Chapter 2 results for DRS Data

1. Naïve Importance Sampling

Phi\_1 is 3.

Phi\_hat is 1.065327

Estimate for parameters:

Sigma1, xi1, beta01, beta11, sigma2, xi2, beta02, beta12

> HPDinterval(samp1)

lower upper

var1 0.742748779 1.32278457

var2 -0.181329468 0.42601776

var3 2.069400084 3.22892561

var4 -0.003060353 0.04409246

var5 0.910584612 1.76565608

var6 -0.270385574 0.40269454

var7 1.953483827 3.49438997

var8 -0.021863396 0.04189959

attr(,"Probability")

[1] 0.95

> para.b

[1] 1.013726154 0.144368286 2.643853402 0.018398425 1.312721667 0.148371757 2.649732876

[8] 0.009751465

> sd.b

[1] 0.15271743 0.16482382 0.29965933 0.01278864 0.23577487 0.17168565 0.39080345 0.01696646

est r

0.6798887 1.4454288 7.8269133

phi\_hat

2.140715

> HPDinterval(samp1)

lower upper

var1 0.8140823710 1.66189612

var2 -0.1199549478 0.48472454

var3 2.0081149377 3.24338992

var4 -0.0002006226 0.05582230

var5 1.0531186756 2.02626064

var6 -0.1432154321 0.44651579

var7 1.8095516012 3.43650395

var8 -0.0147936638 0.05757186

attr(,"Probability")

[1] 0.95

> para.b

[1] 1.22143260 0.21643842 2.66621203 0.02650326 1.53890427 0.18992616 2.66981046

[8] 0.01985995

> sd.b

[1] 0.21745851 0.16209278 0.32597880 0.01435958 0.25736209 0.16194941 0.41551071

[8] 0.01869321

to test stability:

included one new phi\_1 value of 4.5.

final r\_est = 1.0000000 0.6792389 1.4450714 7.8336562 12.3959772

final phi\_hat = 2.499457

Simulation result:

> sd(phi[,1])

[1] 0.04240889

> sd(tau[,1])

[1] 0.005249676

> quantile(phi[,1],c(0.025,0.975))

2.5% 97.5%

1.944729 2.098458

> quantile(tau[,1],c(0.025,0.975))

2.5% 97.5%

0.4929943 0.5120111

After 100 times repeating the phi hat estimation process: phi hat mean = 2.017

> HPDinterval(samp1)

lower upper

var1 0.830066802 1.59855828

var2 -0.139235987 0.45492207

var3 1.982630212 3.40397906

var4 -0.005019721 0.05405267

var5 1.032021986 2.08215915

var6 -0.228906141 0.48639199

var7 1.753843152 3.57104564

var8 -0.016642329 0.06101412

attr(,"Probability")

[1] 0.95

> para.b

[1] 1.17645277 0.20244741 2.72565933 0.02229711 1.52417633 0.17916215 2.71179190

[8] 0.01664017

> sd.b

[1] 0.19629643 0.16032108 0.35136893 0.01507812 0.28860807 0.18784884 0.45435745

[8] 0.01986009