

Homework #6 (Simulation on Simultaneous Equation Systems)

(1) Simulate a model that has 3 structural equations. The stochastic specification of the structural form is:

- heteroscedasticity across equations
- homoscedasticity within equations
- contemporaneous correlation between equations.

Of the three equations: one is identified, one is overidentified and the other is identified.

(2) Show by simulation that OLS is inconsistent (in one of the identified equations for one coefficient of the endogenous variables in that equation).

(3) Estimate all the parameters for the identified equations by 2SLS. That means the coefficients and the variance covariance matrix. Do t-tests on the significance of the estimates of the parameters of the identified equations and on the true values. Report the results and comment.

(4) Test the overidentifying restrictions.

(5) Show by simulation that the IV estimator (correspondent to the parameter for which OLS was inconsistent in part (2)) is now consistent.