REGRESSION MODEL ON BUSH 2000 VOTE BY 106th CD

STATA LOG FILE

```
. regress bush00 south black00 hispanic00 income dwnom1n dwnom2n

      Source |       SS       df       MS              Number of obs =     432
-------------+------------------------------           F(  6,   425) =  278.43
       Model |  70937.5794     6  11822.9299           Prob > F      =  0.0000
    Residual |  18046.8558   425    42.46319           R-squared     =  0.7972
-------------+------------------------------           Adj R-squared =  0.7943
       Total |  88984.4352   431  206.460406           Root MSE      =  6.5164

------------------------------------------------------------------------------
      bush00 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       south |   7.485545   .8078768     9.27   0.000     5.897613    9.073476
     black00 |  -.3864092   .0243961   -15.84   0.000    -.4343613   -.3384571
  hispanic00 |  -.1814933   .0227826    -7.97   0.000    -.2262738   -.1367127
      income |  -.0431524   .0458585    -0.94   0.347      -.13329    .0469852
     dwnom1n |     15.672   .7822892    20.03   0.000     14.13437    17.20964
     dwnom2n |   7.341118   .8107591     9.05   0.000     5.747521    8.934714
       _cons |   51.27343   1.599898    32.05   0.000     48.12873    54.41813
------------------------------------------------------------------------------
```

R PROGRAM RUNNING R2WINBUGS

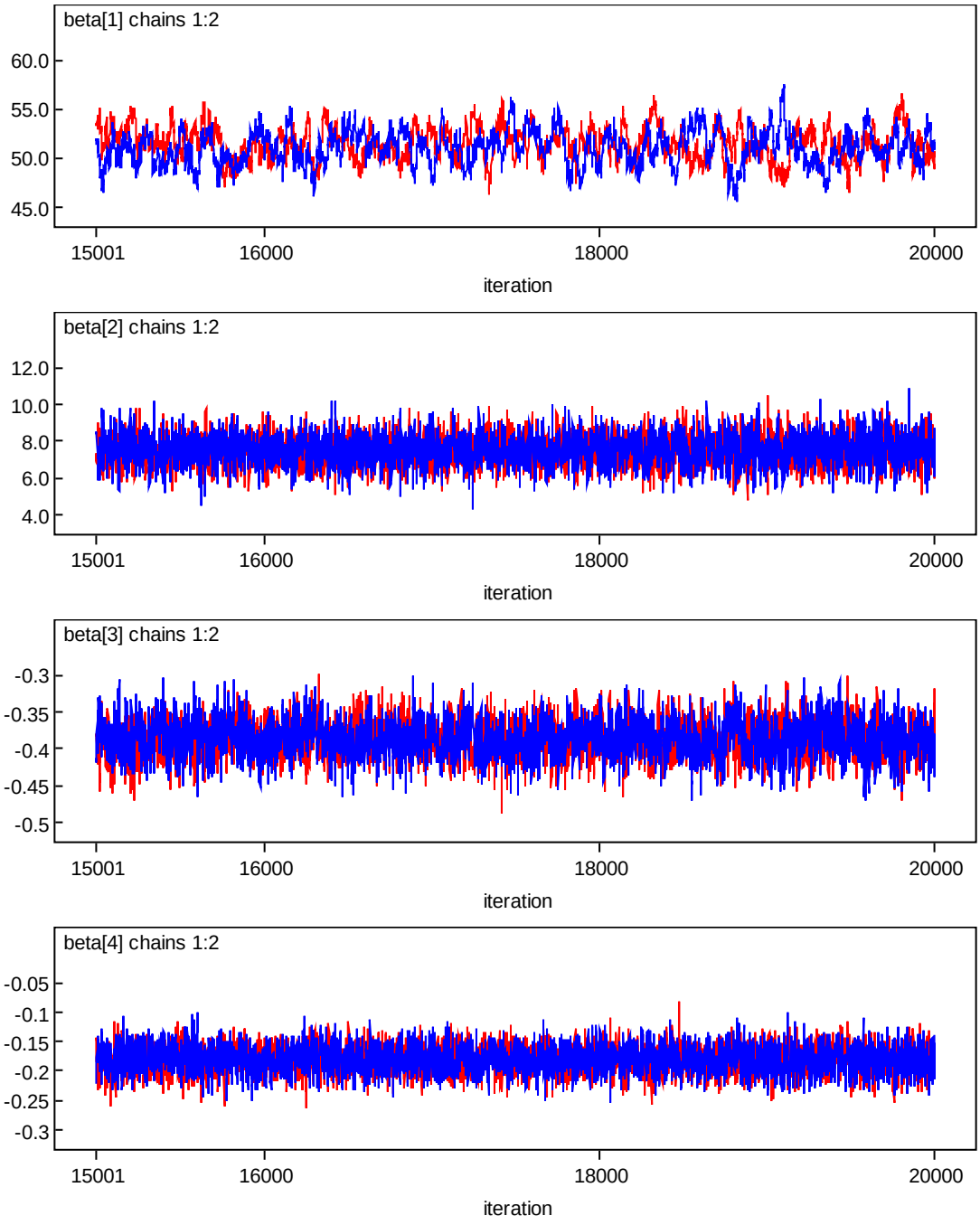
```
#
#  Attempt to Run simple Regression Copying Ernesto's Code
#
library(arm)
setwd("C:/calvo")
data = read.dta("106_Bush_CD.dta")
attach(data)

V <- cbind(bush00,south,black00,hispanic00,income,dwnom1n,dwnom2n)

N = nrow(data)
K = ncol(V)

data.data = list(N=N,K=K,V=V)

data.inits = function() {list(beta=runif(K,-2,2), tau=runif(1,.01,.02))}
data.parameters = c("beta","sigma")
wide.sim = bugs(data.data, data.inits,
data.parameters,"regression_106_model.txt", n.chains=2, n.thin=1,
n.burnin=15000,n.iter=20000, debug=T)
```

