Check v

```r
#-------------------------------
#  This file is used to
#  1.check v
#  Last updated date: 7/11/2017
#-------------------------------
##set parameters
eta=eta_sim
v=v_sim
beta=beta_sim
M=M_sim
sgmr2=sgmr2_sim
sgm2=sgm2_sim
E=E_sim
c=c_sim
b=b_sim
e=e_sim
X=X_sim     ##rename the simulated compelete X_{it}

##number of iterations
n_iter=10000

##recording structure
v_keep=matrix(0, nrow=n_iter, ncol=2)
e_keep=matrix(0, nrow=n_iter, ncol=n)

PG_v=matrix(0,n, max(T))     ## for w_{it} in updating v and e_{i}
k_v_mat=matrix(0,n,max(T))   ## for k_{v} in updating v
B_v=matrix(0,sum(T), 2)      ## for updating v
for(i in 1:n){
  B_v[(sum(T[1:i])-T[i]+1):sum(T[1:i]),1]=rep(V_sim[i],T[i])
  B_v[(sum(T[1:i])-T[i]+1):sum(T[1:i]),2]=X[1:T[i],i]
}

for (m in 1:n_iter){

  ##sample v
  for(i in 1:n){
    for (t in 1:T[i]){
      PG_v[i, t]=rpg(num=1,h=1,z=V_sim[i]*v[1]+X[t,i]*v[2]+e[i])   ##sample w_{it}^{*}
      k_v_mat[i,t]=Y_sim[t,i]-1/2-PG_v[i,t]*e[i]
    }
  }
  omega_v=NULL
  for(i in 1:n){
    omega_v=c(omega_v,PG_v[i,1:T[i]])
  }
  k_v=NULL
  for(i in 1:n){
    k_v=c(k_v,k_v_mat[i,1:T[i]])
  }
```
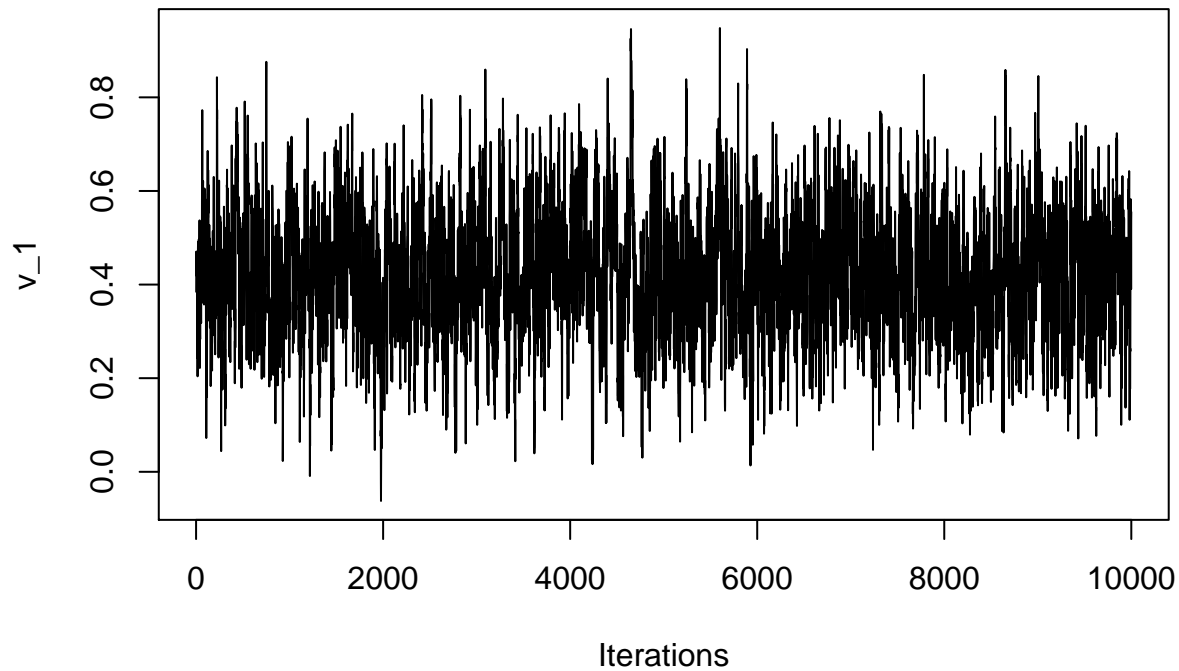
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  S_v=solve((1/v_pri)*diag(2)+t(B_v)%*%diag(omega_v)%*%B_v)
  m_v=S_v%*%t(B_v)%*%k_v
  v=mvrnorm(n=1, mu=m_v, Sigma = S_v)

  ##sample e_{i}
  for(i in 1:n){
    S_e=((1/E)+ sum(PG_v[i,1:T[i]]) )^{-1}
    B_k_e=sum(Y_sim[1:T[i],i])-T[i]*(1/2)-sum(PG_v[i,1:T[i]]*(B_v[(sum(T[1:i])-T[i]+1):sum(T[1:i]), ]%*%
    m_e=S_e*B_k_e
    e[i]=rnorm(n=1, mean=m_e, sd=sqrt(S_e))
  }

  v_keep[m, ]=v
  e_keep[m, ]=e

}

burnin=5000
traceplot(x=as.mcmc(v_keep[ ,1]), ylab="v_1")
```



```r
traceplot(x=as.mcmc(v_keep[ ,2]), ylab="v_2")
```