Applied Bayesian Analysis : NCSU ST 540

Midterm2

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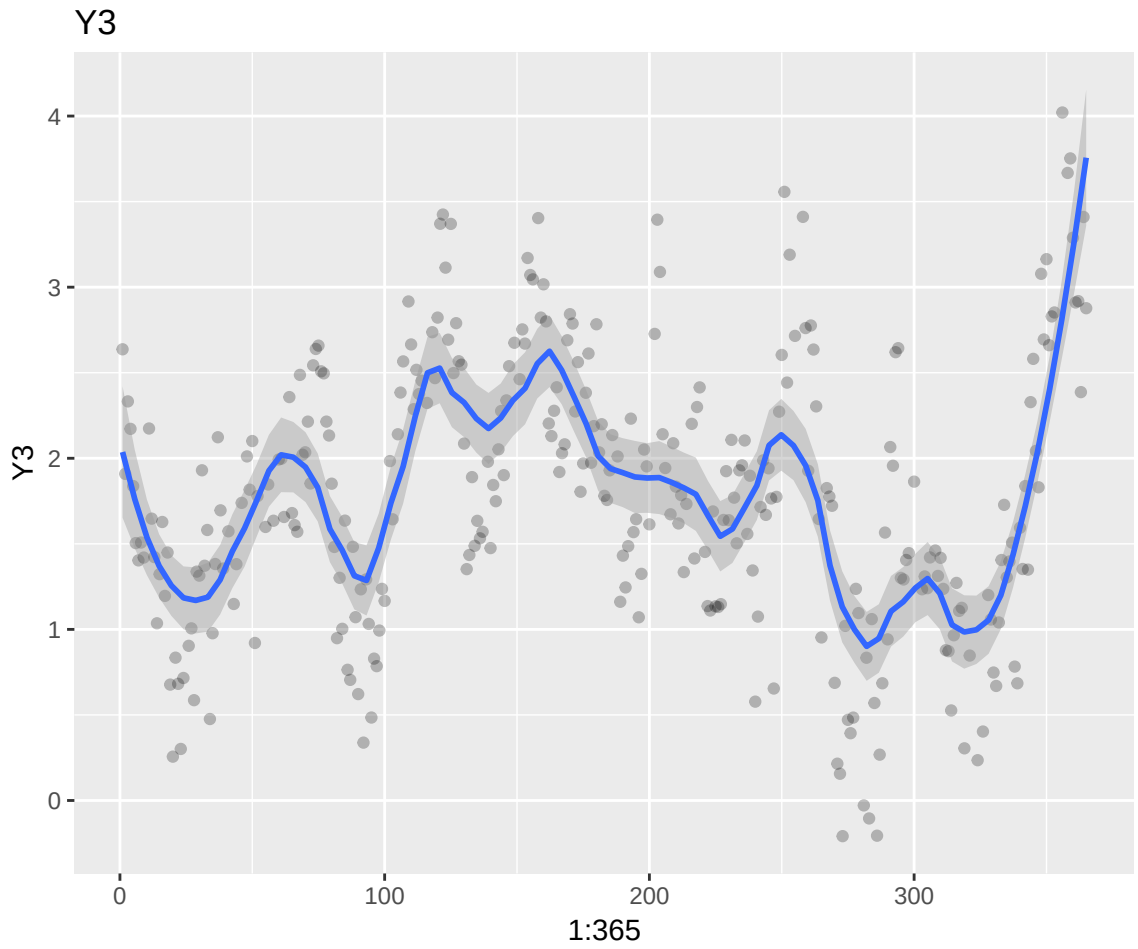
This section is a test section where we generate and fit a vector autoregressive model - $VAR(1) \in \mathbf{R}^6$ given by

