

Comparison of Linear and Nonlinear Models

Functional Form	P.R.E.	Partial Effect $\partial Y / \partial X$	Elasticity
Linear	$Y = \beta_0 + \beta_1 X + u$	β_1	$\beta_1 \frac{X}{Y}$
Quadratic	$Y = \beta_0 + \beta_1 X + \beta_2 X^2 + u$	$\beta_1 + 2\beta_2 X$	$(\beta_1 + 2\beta_2 X) \frac{X}{Y}$
Reciprocal	$Y = \beta_0 + \beta_1 \frac{1}{X} + u$	$-\beta_1 \frac{1}{X^2}$	$-\beta_1 \frac{1}{XY}$
Log-Log	$\ln Y = \beta_0 + \beta_1 \ln X + u$	$\beta_1 \frac{Y}{X}$	β_1
Log-Linear	$\ln Y = \beta_0 + \beta_1 X + u$	$\beta_1 Y$	$\beta_1 X$
Linear-Log	$Y = \beta_0 + \beta_1 \ln X + u$	$\beta_1 \frac{1}{X}$	$\beta_1 \frac{1}{Y}$