



2. Let  $X_i$  denote a binary variable and consider the regression  $Y_i = \beta_0 + \beta_1 X_i + u_i$ . Let  $\bar{Y}_0$  equal the sample mean for observations with  $X = 0$  and let  $\bar{Y}_1$  equal the sample mean for observations with  $X = 1$

Show that  $\hat{\beta}_0 = \bar{Y}_0$ , that  $\hat{\beta}_0 + \hat{\beta}_1 = \bar{Y}_1$ , and that  $\hat{\beta}_1 = \bar{Y}_1 - \bar{Y}_0$