Fuel Price Outlook for 2022

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Introduction

If anyone thought that prices for gasoline and diesel have been increasing for awhile, they would be correct. Covid has changed many aspects of our lives and demand for gasoline and diesel has been no exception. When Covid first started in 2020, the economy came to a standstill and demand for fuel plummeted. The futures price for Oil was actually negative for one day in 2020 when a contract was expiring. This reduction in fuel demand led to the lowest gasoline and diesel prices in over a decade during the early part of 2020.

The economy started to stabilize by the end of 2020 and was growing strongly during 2021. This economic recovery has led to greater fuel demand and prices have been increasing at a steady clip during all of 2021. Gasoline and diesel prices have risen by over a $1 per gallon over the last year and are at levels not seen since 2014. Farmers are likely wondering where prices are headed and when are the best times to make fuel purchases for planting and harvesting seasons. This article examines both the price outlook and price seasonality of diesel and gasoline.

Background

Figures 1 and 2 show historical highway diesel, and gasoline prices for since 2007. Each figure includes the nominal price and the price adjusted for inflation to today's dollar (the real value). All of these data come from the U.S. Energy Information Administration (EIA) (https://www.eia.gov). Although prices are higher than they have been since 2014, there were several periods from 2007 to 2014 when they were as high as they are now.

Although farmers can't control the oil price, there are opportunities during the year to purchase diesel fuel where, historically, the diesel price has been lower than normal. This yearly variation is called seasonality. While the seasonality of diesel fuel is not as strong as gasoline, there is some evidence that moderate seasonality of diesel prices does exist.

Figure 3 shows the seasonality of diesel prices for the last five years. Figure 4 shows gasoline seasonality. Here, the monthly price is compared to the average yearly price to determine the difference. The last five years of these monthly price differences were then averaged by month to get a monthly seasonal price difference. The red diamond is

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the average, the red line is the standard error, and the black points are the seasonal differences in a given year.

As Figure 3 shows, January though August tends to have prices below the yearly average while September through December tends to have prices above the year average. There is much variation from year to year in these five years of data and Covid has confounded the seasonality analysis as well. The summer months have seen the least variation while the winter months have seen the most variation. The months of October, November, and December have consistently seen higher prices than the other months.

Previous analyses of diesel seasonality have shown a price peak in the spring and fall. There doesn't appear to be a spring price peak anymore but this could be due to Covid and other recent factors. The fall peak still does exist so farmers might want to plan their fall harvest fuel purchases in the summer rather than waiting to purchase diesel on an as needed basis.

Figure 4 shows the gasoline seasonality. This figure is similar to past seasonality analyses except the summer peak has moved to later in the summer. Again, this could be a Covid influence. In a typical year, consumers use more gas in the summer because of more traveling. This usually results in higher summer prices.

Analysis and Results

As one might expect, the price of both diesel and gasoline is highly dependent upon the oil price. The correlation of oil to gas and diesel is 0.92 and 0.91 respectively. A formal regression model was developed and the results are shown in Figure 5. This model is based on weekly price data from the EIA since 1994.

The equations from the model are:

Gasoline price = 0.756 + (0.0292 * oil price)

Diesel price = 0.646 + (0.0335 * oil price)

That is, a $10 increase in the price of oil results in a $0.29 increase in the price of gasoline and a $0.34 increase in the price of diesel.

Price Predictions for 2022

We may be at our peak oil price for the year. The EIA is forecasting oil prices to decline throughout the year as shown in Figure 6. The EIA is forecasting an average oil price of $75 for 2022. An oil price of $75 projects to a price of $3.16 for highway diesel and

$2.95 for gasoline. Combined with seasonality factors, gasoline could see it's low point in either April or again in the fall. Diesel might see its low price point this summer.

Declining oil prices may also be reflected in fertilizer prices at some point. Previous analysis has shown oil prices and corn prices are correlated to fertilizer prices. Currently, fertilizer prices seem to have broken all the models used in their prediction but at some point, these current fertilizer prices may revert back to levels better reflecting the price of oil and corn. A future AgManager article will discuss the current state of fertilizer prices.

