began to have less sunlight, the price of gas also sloped downward. Additional research would be needed to control other variables such as economic conditions. The data does indicate a need for further research in this area, and has shown that the amount of daily sunlight may be connected to the cost of gasoline.

In conclusion, sunlight raises the cost of gasoline. While this study indicated that the price of gas reflected the trend in overall sunny days, more research is indicated to be able to determine the immediate effect of a sunny day. In addition, the study was only for a limited time window in one location. More research is needed to verify the generalization of the hypothesis to other parts of the year and other locations. In any event, the study has shown that the weather is certainly a better indicator of gas prices than the price of crude oil.

Figure 1 (Weather Underground; Seattle Gas Prices)

Figure 2 (Energy Information Administration; Seattle Gas Prices)

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