Problem Set #[4]

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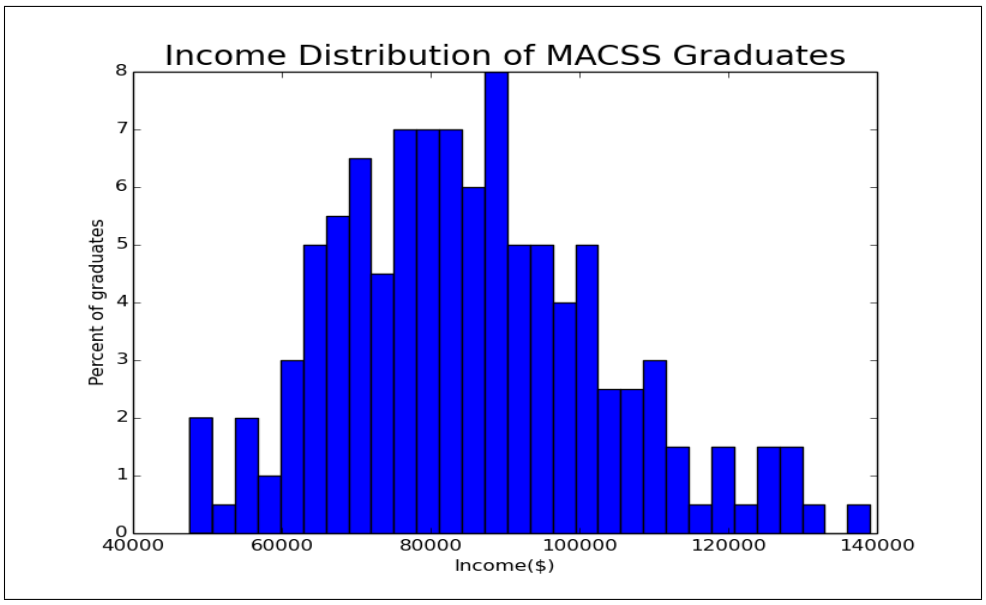
Problem 1 Income data, lognormal distribution and hypothesis testing

Part (1a).

Figure 1: A Histogram of percentages of Income



Part (1b).

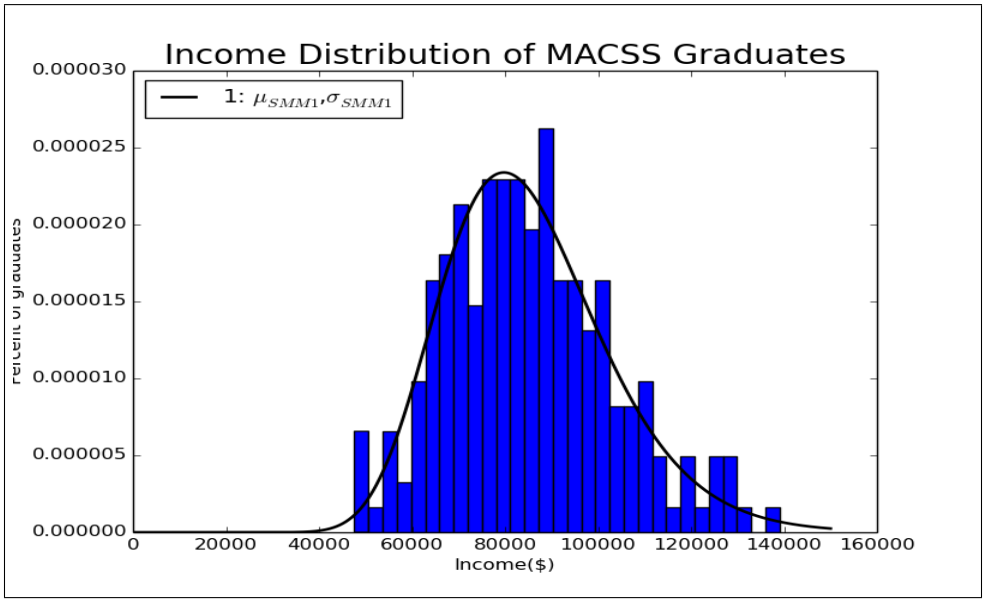
Test result of the testing matrix using LN_pdf is:

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

Part (1c).

The estimators mu_SMM1 is: 11.3306372
The estimators sig_SMM1 is: 0.20922937
Data mean of scores = 85276.8236063, Data standard deviation of scores = 17992.542128
Model mean 1 = 85276.8280717, Model standard deviation 1 = 17992.5430829
The value of my SMM criterion function at the estimated parameter values is: $5.55828e^{-15}$

Figure 2: Comparison between 2 plots



Part (1d).

The estimators mu_SMM2 is: 11.3306372
The estimators sig_SMM2 is: 0.20922935
Data mean of scores = 85276.8236063, Data standard deviation of scores = 17992.542128
Model mean 2 =85276.8259939 Model standard deviation 2 = 17992.5416292
The value of my SMM criterion function at the estimated parameter values is:0.000177599

Figure 3: Comparison between 2 plots