Problem Set #3

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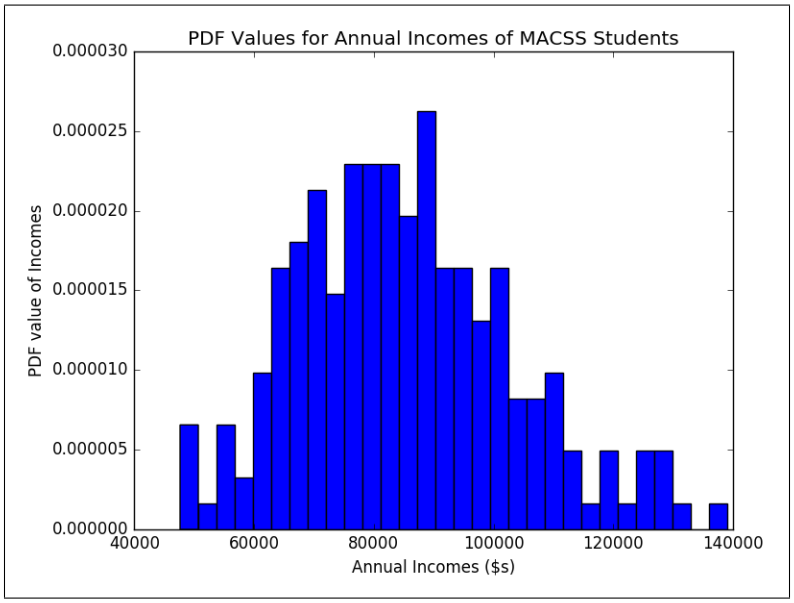
Problem 1

Part (a).

Figure 1: Question 1 part(a)



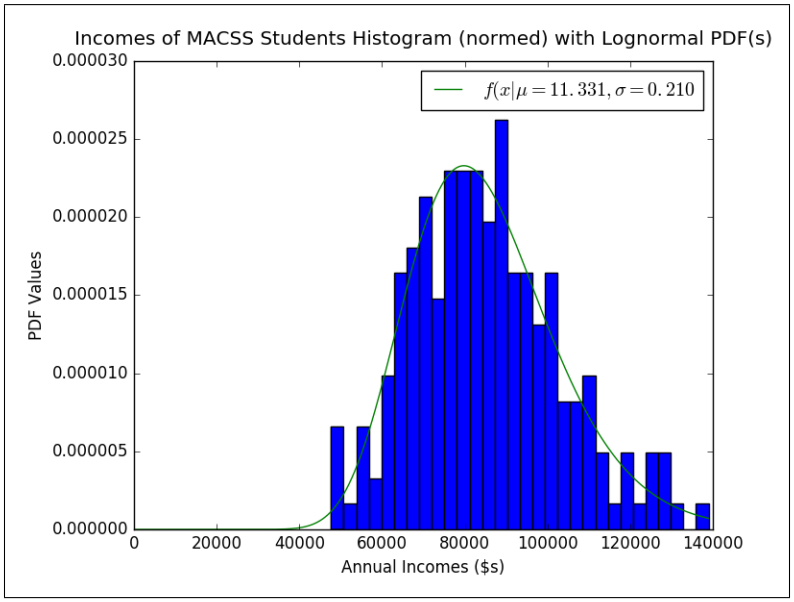
Part (b). The output of the test matrix:

$\begin{bmatrix} 200 & 270 \\ 180 & 195.5 \end{bmatrix}$ with $\mu = 5 \quad and \quad \sigma = 1$

is: $\begin{bmatrix} 0.0019079 & 0.00123533 \\ 0.00217547 & 0.00197102 \end{bmatrix}$

Part (c).

Figure 2: Question 1 part(c)

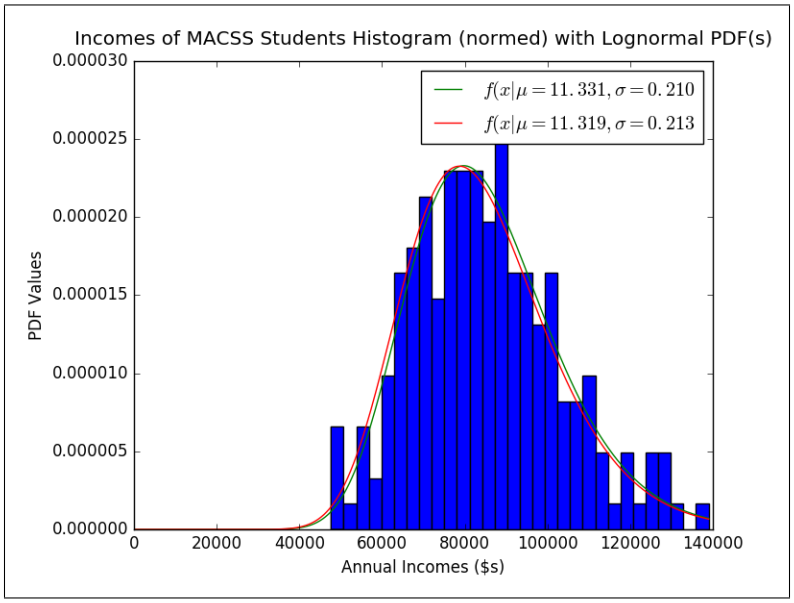


2 moment (mean and standard deviation) SMM with an identity weights matrix estimated the parameters of a lognormal distribution to be $\mu = 11.331 \quad and \quad \sigma = 0.210$
The data moments are $\mu = 85276.824$ and $\sigma = 17992.542$
The model moments are $\mu = 85276.817$ and $\sigma = 17992.537$

The value of the criterion function for this parameterization of the distribution and given this data is $9.82688679e - 14$.

Part (d).

Figure 3: Question 1 part(d)



2 moment (mean and standard deviation) SMM with a two step weights matrix estimated the parameters of a lognormal distribution to be $\mu = 11.319 \quad and \quad \sigma = 0.213$
The data moments are $\mu = 85276.824$ and $\sigma = 17992.542$
The model moments are $\mu = 84273.168$ and $\sigma = 18043.588$

The value of the criterion function for this parameterization of the distribution and given this data is 0.04829947.