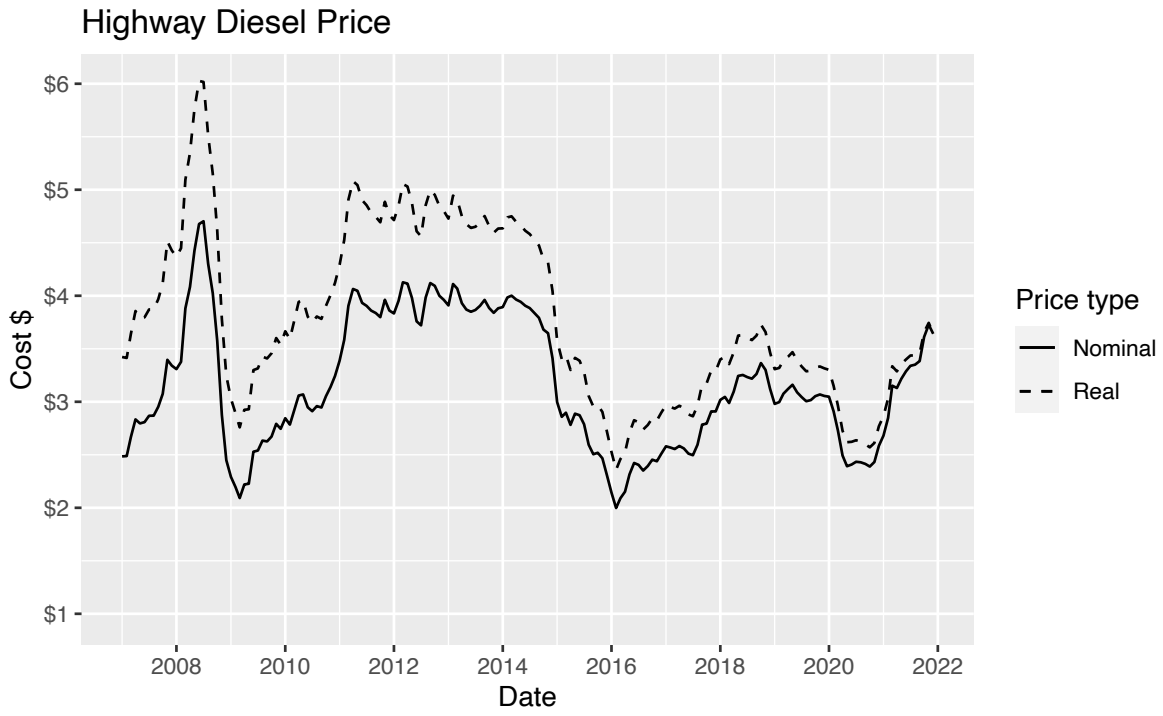

Figure 1. Historical Diesel Prices (Nominal and Adjusted to Current Prices)

