

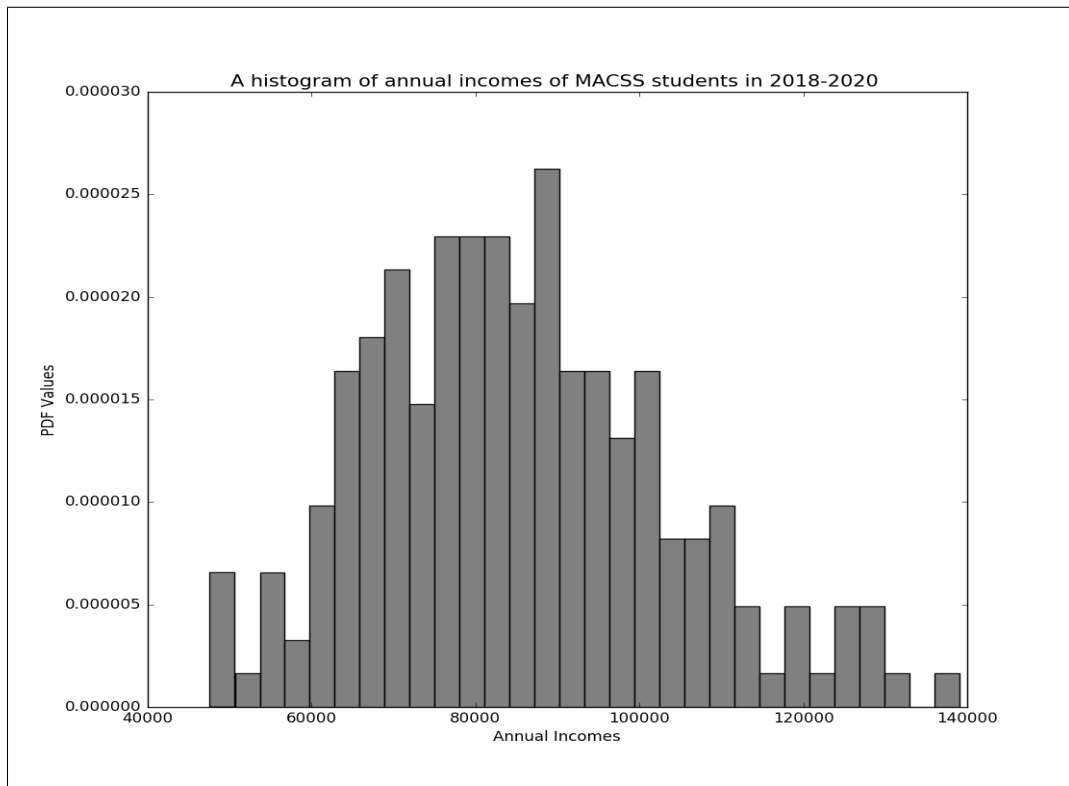
Problem Set #4

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Problem 1: Some income data, lognormal distribution, and SMM

(a)

Figure 1: Histogram



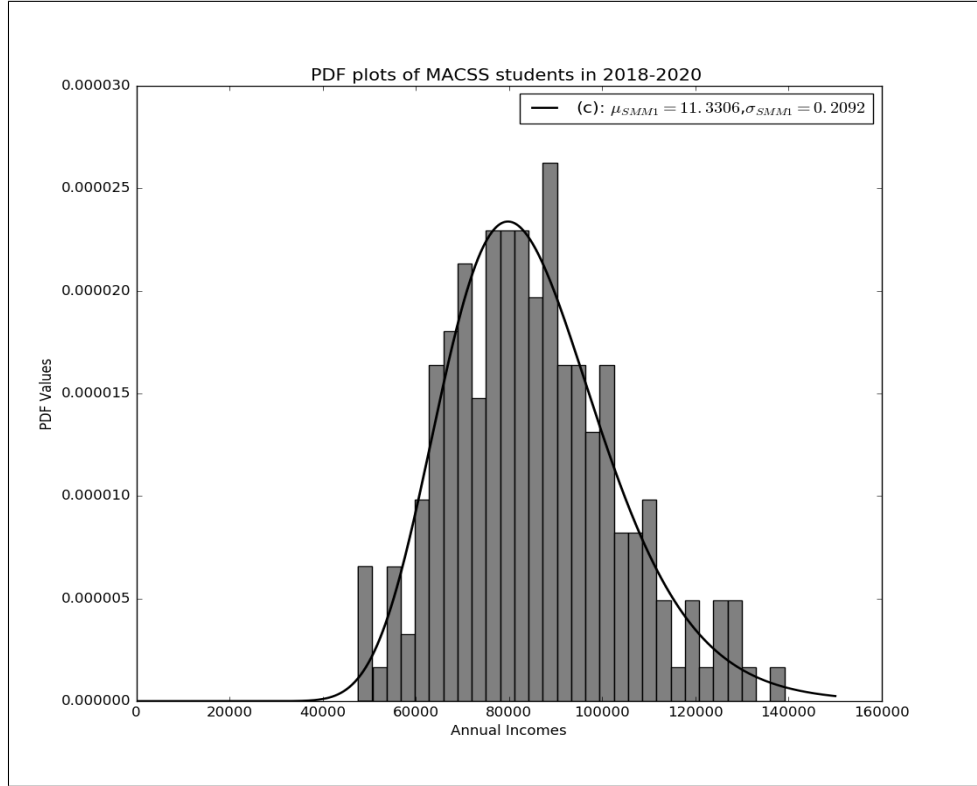
(b)

