

# Price Sensitivity Model

```
# Load packages
library(tidyverse)
```

```
## Warning: package 'tidyverse' was built under R version 4.1.2
```

```
## -- Attaching packages ----- tidyverse 1.3.1 --
```

```
## v ggplot2 3.3.5    v purrr  0.3.4
## v tibble  3.1.6    v dplyr  1.0.7
## v tidyr   1.1.4    v stringr 1.4.0
## v readr   2.0.0    v forcats 0.5.1
```

```
## Warning: package 'tibble' was built under R version 4.1.2
```

```
## Warning: package 'tidyr' was built under R version 4.1.2
```

```
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()
```

```
library(here)
```

```
## here() starts at C:/Users/rmunnn/OneDrive/MEDS/Almond_Modeling
```

```
library(purrr)
```

```
source(here("almond_price_fluctuation_revised.R"))
```

```
#Number of random samples we want to produce.
```

```
n_samples = 300
```

```
anomaly = rnorm(mean = 0, sd = 1, n = n_samples)
```

```
# According to Google, the mean price per ton on almonds is 3676. As such, we chose 15% +/- that price
```

```
mean_price = runif(min = 3125,
```

```
                  max = 4227,
```

```
                  n = n_samples)
```

```
# Append our calculated values to a dataframe.
```

```
price_df = cbind.data.frame(anomaly, mean_price)
```

```

# For loop to create 300 random profits based on anomalies of almond yields and net average price of al
for (i in 1:n_samples) {
  profit = almond_price_flucutation_revised(yield_anomaly = price_df$anomaly[i],
                                             mean_almond_price = price_df$mean_price[i],
                                             num_of_acres = 1,
                                             base_yield = 1)

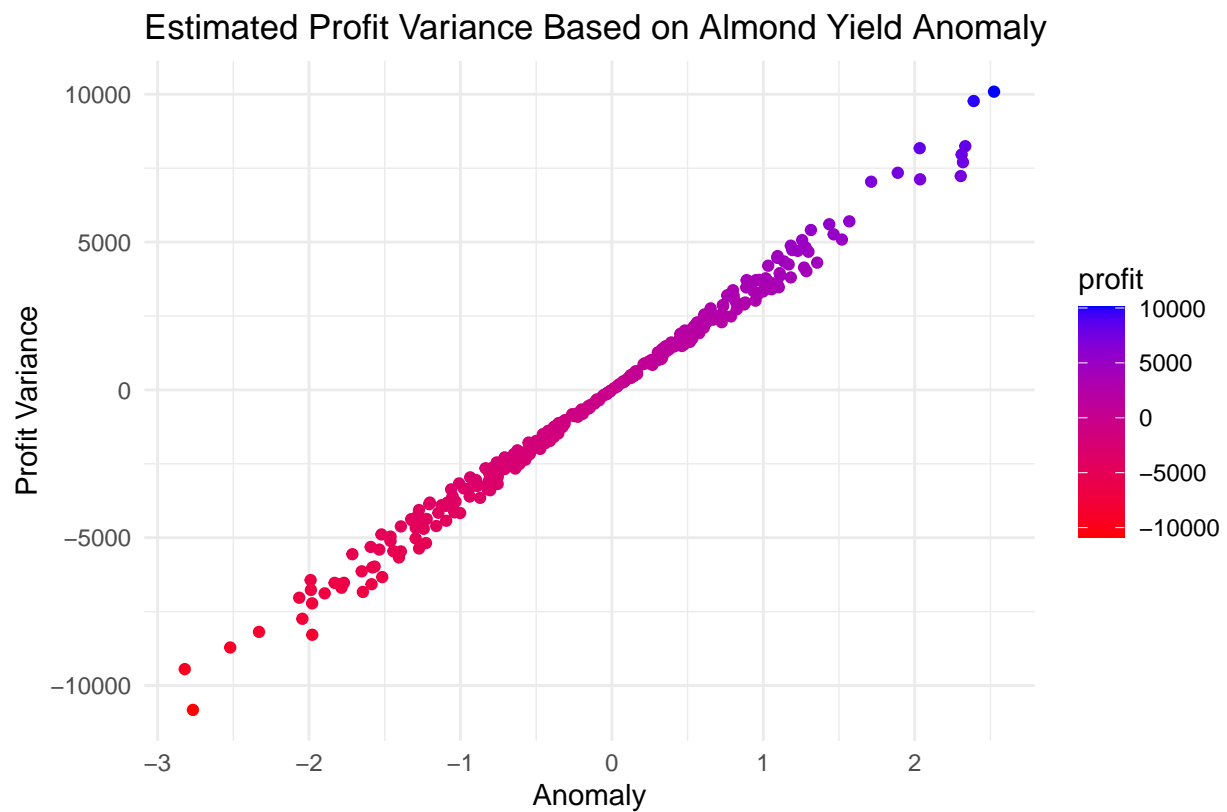
  price_df$profit[i] = profit
}

```

```

ggplot(data = price_df, aes(x = anomaly, y = profit, color = profit)) + geom_point() +
  scale_color_continuous(low="red", high="blue") +
  theme_minimal() +
  labs(title = "Estimated Profit Variance Based on Almond Yield Anomaly",
       x = "Anomaly",
       y = "Profit Variance",
       caption = "Profit Variance is based on the number of acres provided and a +/- 15% price per aver

```



iance is based on the number of acres provided and a +/- 15% price per average ton of almonds.

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