Agriculture in 2016_Dynamic Link

2016년 8월 9일 화요일 오후 6:12

Tasks and Time table

1. Static link (7/27-7/31)
   a. Static link with 53 industry CGE is done.(7/28)
      i. Combine CGE of Agri_2016_static_link_alt.gms and bottom up of integrate_Ag_0129.gms
      ii. New hybrid file Agri_2016_link_conv.gms is saved in \CGE\Agri_Link
      iii. Distribution : Agri_Link_2016.zip. This zip file contain
         1) Agri_Link.gpr project file
         2) Agri_2016_link_conv.gms
         3) All data files are saved in \data sub-category
      iv. Convergence speed slowed down. With 1e-4 criterion, 51 iterations were required for convergence.

2. Recursive dynamics (year by year convergence) (8/1-8/14)
   a. Converge at time t => update state variable at time t+1 => converge at time t+1 반복
   b. Distribution: Agri_Link_dyn1_2016.zip
      i. CGE/Agri_Link/Agri_Link_dyn1_20016 zipped
      ii. Agri_Link.gpr: project file
      iii. Agri_2016_link_recursive.gms: cge model
      iv. .₩ data: contain all input files
   c. Two problems
      i. Time consuming : It takes around 1050 iterations to converge all 25 time period. Convergence criterion is max(abs(dev_xcrep))<1/100, max(abs(dev_parep))<1/100;
      ii. Too rapid growth in early years
         1) Since interest rate is normalized to one. Initial year capital =sum(Capital payment IO)/interest rate becomes relatively small
         2) Then the initial year investment becomes large compared to initial year capital stock
         3) Then the capital increase fast in early years.
         4) Early year growth rate exceeds 10%
         5) To modify that. Capital Accumulation formula becomes Ks.Fx('Capital')=Ks.L('Capital')(1-delta)+(0.88)sum(C,XAF.L('S-I',C)); (line 3206)
   d. Other characteristics
      i. Need 2 iterations in unlinked model. . BU module needs two iterations to check convergence
      ii. t is time (year) and iter is within t iteration indicator
      iii. .. Res (..,t) parameter is now used to store solutions of each iteration. The domain is changed to (..,iter)
      iv. Converged solution for each t is saved in .. Con(.., t) parameter.

3. Recursive dynamics (multi-year convergence) (8/15-8/30)

a. Run standalone CGE
b. obtain export variable from t=0 to t=Tmax ：EX0(T)
c. Run Linked CGE with EX0(T) to obtain export variable EX_i(T)
d. Run bottom up for each t with EX_i1(T) as given
e. Obtain import variable from t=0 to t=Tmax : IM_i(T)
f. Run Linked CGE to with IM_i(T) to update export variable EX_(i+1)(T)
g. If |EX_(i+1)(T)-Ex_(i)(T)|<epsilon stop, if not repeat d=>e=>f=>d