

Stats Project 1



How much more can be charged for Astor Ideal?

Our Questions

1. Is there a statistically significant surcharge if a cut is labelled *Astor Ideal*?
2. If yes, what is the surcharge?

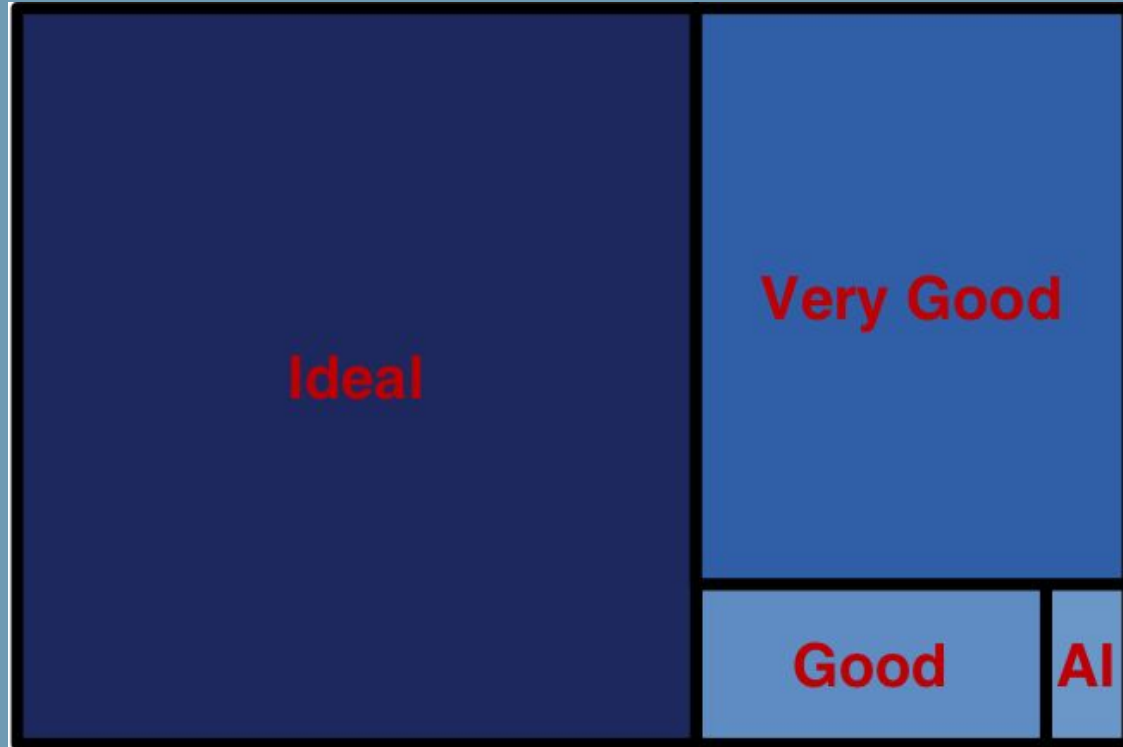
ASTOR

BY BLUE NILE™

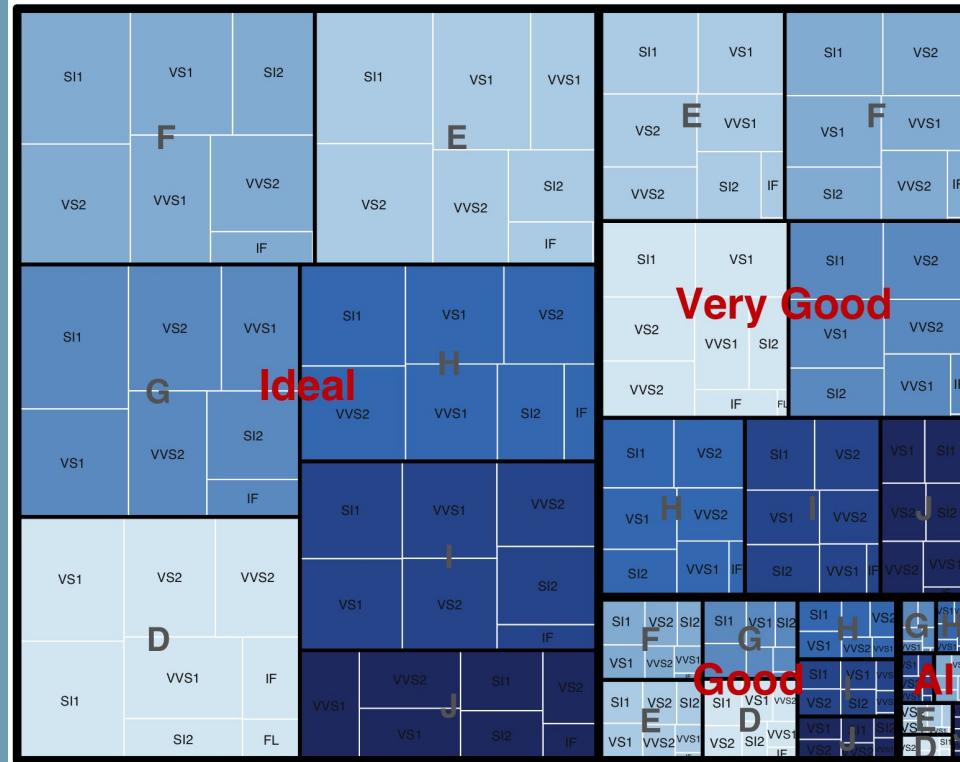
A NEW TIER OF BRILLIANCE

Every Blue Nile diamond shines brightly. An Astor by Blue Nile™ diamond explodes with light, emitting a radiance that is both rare and extraordinary.