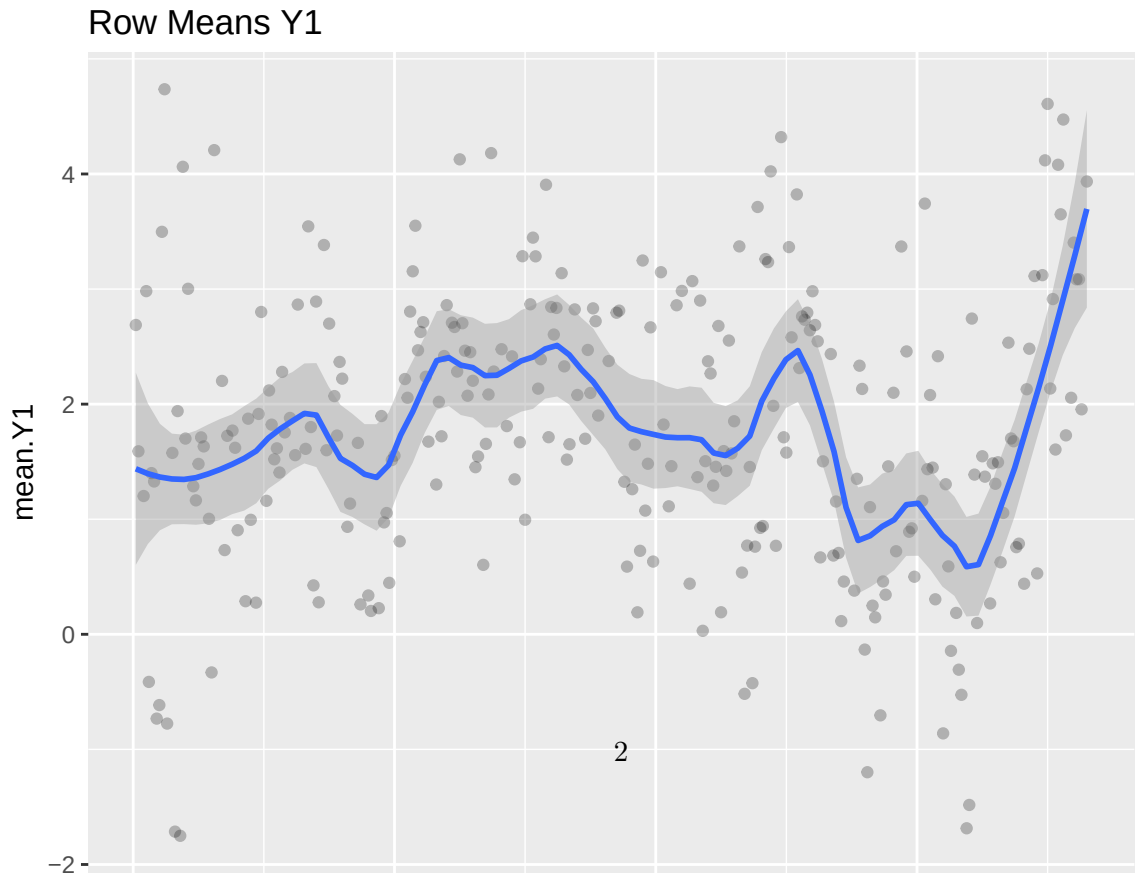
$$y_t = \nu + \rho * y_{t-1} + \epsilon$$