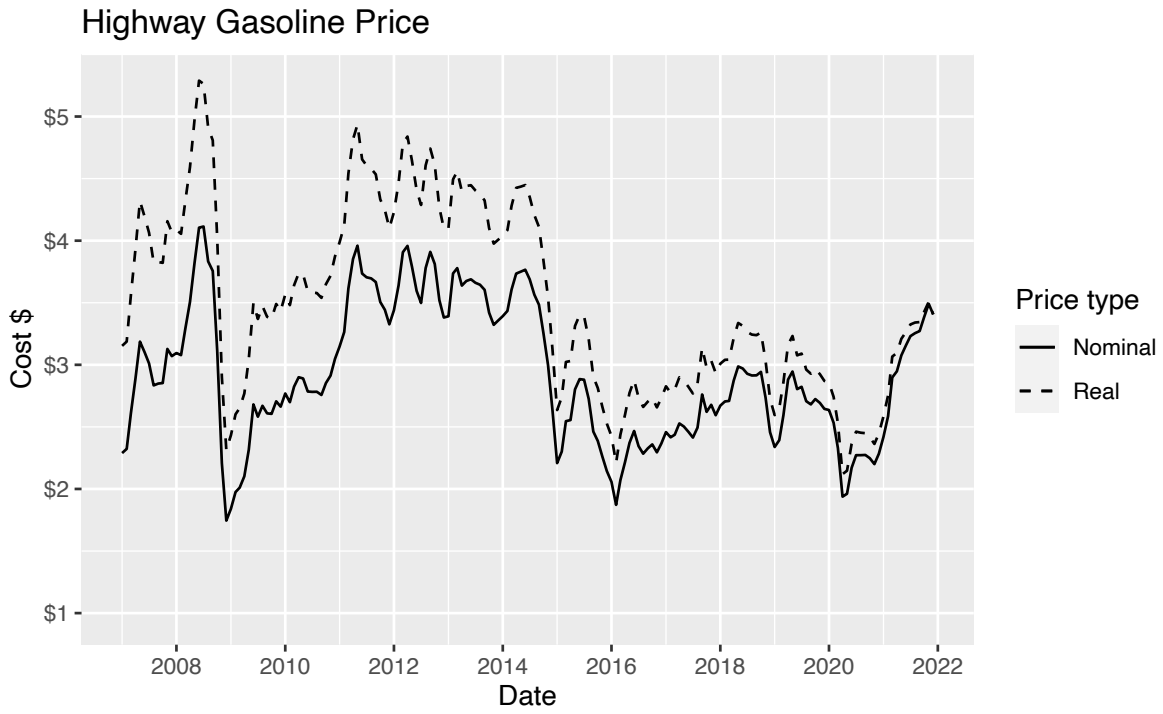

Figure 2. Historical Gasoline Prices (Nominal and Adjusted to Current Prices)

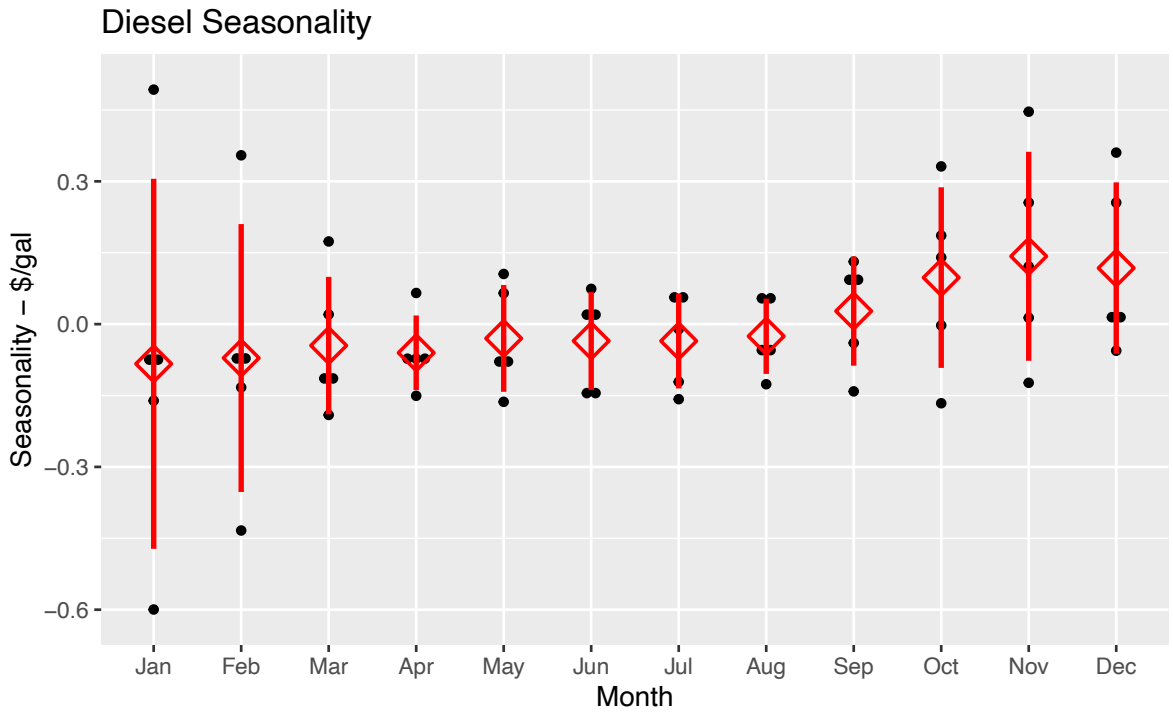

Figure 3. Diesel Price Seasonality (Based on Last 5 Years)

