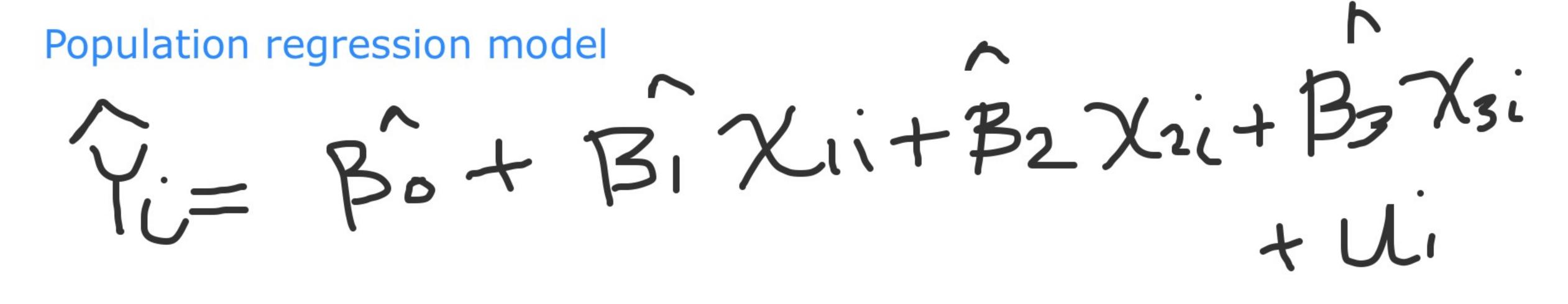
Interpreting categorical X example



Reference category= 0/1 SES - 1st quartile

OLS prediction line without estimates

OLS prediction line with estimates

$$\gamma = 45.1 + (3.5 \times 1i) + (6.4 \times 2i) + (10.8 \times 3i)$$

On average, being in the 2nd SES quartile as opposed to being in the 1st SES quartile is associated with a 3.5 point increase in reading test scores

On average, being in the 3rd SES quartile as opposed the 1st SES quartile is associated with a 6.4 point increase in reading test scores

On average, being in the 4th SES quartile as opposed to the 1st quartile is associated with a 10.8 point increase in reading test scores

$$E(\hat{Y} | X = 4^{th}quartie)$$

$$X_{1} = \emptyset$$

$$X_{2} = \emptyset$$

$$Y_{3} = 1$$

$$Y_{1} = 45.1 + (3.5 * \emptyset) + (6.4 * \emptyset)$$

$$Y_{2} = 45.1 + (10.8 * 1)$$

$$Y_{3} = 1$$

$$Y_{4} = 45.1 + \emptyset + \emptyset + 10.8$$

$$Y_{5} = 55.9$$

$$\hat{Y} = 451 + 35 \times 11 + (1.4 \times 21.4 + 1.4 \times 1.4$$

$$Y = 451 + 35 \times 11 + 6.4 \times 21 + 10.8 \times 31$$

$$E(Y|X=1 + 9 \text{ maxim})$$

$$Y = 45.1 + (3.5 + 0) + (6.4 + 0)$$

$$X_2 = 0$$

$$X_3 = 0$$

$$X_3 = 0$$
Beta zero is the predicted
$$Y = 45.1 + 0 + 0 + 0$$

$$Y = 45.1 = 80$$