Linear Regression for Business Statistics

I: $$Price = -797.81 - 6.96OpCost + 76.50CoolSize + 213.88FreezeSize + 37.94Shelves + 23.76Features$$

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When $FreezeSize$ increases 1 cubic feet

All other variables at the same level

- $CoolSize$ maintained at same level
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- $RefSize$ maintained at same level
- ✓ $CoolSize$ reduces 1 cubic feet

Linear Regression for Business Statistics

Regression I

Increase in $FreezeSize$ increases $RefSize$, because $CoolSize$ needs to be kept at the same level.

Regression II

Increase in $FreezeSize$ is at the cost of reducing $CoolSize$, so that $RefSize$ remains the same.

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Increase in $FreezeSize$ is at the cost of reducing $CoolSize$, so that $RefSize$ remains the same.

Trading off Cooler size for Freezer size

Linear Regression for Business Statistics

Regression I

Increase in $FreezeSize$ increases $RefSize$, because $CoolSize$ needs to be kept at the same level.

Increasing overall size of Refrigerator

Regression II

Increase in $FreezeSize$ is at the cost of reducing $CoolSize$, so that $RefSize$ remains the same.

Trading off Cooler size for Freezer size

Linear Regression for Business Statistics

Example (Cars.xlsx)

The file contains mileage data in Miles per gallon of gasoline of a few car models from sometime back. The file also has data on two engine characteristics, the engine displacement in cubic inches and the number of cylinders in the engine for that car model.

Linear Regression for Business Statistics

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Linear Regression for Business Statistics

Regression Statistics	
Multiple R	0.80989358
R Square	0.6559276
Adjusted R Square	0.63626632
Standard Error	3.94870705
Observations	38

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	1040.360731	520.1804	33.36139	7.787E-09
Residual	35	545.7300585	15.59229		
Total	37	1586.090789			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	40.6162798	3.187176157	12.74366	1.05E-14	34.1459682	47.08659
Displacement	-0.0182092	0.021457446	-0.84862	0.401861	-0.0617701	0.025352
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