

Quick reference for log transformations

Model	Dependent variable	Independent Variable	Interpretation of β
Level-level	y	x	$\Delta y \approx \beta \Delta x$
Level-log	y	log(x)	$\Delta y \approx (\frac{\beta}{100}) \% \Delta x$
log-level	log(y)	x	$\% \Delta y \approx (100 \beta) \Delta x$
Log-log	log(y)	log(x)	$\% \Delta y \approx \beta \% \Delta x$

Linear regression is flexible!

We can modify our functions however we like

- The linear model we are using consists of making the parameters of probability distributions change according to some function
- The simplest function involves a single predictor and slope
- If we have more predictors, we can simply add them to the regression equation

$$y_i \sim N(\mu_i, \sigma)$$

$$\mu_i = \alpha + \beta x_i$$



$$y_i \sim N(\mu_i, \sigma)$$

$$\mu_i = \alpha + \beta_1 x_{i1} + \beta_2 x_{i2}$$