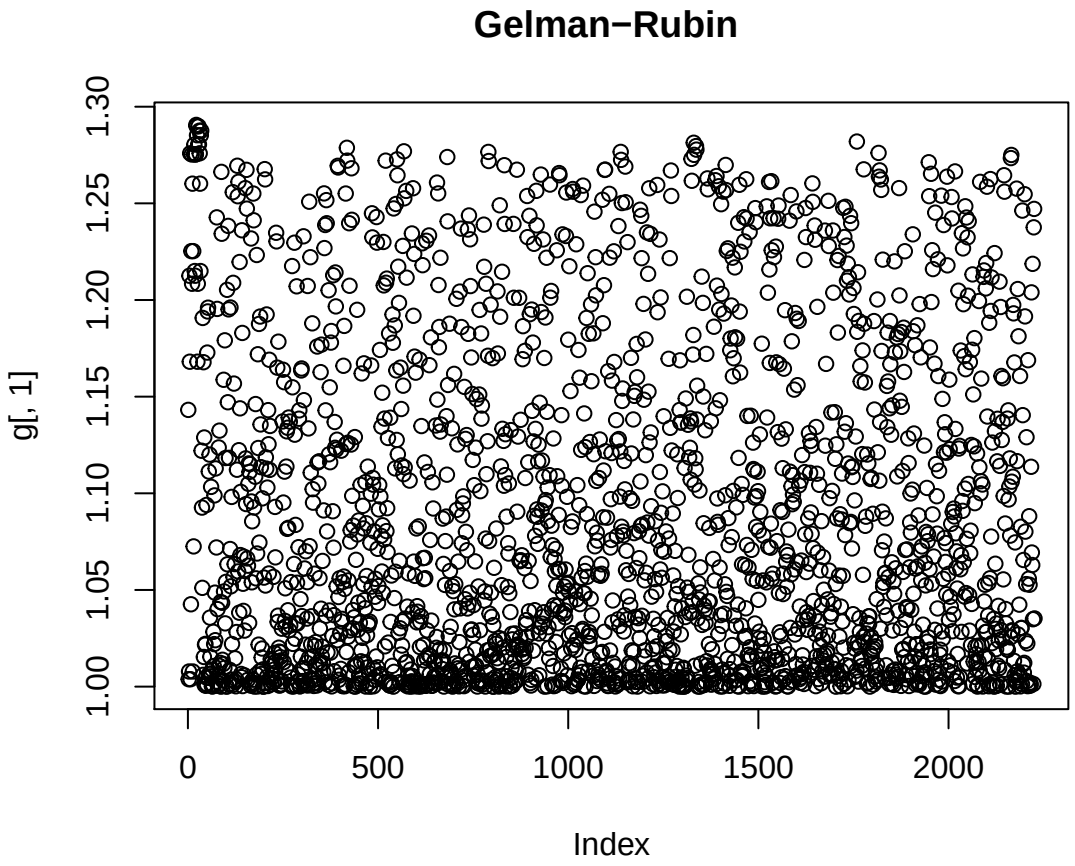
$$\epsilon \sim N(0, \Sigma)$$

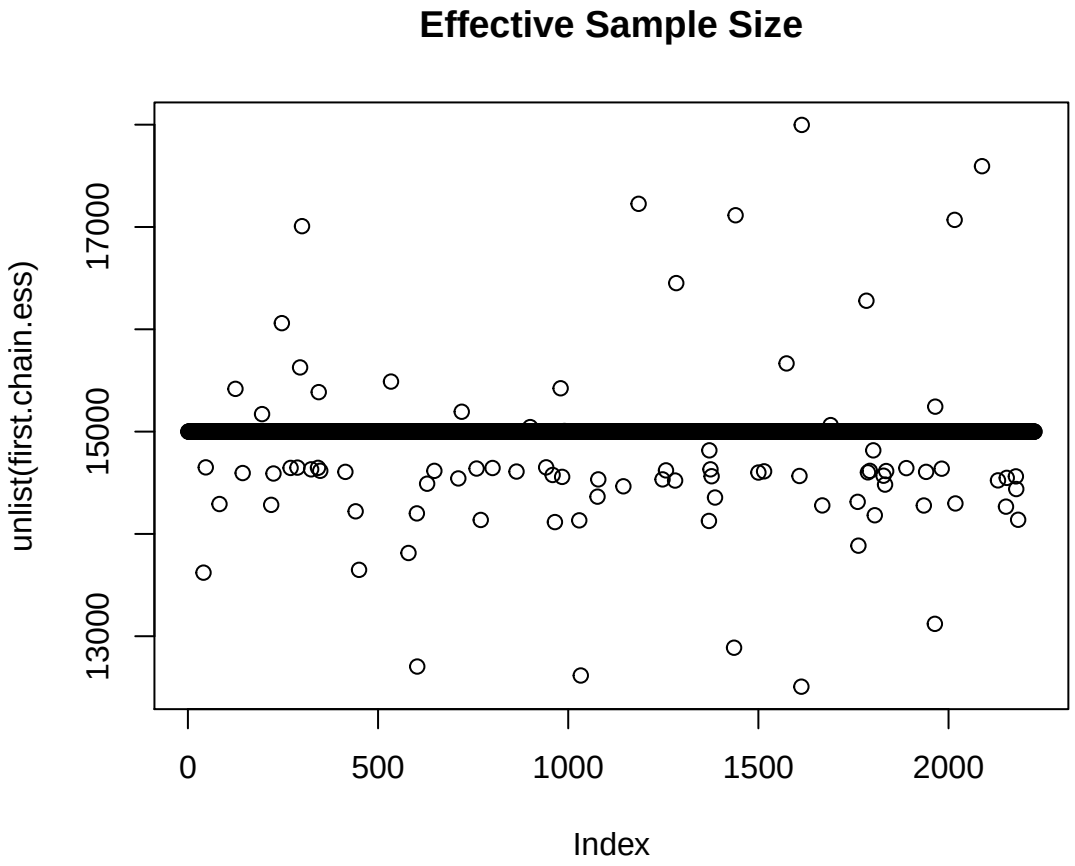
We use the $y1$ data to calculate a NaN firendly sample covariance and then we find the nearest positive semidefinite matrix to use to generate data for the model.