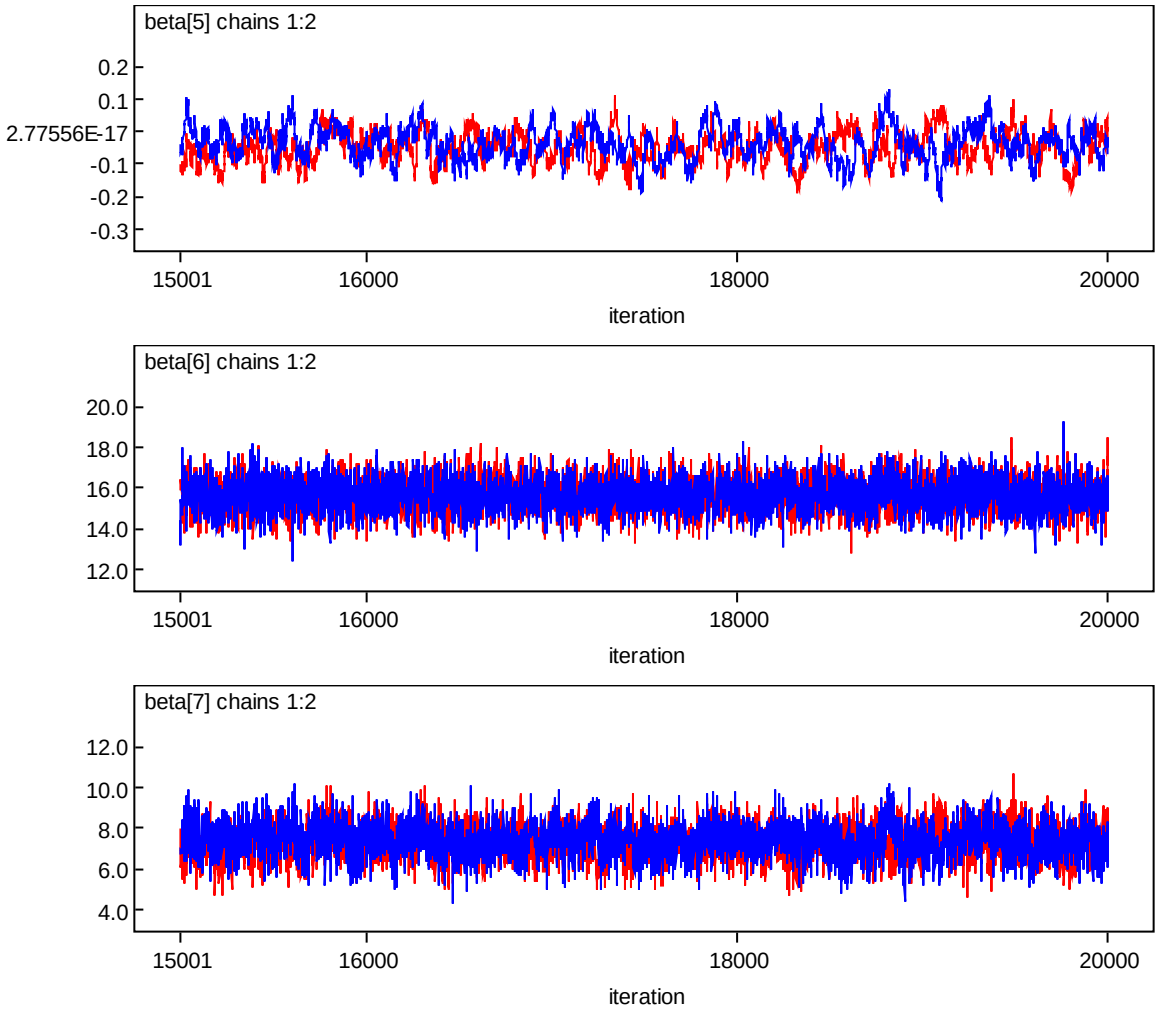
WINBUGS MODEL

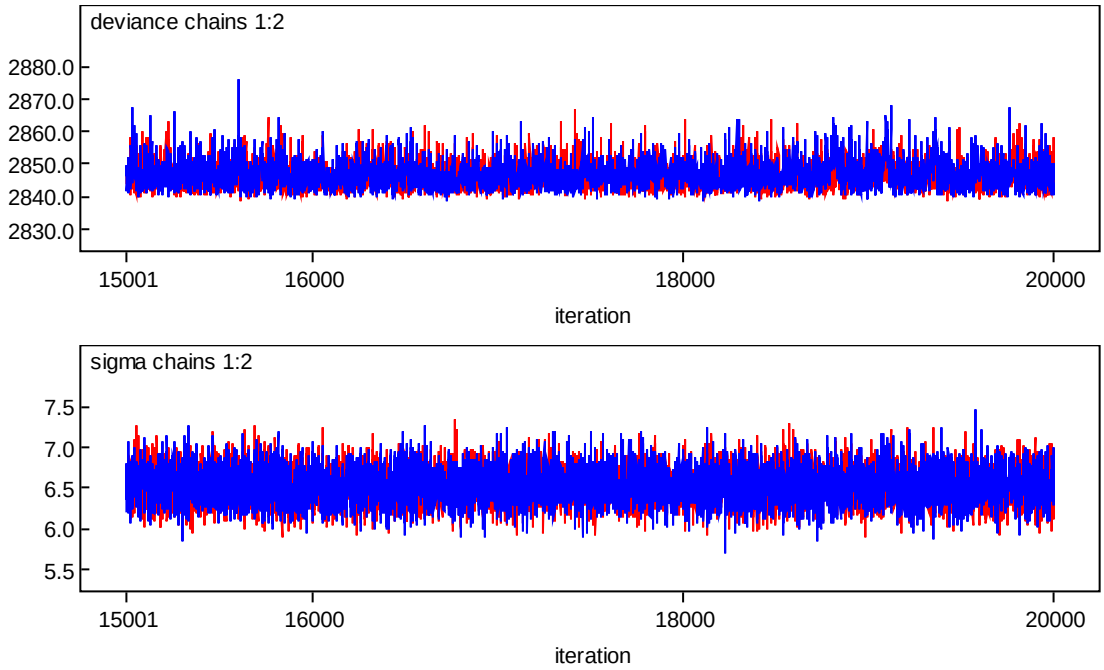
```
model
{
#   (Regression_106_Example.txt)
#
#  Y[1] = Bush Vote by CD in 2000
#
#  X[,1] = 1 if South (CQ def.), 0 otherwise
#  X[,2] = Percent Black in CD
#  X[,3] = Percent Hispanic in CD
#  X[,4] = Family income in Thousands of Dollars
#  X[,5] = DW-NOMINATE 1st Dimension
#  X[,6] = DW-NOMINATE 2nd Dimension
#
#  PRIORS
#
         tau ~ dgamma(1.0E-1, 1.0E-1)
         for (k in 1 : K) { beta[k] ~ dnorm(0,0.001)} # vague priors
#
# LIKELIHOOD
#
    for (i in 1 : N)  # loop over CDs
    {
         V[i,1] ~ dnorm( mu[i] , tau)
         mu[i] <-
beta[1]+V[i,2]*beta[2]+V[i,3]*beta[3]+V[i,4]*beta[4]+V[i,5]*beta[5]+V[i,6]*be
ta[6]+V[i,7]*beta[7]
    }
    sigma <- sqrt(1/tau)
 }
```

