

Problem Set #4

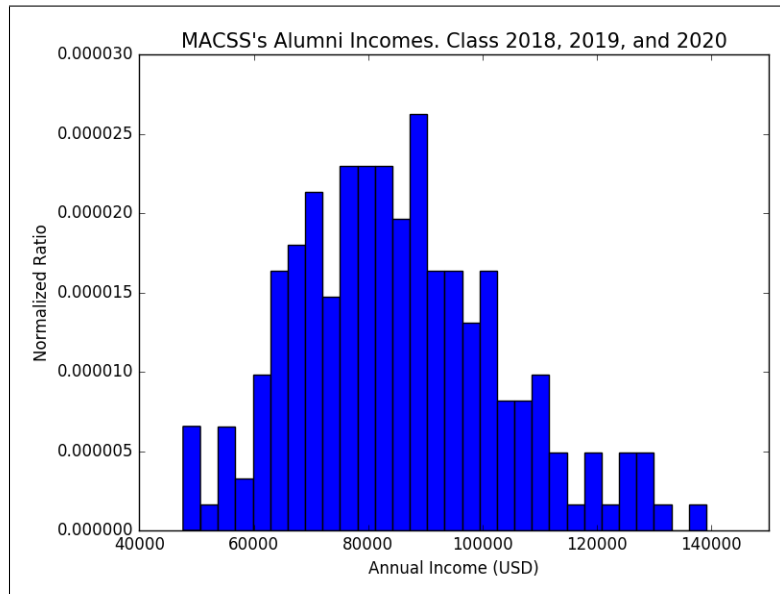
MACS 30000, Dr. Evans

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Problem 1 Some income data, lognormal distribution and SMM

Part (a). Initial plot.

Figure 1: Histogram of incomes



Part (b). Log-normal PDF

Test of the Lognormal PDF with $\mu = 5.0$ and $\sigma = 1.0$

[[1.90789922e-03 1.23533275e-03] [2.17546780e-03 6.83072888e-06]]

Part (c). SMM - 1 step

$\mu_{SMM_1} = 11.3306372028$ $\sigma_{SMM_1} = 0.209229380766$

Data mean of incomes = 85276.8236063 , Data sigma of incomes = 17992.542128

Model mean 1 = 85276.8254256 , Model sigma 1 = 17992.5434083

The criterion value is: 5.51827820746e-15

Part (d). SMM - 2 step

$\mu_{SMM_2} = 11.3306371771$ $\sigma_{SMM_2} = 0.209229372097$

Data mean of incomes = 85276.8236063 , Data sigma of incomes = 17992.542128

Model mean = 85276.823074 , Model sigma = 17992.542151

The criterion value is: 0.0118032258484

Figure 2: Histograms of Incomes and SMM 1 step

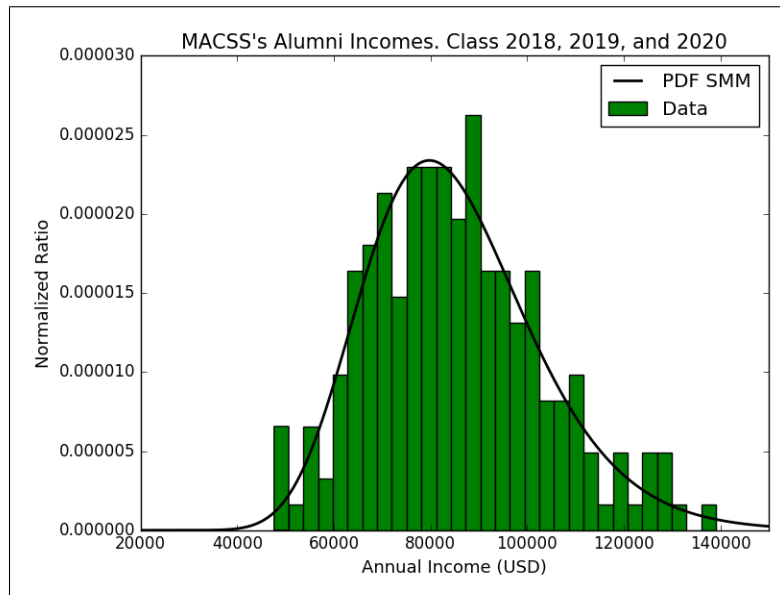


Figure 3: Histograms of Incomes and SMM 1 & 2 steps

