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**Special Topics in Applied Econometrics: Cross-Country Studies  
Summer Term 2012**

Hands-On Assignment 6:  
Simulating and Estimating a Pooled Tobit Model

Please take out the following hands-on assignment in Matlab

1. Simulate the model given in Equation (2.13) with
  - $x$  containing a constant and two further variables distributed as  $N(0,5)$
  - $\theta = [2, 5, -4]'$
  - $u_{it}$  is distributed as  $N(0,5)$
  - $N=100$
  - $T=5$
2. Obtain starting values for the maximum likelihood (ML) maximization via running a POLS regression of the model given in Equation (2.13).
3. Estimate the coefficient vector  $\theta$  in Equation (2.13) via ML (the likelihood is given in Equation 2.15).
4. Calculate the asymptotic variance of the estimated parameter vector.
5. Observe what happens to the t-values of the estimated parameters if (i) you change the number of observations,  $N$  or  $T$ , or, (ii) increase the variance of the error term.
6. To find out whether the ML estimation yields unbiased results run a Monte Carlo Simulation with 1000 replications and calculate the mean of each estimated parameters.