HOMEWORK 5

DANQING LAN

Question 1.

The results of OLS regression of log wages on education, experience, and dummy variables are shown below.

FIGURE 0.1. OLS Results

```
Linear regression model:
    lwage ~ 1 + educ + exper + smsa + black + south

Estimated Coefficients:
                   Estimate       SE         tStat       pValue
                   ________    _________    _______    __________

    (Intercept)      4.9133     0.063121      77.84            0
    educ           0.073807    0.0035336     20.887    1.4251e-90
    exper          0.039313    0.0021955     17.906    3.2859e-68
    smsa            0.16474     0.015692     10.499    2.3971e-25
    black          -0.18822     0.017768    -10.593    9.0467e-26
    south          -0.12905     0.015229    -8.4744    3.6472e-17


Number of observations: 3010, Error degrees of freedom: 3004
Root Mean Squared Error: 0.377
R-squared: 0.279,  Adjusted R-Squared 0.278
F-statistic vs. constant model: 232, p-value = 4.42e-210
```

Question 2.

Figure 0.2 showes the histograms of the posterior approximations with a flat prior for all parameters while figure 0.3 showes the one with a given prior for $\hat{\beta_{edu}}$. with an acceptance rate of 20.5% in flat prior and 20.7% in given prior, both practices do meet the convergence properties we expected.

FIGURE 0.2. Posterior with a Flat Prior

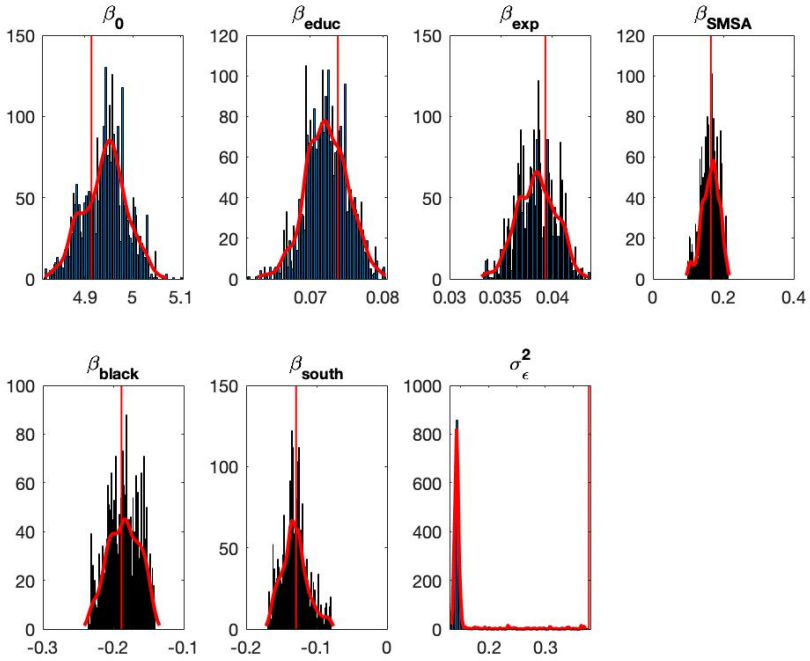

FIGURE 0.3. Posterior with a Given Prior in Beta$_e duc$