Description of the Data

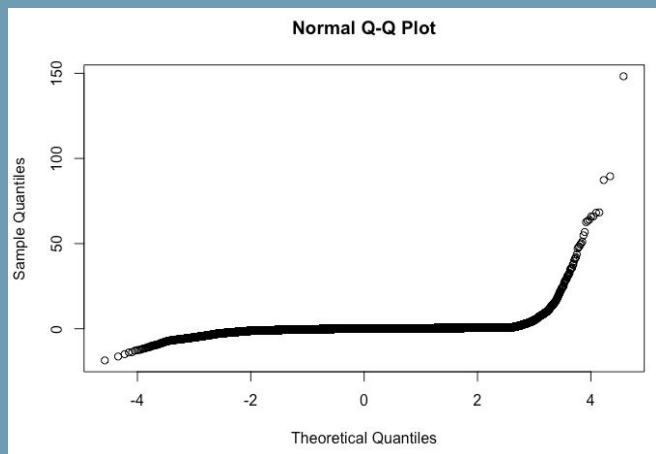


Description of the Data

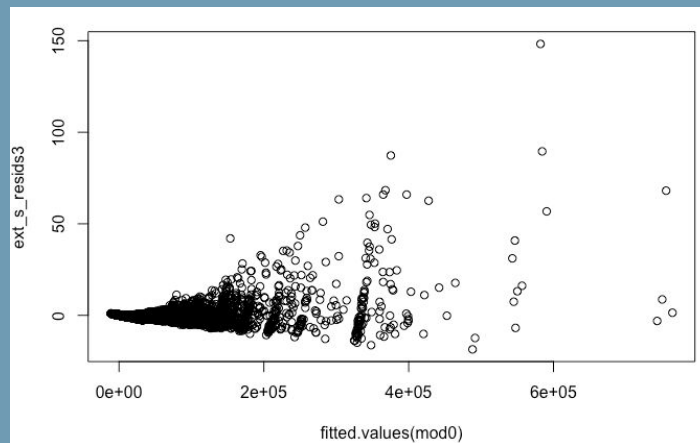


First Model

QQ-Plot

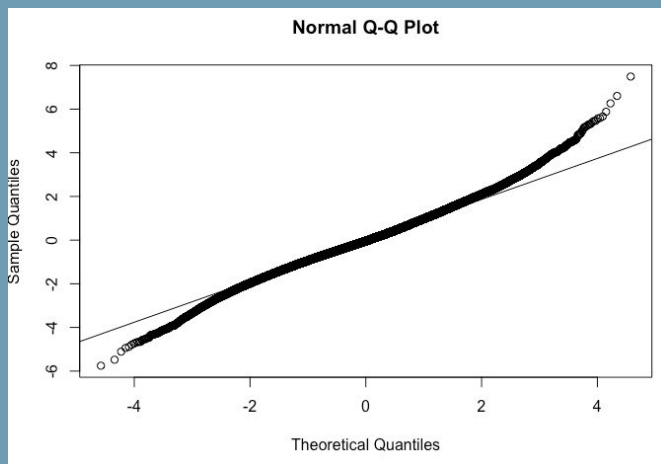


Extern. Student. Residuals vs. \hat{y}

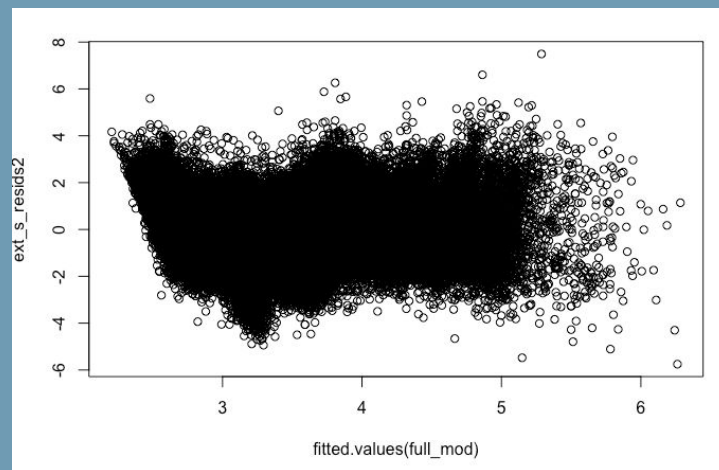


Improved Model

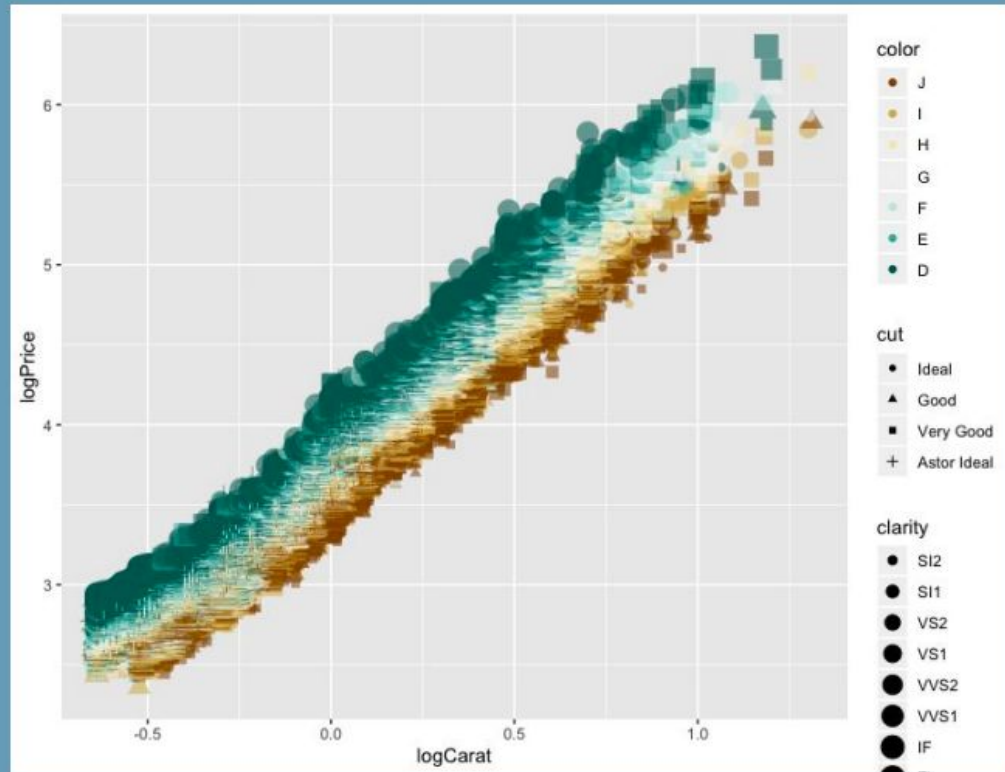
QQ-Plot



Extern. Student. Residuals vs. \hat{y}



Results



Results

- *Ideal Astor* label results in a statistically significant increase in price relative to the *Ideal* label
 - β -coefficient for Astor Ideal is .0357
 - 95% confidence interval is .0332 - .0382
- β -coefficient represents expected increase in $\log(\text{price})$ for *Astor Ideal* cut relative to *Ideal* cut

Practical Results

- Increase in $\log(\text{price})$ corresponds to a specified predicted % price increase
- *Ideal Astor* surcharge is estimated at 8.57%
- 95% confidence interval ranges from 7.94% to 9.19%

Other Key Takeaways

- Additional note: model may not hold for especially large / expensive diamonds
- No conclusions can be made as to *why* the price is increasing

Thanks for your time!

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