

Problem Set #5

MACS 40200, Dr. Evans

Bobae Kang

1. Estimating the Brock and Mirman (1972) model by GMM

The initial guess for four parameters (α , β , ρ and μ) are 0.9, 0.9, 0.8, and 0.9. The optimal weight matrix is the identity matrix.

GMM criterion function value: 0.0010927458976064087

GMM estimate for α , $\hat{\alpha}_{GMM}$: 0.94105041259485267

GMM estimate for β , $\hat{\beta}_{GMM}$: 0.98999999799977578

GMM estimate for ρ , $\hat{\rho}_{GMM}$: 0.80720182684927166

GMM estimate for μ , $\hat{\mu}_{GMM}$: 0.90180045556233812

2. Estimating the Brock and Mirman (1972) model by SMM

The initial guess for the first four parameters (α , β , ρ and μ) are drawn from the GMM estimates for the parameters. For σ , the initial guess is 0.05. The optimal weight matrix is the identity matrix. I used the percent differences between data moments and model moments for the error vector.

SMM criterion function value = 0.0028188726710878455

SMM estimate for α , $\hat{\alpha}_{SMM}$: 0.98650781222182915

SMM estimate for β , $\hat{\beta}_{SMM}$: 0.51831095502582225

SMM estimate for ρ , $\hat{\rho}_{SMM}$: 0.22332759404146543

SMM estimate for μ , $\hat{\mu}_{SMM}$: 0.88826262203175477

SMM estimate for σ , $\hat{\sigma}_{SMM}$: 0.050000000000000003

Difference in moments: [-3.11612795e+05, 2.05802802e+05, 5.78905936e+10, -3.84043313e+10, -3.40875963e-02, -1.51506126e-02]

Percent difference in moments: [-2.96186011, 1.97030792, 1.02598619, -0.69052728, -3.40875963, -1.54430575]