

# Model Assumptions

Team 25

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$Y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 + \beta_5 x_{4i} + \epsilon_i$ , where we assumed,  $\epsilon_i \sim \mathcal{N}(0, \sigma_Y^2)$

for  $i = 1, \dots, n$  country level measures, where

$Y_i$  : The estimated national suicide rate (per 100k population) for the  $i^{\text{th}}$  country.

$x_{1i}$  : The estimated national labor participation rate (percentage) for the  $i^{\text{th}}$  country.

$x_{2i}$  : The estimated per-person gross domestic product (GDP) (income) for the  $i^{\text{th}}$  country.

$x_{3i}$  : An estimate of the national per-person average of liters of alcohol consumed annually for the  $i^{\text{th}}$  country.

$x_{4i}$  : A binary indicator of the 'presence of a national suicide prevention strategy' in 2019 for the  $i^{\text{th}}$  country.

This yields fitted regression model:

$$Y_i = \hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_4 + \hat{\beta}_5 x_{4i}$$

where,

$\hat{\beta}_0, \hat{\beta}_1, \hat{\beta}_2, \hat{\beta}_3$ , and  $\hat{\beta}_4$  were estimated by the method of iterative re-weighted least squares.