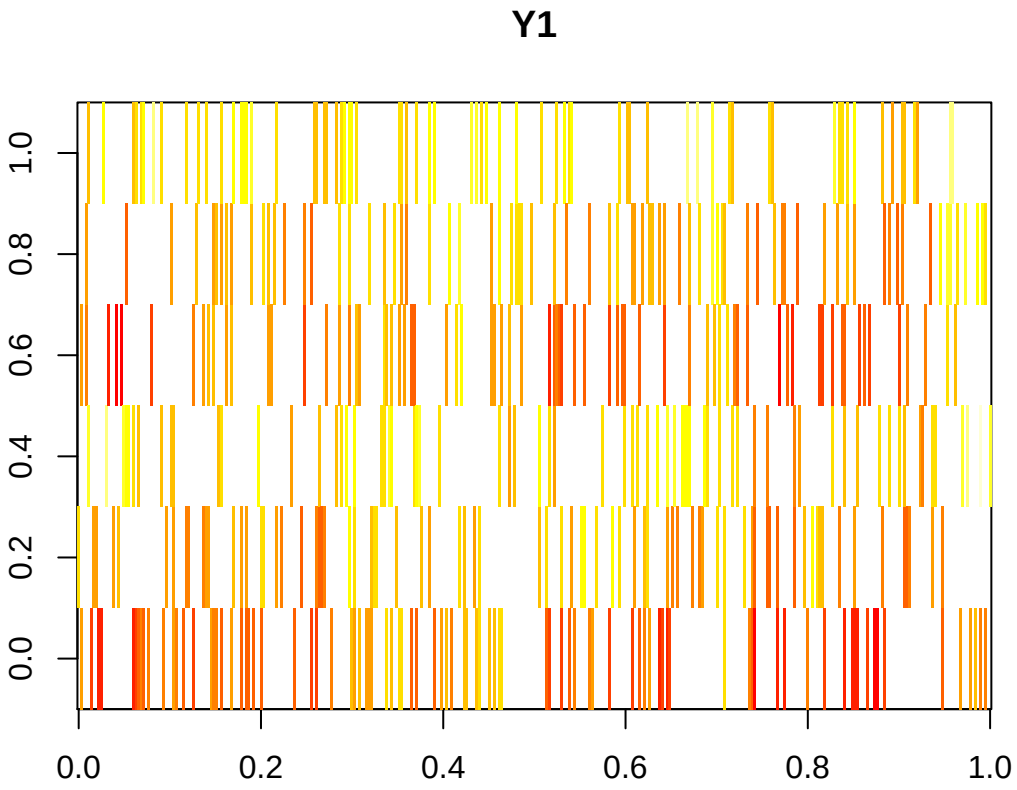
OPENBUGS MODEL

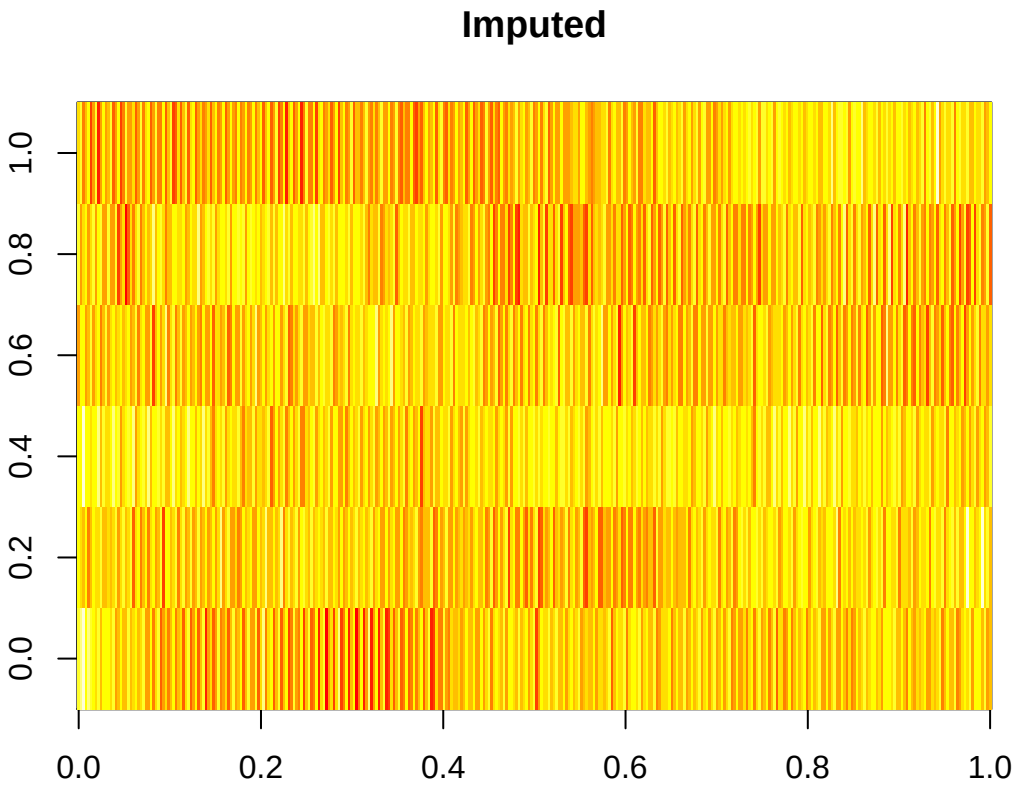