Test value for given matrix is

$$\begin{bmatrix} 0.0019079 & 0.00123533 \\ 0.00217547 & 0.0019646 \end{bmatrix}$$

(c)

Figure 2: Plots



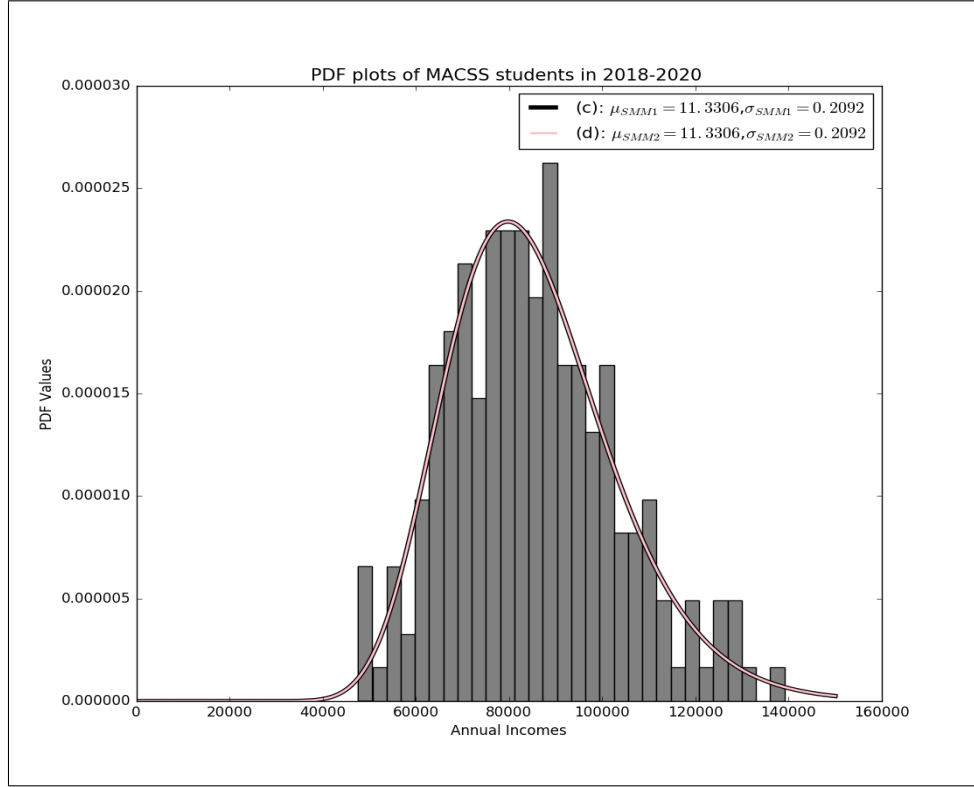
μ for GMM is 11.330637236 and σ for GMM is 0.2092293707. The value of GMM criterion function at the estimated parameter values is 5.55827975421e-15.

Data moments at the estimated parameter values; μ is 85276.8236063 and σ is 17992.542128. Model moments at the estimated parameter values; μ_{Mu} is 85276.8280717 and σ is 17992.5430829.

Data moments and model moments are very close. We can say that SMM estimates well.

(c)

Figure 3: Plots



μ with the two-step SMM extimator is 11.3306371918 and σ with the two-step SMM extimator is 0.209229369401. The value of SMM criterion function at the estimated parameter values is 1.84913704305. Data moments at the estimated parameter values; μ is 85276.8236063 and σ is 17992.542128. Model moments at the estimated parameter values; μ is 85276.8242804 and σ is 17992.5421689.

There are small differences between data moments and model moments with two-step SMM. We can say that they are very close.