AGEC 643
Fall 2016
Homework 2
Due October 20, 2016 by Noon

Data for this homework is in the AGEC 643 Website in the 2016 Data Folder

1. Use the data in 2016 HWK2-1.XLSX to estimate and simulate the crop prices as a multivariate Normal distribution using the general procedure. Detrend the data prior to estimating the parameters. Show all of your work with VFORMULA( ).

    A. Simulate the MVN 500 iterations.
    B. Show validation tests.

2. Repeat problem 1 but estimate the parameters and simulate the prices as MVE as percent deviates from trend. Show all of your work with VFORMULA( ). Show all of your work.

    A. Simulate the MVE 500 iterations.
    B. Show validation tests.

3. Repeat problem 1 but simulate prices as a Normal, Frank, and Clayton copula and simulate the prices as MVCopula as deviates from trend. Use Ŷ-Hats from trend as the mean for the probabilistic forecast. Show all of your work.

    A. Simulate each of the MVCopulas 500 iterations.
    B. Show validation tests.

    4. Use 2016 HWK2-2.XLSX and build a 5-year Monte Carlo farm simulation model. Simulate the farm for 5 years. Use a MVE deviation from trend distribution for your random yields and prices. Use the mean forecasted prices and yields in your MVE distribution. Show formulas for each formula you program.
       You need to watch the AGEC 622 lab videos 10, 11 and 13 if you do not know how to build a firm level simulation model.

    A. Print the model and parameter estimation.
    B. Print summary statistics for the KOVs.
    C. Print a CDF and PDF of NPV.
    D. Use FDSD, SDSD, SDRF, SERF, and StopLight to rank the four scenarios for crop mix and contracting the sale of the crops
    E. Explain the rankings for the alternative risk ranking methods.

    5. Do a Bootstrap simulation of the crop prices in 2016 HWK2-1.XLSX.

    A. Simulate the prices for 500 iterations.
    B. Show validation tests.