$$\frac{\partial^2 \text{Pr}(Y)}{\partial X \partial Z} = \text{Pr}(Y)[1 - \text{Pr}(Y)]\beta_{xz}$$
$$+ \text{Pr}(Y)[1 - \text{Pr}(Y)][1 - 2\text{Pr}(Y)](\beta_x + \beta_{xz}Z)(\beta_z + \beta_{xz}X)$$