Erasmus School of Economics

MOOC Econometrics

Training Exercise 1.2

Questions

A transformation of the data on x_i and y_i (like taking their logarithm) changes the interpretation of the slope parameter β.

(a) Show that in the regression model $\log(y_i) = \alpha + \beta \log(x_i) + \varepsilon_i$, the elasticity of y with respect to x is equal to β (that is, does not depend on the values of x_i and y_i).

(b) Determine the elasticity of y with respect to x in the model $y_i = \alpha + \beta \log(x_i) + \varepsilon_i$.

(c) Determine the elasticity of y with respect to x in the model $\log(y_i) = \alpha + \beta x_i + \varepsilon_i$.

Note

As usual in this MOOC, 'log' denotes the natural logarithm, with base $e \approx 2.71828$.

On calculators this is often written as $\ln(x)$, but we use the notation $\log(x)$.

The derivative of $\log(x)$, with base e, is $1/x$.