

# Linear Regression for Business Statistics

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$$LN(Demand) = \beta_0 + \beta_1 LN(Price) + \beta_2 LN(Pcinc) + \beta_3 Year$$

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- $\beta_3$  is a semi-log interpretation, a.k.a. *Growth Rate* interpretation.

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- ❑ When we want 'Betas' to be interpreted as *Elasticities* or *Growth Rates*.

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- Two main reasons for taking a natural log transformation.
  1. Improve Linearity.
  2. Have 'Betas' be interpreted as *Elasticities* or *Growth Rates*.

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**Predict** the cocoa demand for the following year and build a 95% confidence interval around the prediction.

Assume, for the following year, the price to be 1.15\$ per pound and the per-capita income to be 40,000\$.

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- ✓ The Log-log Model.
- ✓ The Semi-log Model.