Assignment
Simultaneous Equations Model

Simultaneous Equations System

$$y_{1t} = \beta_{10} + \beta_{11} y_{2t} + \beta_{12} x_{1t} + \beta_{13} x_{2t} + u_{1t} \quad (1)$$

$$y_{2t} = \beta_{20} + \beta_{21} y_{1t} + \beta_{22} x_{3t} + \beta_{23} x_{4t} + u_{2t} \quad (2)$$

Endogenous variables in this system include y_{1t} and y_{2t}
Exogenous variables in this system include x_{1t}, x_{2t}, x_{3t}, and x_{4t}

1. State reduce form model of these system models.
2. Estimate reduce form model using OLS and prediction of the endogenous variables.
3. Estimate structural form using predicted endogenous variables as independent variables in the structural form model.
4. Estimate the structural models of these system equations using OLS, 2SLS, and 3SLS. Concerning on the asymptotic property, which model is the most appropriated model? Why?