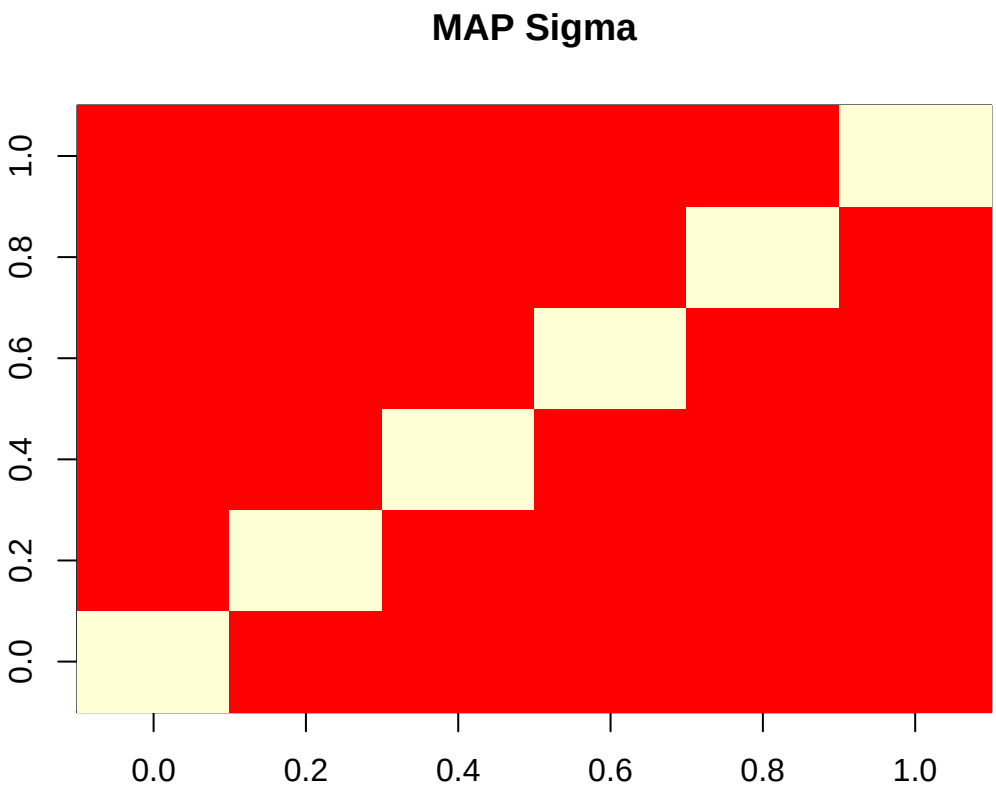


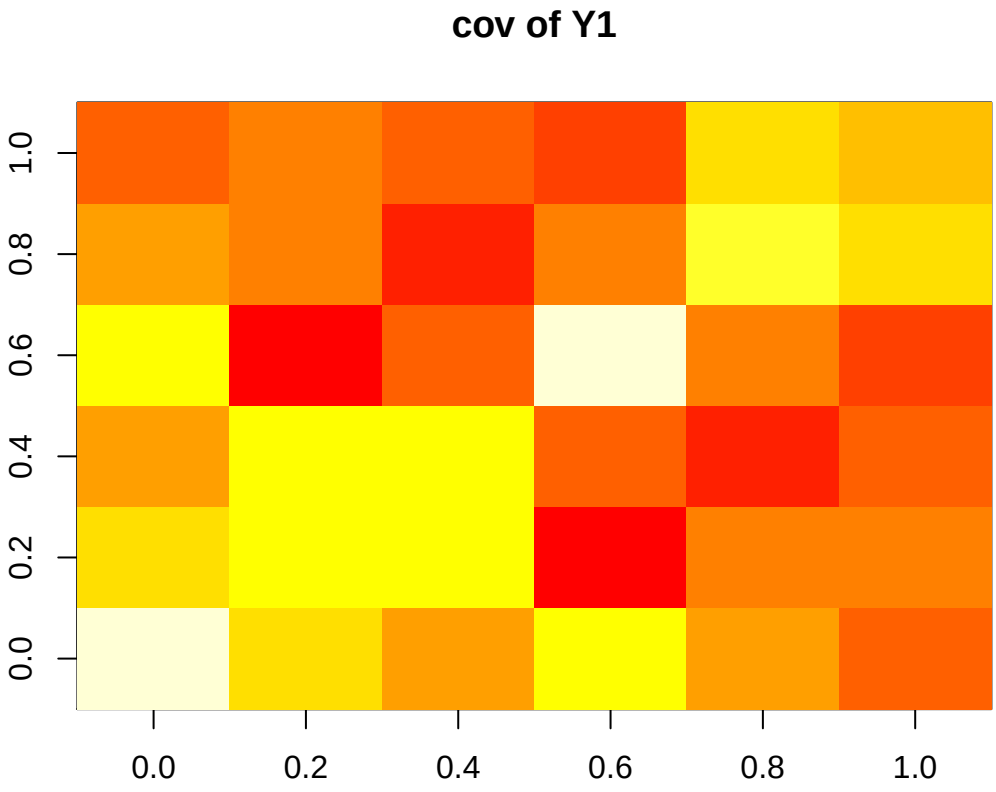

Gelman−Rubin
g[, 1]
1.00
1.05
1.10
1.15
1.20
1.25
1.30
0
500
1000
1500
2000
Index