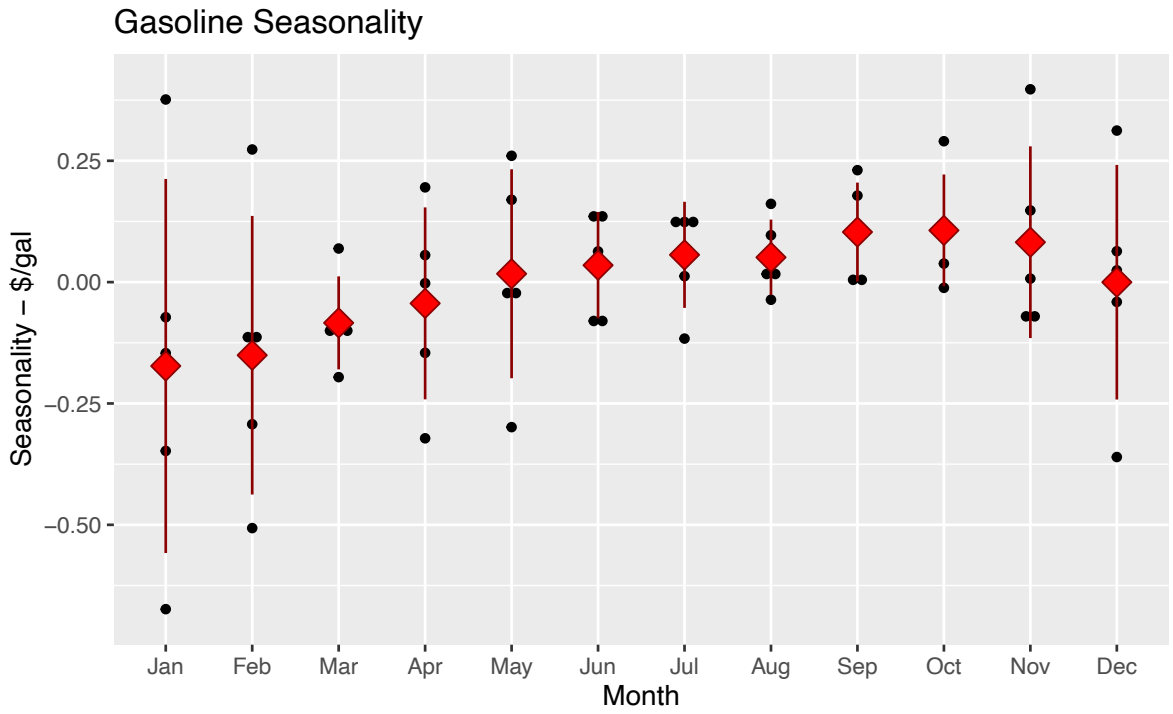

Figure 4. Gasoline Price Seasonality (Based on Last 5 Years)

