

625.661 Statistical Models and Regression

Module 12 Discussion Question

H.M. James Hung

1. For the binary response variable $y = 0$ or 1 , its mean is probability $p = P(y = 1)$. Most often used link function is logit link, i.e., $\eta = \ln\left(\frac{p}{1-p}\right)$. Other link functions that are used in practice:

(a) probit link: $\eta = \Phi^{-1}(p)$, where Φ represents the cumulative standard normal distribution,

(b) log-log link: $\eta = \ln[\ln(1 - p)]$.

Plot the three link functions and comment on how they differ.