Assignment 3

Due: 15 Oct 2015

The model

In the study of default probability of the loan, determination factors include:

$$Prob(Y=1|X) = f(X_1, X_2, X_3, X_4)$$

Dependent variable $Yi = 1$ if the firm is bad loan, and $= 0$ for good loan.

Independent variables

X_1 is debt coverage ratio.

X_2 is liquidity ratio represented by current assets to current liabilities

X_3 is profitability ratio represented by sales to total assets

X_4 is solidity ratio represented by retained earnings to total assets

Requirements:

1. Estimate the model assuming that the probability function is (a) cumulative normal probability distribution function and (b) logistic probability distribution function. Interpret your estimated result (overall test, individual test, pseudo R^2, counted R^2).
2. Make comparison of the goodness of fit of the two models.
3. From Probit model, show how to compute Overall LR-test.
4. From Logit model, compute predicted value of index value and predicted probability of being bad loan by using mean value of all *Xs*.
5. Compute marginal effect at mean and at median for Logit model.
6. Compute marginal effect at the value of X_1=0.5, X_2=1, X_3=0.5, X_4=0 for the Probit model.
7. Determine counted R^2 using the threshold of predicted value = 0.5 for Logit models.
8. Determine counted R^2 using the threshold of predicted value = 0.7 for Logit models.