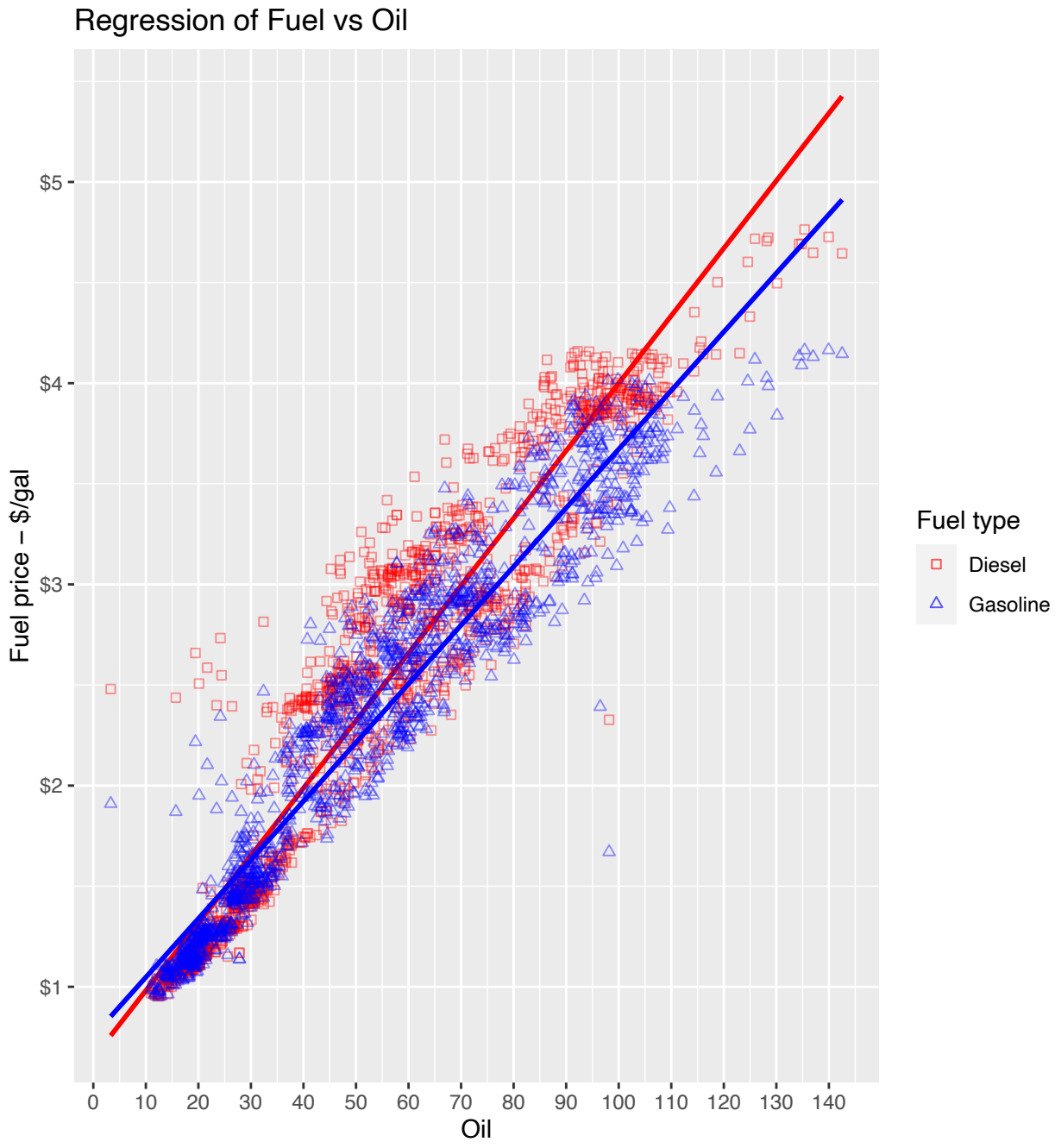

Figure 5. Diesel and Gas Price as a Function of Oil Prices

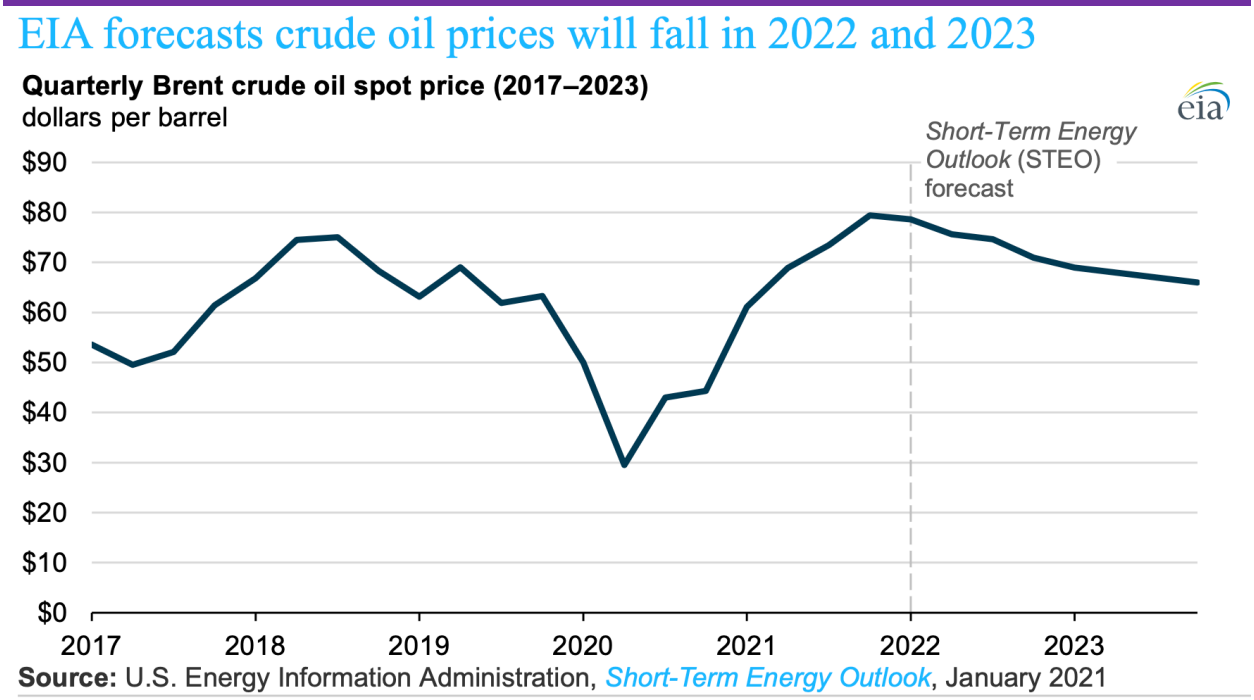

Figure 6. EIA Oil Price Forecast