WINBUGS LOG FILE

```
display(log)
check(C:/DOCUME~1/kpoole/LOCALS~1/Temp/RtmpRmOHtQ/regression_106_model.txt)
model is syntactically correct
data(C:/DOCUME~1/kpoole/LOCALS~1/Temp/RtmpRmOHtQ/data.txt)
data loaded
compile(2)
model compiled
inits(1,C:/DOCUME~1/kpoole/LOCALS~1/Temp/RtmpRmOHtQ/inits1.txt)
chain initialized but other chain(s) contain uninitialized variables
inits(2,C:/DOCUME~1/kpoole/LOCALS~1/Temp/RtmpRmOHtQ/inits2.txt)
model is initialized
gen.inits()
command #Bugs:gen.inits cannot be executed (is greyed out)
thin.updater(1)
update(15000)
set(beta)
set(sigma)
set(deviance)
dic.set()
update(5000)
coda(*,C:/DOCUME~1/kpoole/LOCALS~1/Temp/RtmpRmOHtQ/coda)
stats(*)

Node statistics
            node      mean      sd        MC error 2.5%      median    97.5%     start     sample
constant    beta[1]   51.26     1.716     0.1024    47.92     51.26     54.57     15001     10000
south       beta[2]   7.51      0.8004    0.01312   5.951     7.512     9.092     15001     10000
black       beta[3]   -0.387    0.02459   6.785E-4  -0.4355   -0.387    -0.339    15001     10000
hispanic    beta[4]   -0.1811   0.02228   3.607E-4  -0.2247   -0.1811   -0.1378   15001     10000
income      beta[5]   -0.04286  0.0495    0.002945  -0.1392   -0.04262  0.05263   15001     10000
dwnom1      beta[6]   15.66     0.7768    0.01135   14.12     15.66     17.16     15001     10000
dwnom2      beta[7]   7.332     0.83      0.02529   5.704     7.334     8.962     15001     10000
            deviance  2846.0    4.043     0.08575   2841.0    2846.0    2856.0    15001     10000
            sigma     6.525     0.2256    0.002431  6.102     6.518     6.973     15001     10000
dic.stats()

DIC
Dbar = post.mean of -2logL; Dhat = -2LogL at post.mean of stochastic nodes
            Dbar          Dhat          pD            DIC
V           2846.500      2838.370      8.130         2854.630
total       2846.500      2838.370      8.130         2854.630
history(*,C:/DOCUME~1/kpoole/LOCALS~1/Temp/RtmpRmOHtQ/history.odc)

History
```


beta[1] chains 1:2
60.0
55.0
50.0
45.0
15001
16000
18000
20000
iteration
beta[2] chains 1:2
12.0
10.0
8.0
6.0
4.0
15001
16000
18000
20000
iteration
beta[3] chains 1:2
-0.3
-0.35
-0.4
-0.45
-0.5
15001
16000
18000
20000
iteration
beta[4] chains 1:2
-0.05
-0.1
-0.15
-0.2
-0.25
-0.3
15001
16000
18000
20000
iteration


beta[5] chains 1:2
0.2
0.1
2.77556E-17
-0.1
-0.2
-0.3
15001
16000
18000
20000
iteration
beta[6] chains 1:2
20.0
18.0
16.0
14.0
12.0
15001
16000
18000
20000
iteration
beta[7] chains 1:2
12.0
10.0
8.0
6.0
4.0
15001
16000
18000
20000
iteration



save(C:/DOCUME~1/kpoole/LOCALS~1/Temp/RtmpRmOHtQ/log.odc)
save(C:/DOCUME~1/kpoole/LOCALS~1/Temp/RtmpRmOHtQ/log.txt)

INITIAL VALUES GENERATED BY R2WINBUGS

list(beta=c(-9.00377E-01, 8.31542E-01, 1.58812E+00, -1.45825E+00, -1.60814E+00, 3.80723E-01, 4.64037E-01), tau=1.84474E-02)

list(beta=c(1.10491E+00, 1.48770E+00, -9.17527E-01, -3.58413E-01, -9.61892E-02, 1.97947E+00, -9.17123E-01), tau=1.97005E-02)