

## Population Model

$$Y_i = B_0 + B_1 X_{1i} + B_2 X_{2i} + B_3 X_{3i} + U_i$$

$Y$  = annual income

$X_1$  = % republican

$X_2$  = % independent

$X_3$  = % unknown political party

[reference group = democrats]

OLS Prediction Line w/o/+w/ = estimates

$$\hat{Y}_i = \hat{\beta}_0 + \hat{\beta}_1 X_{1i} + \hat{\beta}_2 X_{2i} + \hat{\beta}_3 X_{3i}$$

$$\hat{Y}_i = 24476 + (6184 * X_{1i}) - (1736 * X_{2i}) - (3335 * X_{3i})$$

Predicted Values of  $\hat{Y}$

democrats

$$\begin{aligned} X_{1i} = 0, X_{2i} = 0 \\ X_{3i} = 0 \end{aligned} \quad \begin{aligned} \hat{Y} &= 24476 + (6184 * 0) - (1736 * 0) - (3335 * 0) \\ \hat{Y} &= 24,476 \end{aligned}$$

Republicans

$$\begin{aligned} X_{1i} = 1, X_{2i} = 0 \\ X_{3i} = 0 \end{aligned} \quad \begin{aligned} \hat{Y} &= 24476 + (6184 * 1) - (1736 * 0) - (3335 * 0) \\ \hat{Y} &= 24476 + 6184 \\ \hat{Y} &= 30,660 \end{aligned}$$

Independents

$$\begin{aligned} X_{1i} = 0, X_{2i} = 1 \\ X_{3i} = 0 \end{aligned} \quad \begin{aligned} \hat{Y} &= 24476 + (6184 * 0) - (1736 * 1) - (3335 * 0) \\ \hat{Y} &= 24476 - 1736 \\ \hat{Y} &= 22,740 \end{aligned}$$