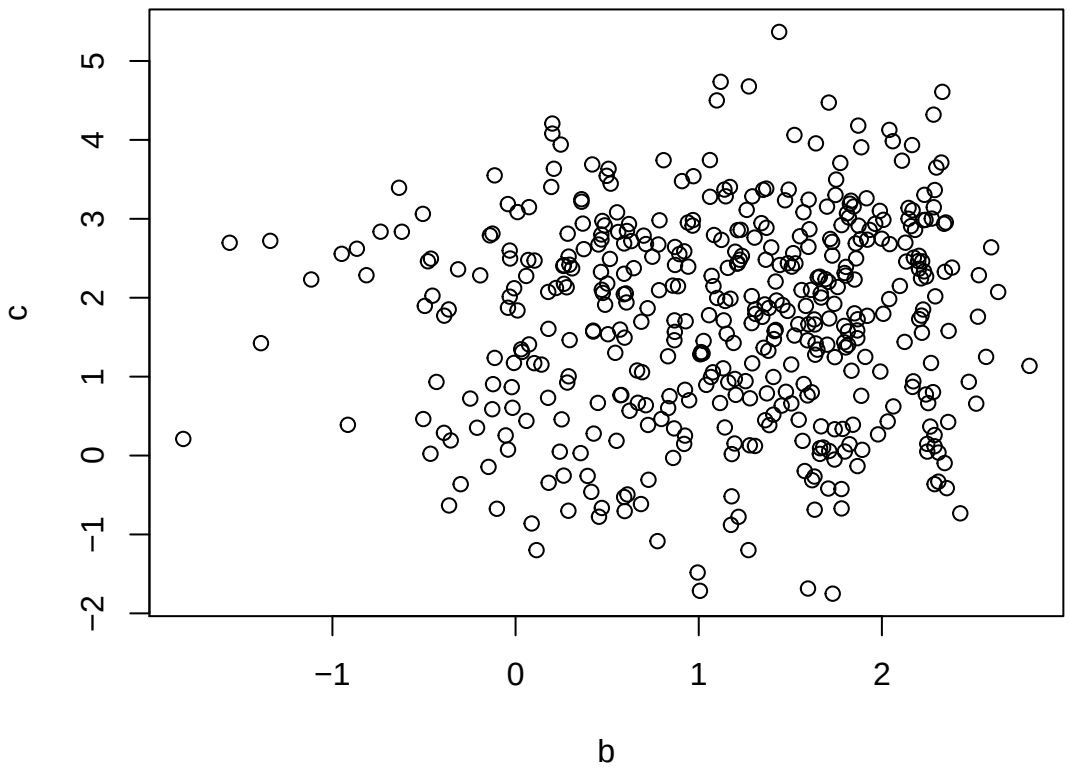

Effective Sample Size
unlist(first.chain.ess)
13000
15000
17000
0
500
1000
1500
2000
Index


Y1
0.0
0.2
0.4
0.6
0.8
1.0
0.0
0.2
0.4
0.6
0.8
1.0


Imputed
0.0
0.2
0.4
0.6
0.8
1.0
0.0
0.2
0.4
0.6
0.8
1.0


MAP Sigma
0.0
0.2
0.4
0.6
0.8
1.0
0.0
0.2
0.4
0.6
0.8
1.0


cov of Y1
0.0
0.2
0.4
0.6
0.8
1.0
0.0
0.2
0.4
0.6
0.8
1.0


c
5
4
3
2
1
0
−1
−2
−1
0
1
2
b