Linear Regression for Business Statistics

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For every one unit increase in X_2, the Y variable increases by β_2 units, all other variables remaining at the same level.

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Example **(Refrigerators.xlsx)**

You wish to establish a relationship between the various characteristics of refrigerators and the price of the refrigerator.

You have data on 37 refrigerators.

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	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-797.8082	271.4093035	-2.9395	0.006161	-1351.351	-244.26524
Opcost	-6.957842	2.275304168	-3.05798	0.004563	-11.59836	-2.3173283
CoolSize	76.497091	19.44152396	3.934727	0.000438	36.845841	116.14834
FreezeSize	213.87848	35.76135042	5.980716	1.3E-06	140.94273	286.81424
Shelves	37.937282	9.886150644	3.837417	0.000573	17.774344	58.100219
Features	23.763554	4.511673871	5.267126	9.98E-06	14.561935	32.965174

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When the freezer size of the refrigerator increases by one cubic feet, then the price tends to rise by 213 dollars and 88 cents, all other variables kept at the same level.

Linear Regression for Business Statistics

$$Price = \beta_0 + \beta_1 OpCost + \beta_2 CoolSize + \beta_3 FreezeSize + \beta_4 Shelves + \beta_5 Features$$

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$$Price = \beta_0 + \beta_1 OpCost + \beta_2 CoolSize + \beta_3 FreezeSize + \beta_4 Shelves + \beta_5 Features$$

Total refrigerator size $(RefSize) = CoolSize + FreezeSize$

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FreezeSize	137.38139	23.76313412	5.781283	2.29E-06	88.916162	185.84663
Shelves	37.937282	9.886150644	3.837417	0.000573	17.774344	58.100219
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Features	23.763554	4.511673871	5.267126	9.98E-06	14.561935	32.965174

When the freezer size of the refrigerator increases by one cubic feet, then the price tends to rise by 137 dollars and 38 cents, all other variables kept at the same level.

Linear Regression for Business Statistics

Earlier Regression

$$Price = \beta_0 + \beta_1 OpCost + \beta_2 CoolSize + \beta_3 FreezeSize + \beta_4 Shelves + \beta_5 Features$$

When the freezer size of the refrigerator increases by one cubic feet, then the price tends to rise by 213 dollars and 88 cents, all other variables kept at the same level.